THE SAILPLANE & GLIDER

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

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

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION.

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The Offices of the SAILPLANE *viewed from the historic XVIth Century gateway of Lincoln's Inn.*

CONTENTS.

EDITORIAL COMMENTS

Spectacular Progress.

We are so hard-pressed for space in this issue that it is impossible to make adequate comment on such news as we have been able to squeeze into our limited allowance of pages. Yet never, we believe, in the history of this paper has the news been more worth commenting upon. We can do little more than catalogue it.

Mr. Collins has soared across country for about 22 miles. This is easily the best achievement so far recorded in the history of British gliding. Then Mr. Humphries has made an out-and-return flight from Dunstable to Ivinghoe. Climbs in thermal currents have become a regular feature of a soaring day at the London Gliding Club, and, what is more remarkable, many of them without a variometer. This finding of such currents entirely by "feel," without instruments, is something entirely new in soaring technique, and we publish a particularly interesting article which explains how it can be done.

Further Progress.

Yet Dunstable is not having things all its own way. We record in this issue the astonishing news that the Portsmouth and Southsea Club's open primary training glider has repeatedly gained height in a thermal current over a field of uncut hay. And this when it was flown, not by some outstanding expert, but apparently by the entire flying membership of the Club in turn.

Proceeding North, we arrive at Ingleby Greenhow, where, according to an article on another page, it was found possible to launch a glider with only two persons—one in the glider and the other in the car. Not only that, but it was further proved, as a general proposition, that if N pilots wish to soar simultaneously, it is only necessary for $N + 1$ persons to turn up at the soaring ground.

Meteorological Problems.

Next, there is Meteorology, which, we may remind our readers, is as much concerned with the flow of air over the ground as with the production of rain up in the sky. One of our contributors puts forward the theory that the recent crossings from Dunstable to Ivinghoe have not been made in thermal or cloud currents at all, but in a large-scale upward sweep of air caused by the large-scale topography of the countryside. If this is true, then those

A GLIDER IN LAKELAND.

Mr. E. T. W. Addyman flying his "Zephyr" from Skiddaw over the Valley of Derwentwater.
Photo by G. P. Abraham, Keswick.

IN THE LAND OF NESTLE'S.

The sailplane SPYR was due to appear at an aircraft exhibition in Zurich. But, says *Flugsport*, transport of aircraft by motor-car is forbidden in Switzerland. So the trailer, with glider on board, arrived at its destination hauled by a cow.

ANOTHER CHANNEL DOUBLE-CROSSED.

According to Press reports, an Austrian engineer named Sparmann, living in Sweden, flew a glider from Malmo to Copenhagen and back, across the "Oeresund" which separates Denmark from Sweden, on August 12th. He started from Malmo at 6.14 p.m. and landed in Copenhagen at 7.10. Taking off again, he got back to Malmo at 7.45. How he was launched is not stated. The distance across the sea is 16 miles.

AERO-TOWING FATALITY IN GERMANY.

At an aeroplane-towed flight course in Griesheim, Darmstadt, Theodor Flemming, a student from Hanover, had got up to about 1,000 feet, still in tow, when he began "pump-handling." The SUPERFALKE, which he was flying, suddenly rose up steeply. The instructor, Herr Hubert, who was in the aeroplane, cast off the cable immediately, but at the same moment a forward strut gave way on the glider and the wing broke off. The pilot had a parachute, but did not use it; he was still strapped in when he reached the ground, and had done nothing but remove his spectacles. He sustained a fractured skull.

To avoid similar accidents in the future, the SUPERFALKE, according to *Flugsport*, will be fitted with a stabilising fin to the elevator when used for aero-towed flights. (Plans of the SUPERFALKE were given in our issue of May 26th, page 116.)

AN AMERICAN "CATERPILLAR."

August Haller, whose visit to this country in 1930 many will remember, has had a thrilling experience while flying near Elmira, New York State. According to the *Star*, he was flying a glider which formed one of three being towed behind an aeroplane in an "aerial train." At a height of 4,500 feet one wing of his machine started to fold up.

The pilot of the aeroplane, seeing that something was wrong, at once slipped the tow rope of Haller's machine. A moment later, as the wing snapped off, Haller climbed out of the cabin and dived into space. His parachute opened normally, and he landed safely. His glider was a total wreck.

FATAL ENDING TO DURATION FLIGHT.

A young Austrian pilot named Engl started at 3 p.m. on August 20th on a soaring flight above the Gaisberg plateau, according to the *Frankfurter Zeitung*. He flew at about 1,300 feet and kept up for over 10 hours. Searchlights assisted him after dark. At 1 a.m. it was noticed that the machine did not appear to be under control, and half an hour later it suddenly dived to earth. The pilot was severely injured, and died on the way to hospital.

A TOUR OF THE NORTHERN HEIGHTS

By One of the Pilots.

Sutton Bank, looking north from point marked on map. The lake is visible on the extreme left.

On Saturday, July 22nd, we set off north from Dunstable with the Crested Wren in her new trailer and, the same evening, arrived at Kirkby Moorside, in Yorkshire, after an uneventful journey of 200 miles. Kirkby Moorside is at the south edge of the group of hills known as the Yorkshire Moors, and it forms a convenient centre for Sutton Bank, which is the south-west corner, and Ingleby Greenhow, the north-west corner, of that group of hills. The former site is possible in all winds from S. to N.W., but at its best in a S.W. wind, and the latter site is possible from W. to N. Sutton Bank rises from 400 feet to 980 feet above sea level, and Ingleby rises from 500 feet to 1,250 feet above sea level. Each site is distant about twelve miles from Kirkby Moorside.

At Sutton Bank.

On Sunday, July 23rd, we set off for Sutton, to find a very gentle S.W. wind blowing, but as the site was unfamiliar, and we did not want to have to land below, we decided not to fly and spent our time fixing the barograph and the thermos for our new variometer. In the evening we decided to chance it, as the wind seemed a bit stronger, and so, mustering a launching crew of four a side, we launched Dewsbery, who just managed to soar for a quarter of an hour and came down on top shortly before the wind died away altogether. After this rather discouraging first flight we packed up and went home.

The next day the wind was in the same direction, and stronger, but it was Monday and not a soul was in sight. We rang up Slingsby at Scarborough and he promised to come out, and so we waited: three men, a sailplane, and a 15 m.p.h wind on a 500 feet soaring site. Everything, in fact, except a launching crew. Then we began to toy with the idea of an auto-launch, and finally we went into Thirsk and bought 40 yards of rope. Our plan was to hitch the elastic direct to the car, double as in hand-launching and, from the end of the elastic, the 40 yards of rope to the machine. The top of Sutton Bank is like a billiard-table, as the photographs show, and so it makes a good run for a car.

Once again Dewsbery was launched, this time with the car, and it was an unqualified success, since it required only a driver and a pilot, a man for the wing-tip and a man to hold back, the latter two dispensable, as we were later to find. Dewsbery soared up and down at a fair height and finally settled down to short beats over the distant cliffs overlooking the lake. He slowly rose higher and higher and finally disappeared from sight in the sheet of cloud that covered the whole sky. Shortly afterwards he landed, having reached a maximum height of 1,530 feet and been up for 1 hr. 10 mins. The descent was made over flat ground behind the edge of the hill and took 7½ minutes. This is interesting as giving first-hand evidence of the Wren's sinking speed, i.e., about 3.3 feet per sec.

The breeze was again failing, but Robertson was launched, unfortunately during a lull, and failing to soar, landed intact in a field on the bottom. We set off with the trailer, and an hour later were making tracks for home. But we had wasted nearly a whole day's wind, because we thought that a launching crew was necessary.

Car v. Hand Launching.

In the course of the tour we launched the Wren twenty times, and only twice did we launch it by hand; once, on the very first evening at Sutton Bank and again off the top of the Cross Fell ridge, which was unfit for a car.

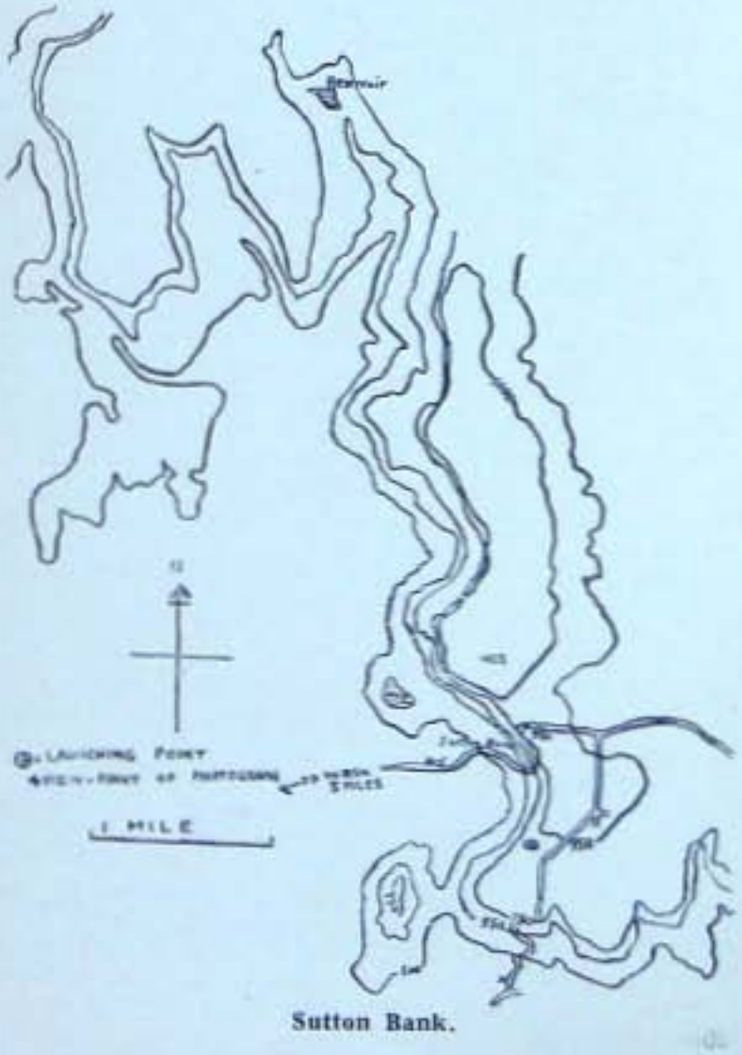
The following day the faithful S.W. wind was again blowing, and we set off once again for Sutton Bank. This time, instead of wasting until 6 p.m., we started flying at 12.30, and Major Petre flew for over an hour, reaching a height of 1,100 feet. He was able to fly as far as the Reservoir (see map), and returned with plenty of height to spare. Robertson was then launched and made a flight of an hour; he tried circling under passing clouds, but did not get any extra height. Dewsbery then went off and at first was only able to make 500-600 feet out of the hill, but later the sun came out and rather watery-looking cumulus clouds began to form out in front. By circling under these he managed to reach a height of just over 1,700 feet, by which time he was at cloud-base level. He landed after a flight of 2 hrs. 25 mins.

The next day a rather feeble W. wind was blowing, so we decided to try Ingleby. Robertson was auto-launched, but only managed to make 300 feet at the best, and in making a hurried landing, because he was losing height in the fitful wind, he slightly damaged the skid. So we returned home, repaired the skid, and decided to move on to Cross Fell the next day.

Off to the Pennines.

We now come to the most disappointing and yet instructive chapter of our chronicle.

For the benefit of those who do not know, the Cross Fell



Sutton Bank.

range, really the northern extremity of the Pennines, faces south-west, rises to a minimum of 1,000 feet and a maximum of 2,400 feet above the plain, and stretches in an unbroken line for twenty-eight miles. Surely the soaring pilot, in his most sanguine dreams, could not picture a better site than this. When St. Peter unlocks the Gate of Heaven to admit the soaring pilot one can imagine him being led to a WIEN on some Celestial hillside and being launched by four angels a side to soar for ever in the heady air of the heavenly regions. But the hillside could not be a better one than the Crossfell range. So we thought as, passing through Brough, we espied the south end of the range on our right. We came! We saw! but did we conquer? Read on! Our chronicle will attempt to describe truthfully how we were defeated and returned to Sutton Bank with our tails between our legs.

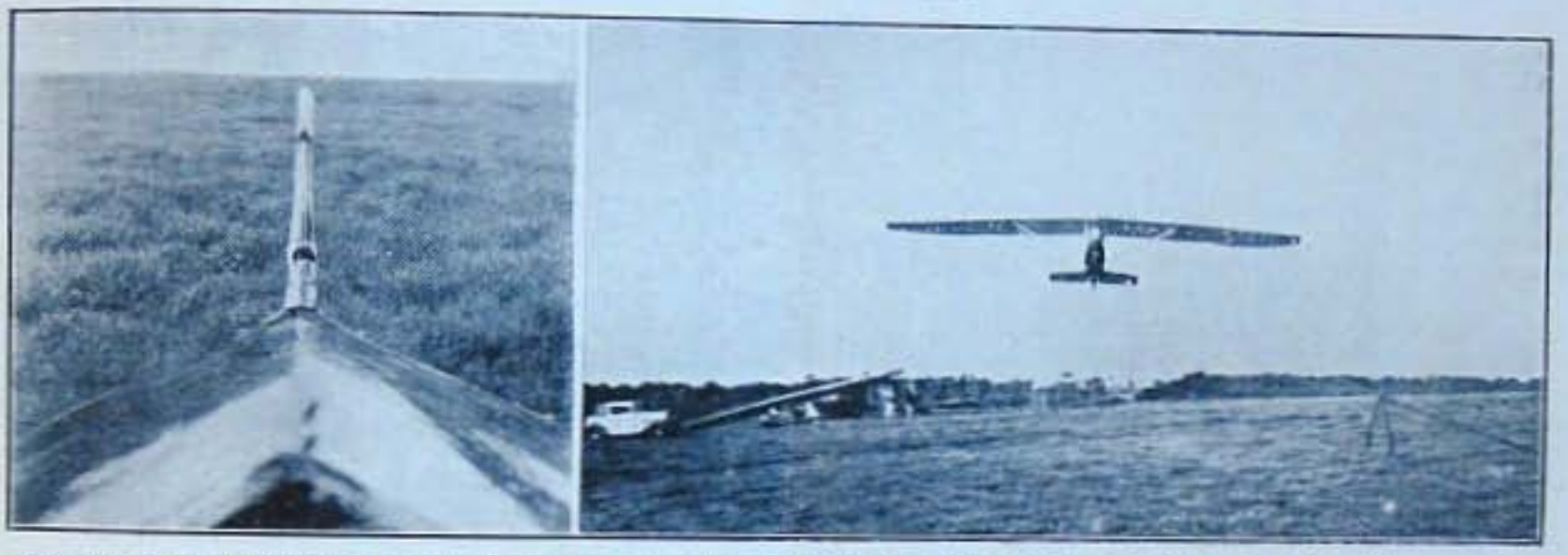
To begin with, Cross Fell is 2,930 feet above sea level, and the Lake District lies to the west, 12 miles distant, so that the stream of clouds engendered by that range of hills wraps the summit of Cross Fell in its blinding embrace for the greater part of the year. So it was when we arrived; the weather broke when we reached Appleby, and by evening, when we crossed the ridge on our way to Alston, the clouds covered the hill down to about 500 feet from the valley. We drove up and up through the cloud until the summit was reached. There we got out to explore, but were unable to see more than 10 yards. Nevertheless we went through a gate and examined the surface of the ground with a view to landing. But it was useless, as we could obtain no idea of the general lie of the land. Then, as if in answer to a prayer, the curtain was snatched away and we watched the rearguard of a bank of cloud rolling down the hill away from us, so that the range became visible for a mile or two each way.

An Unusual Cloud Effect.

Then occurred one of the most extraordinary weather phenomena we have ever observed. The clouds that had, until recently, enveloped us, continued to retreat down the hill until we could almost see the plain below. Then Robertson remarked: "Look at that cloud down there! It's remaining stationary." And so it was, in spite of the fact that a strong wind was blowing down the hill and the rest of the cloud line was still retreating in the distance. It remained stationary for a few minutes, then it began slowly to grow. Then, with the wind still blowing strongly down the hill, the cloud slowly began to advance up it. Furthermore, straight below us, a curtain of cloud had been formed, extending upwards for about 500 feet from the ground, and it, too, was slowly advancing up the hill. Then it began to accelerate its advance until a continuous front of cloud appeared to be coming towards us at a rate of 20 miles an hour. Yet the wind continued to blow strongly down the hill and continued to do so until the line of cloud was only 200 yards away, when the wind faltered, blew a bit from the north, and so round, until it was blowing up the hill a few seconds before the cloud-line reached us and struck chill into the marrow of our bones. Was it a cold front? Was it a wave breaking on the shore of some invisible aerial sea, as yet uncharted by the meteorologist? We will not attempt to answer the question, but only put forward the description as an example of the peculiar weather in this part of England, and so, in part, as an explanation of our almost complete failure to soar there in spite of a twenty-mile-an-hour wind blowing straight up the hill. But that is a later episode.

The next day, clouds were grazing the top of Cross Fell itself, but were free of the point where the road crosses the ridge, which here is some 900 feet lower. We unpacked the WREN and decided after an exploration that the only possible plan was to launch the machine from Fiend's Fell, about a mile south along the ridge. As there were only three of us, we fixed one wing to the fuselage and carried that to the launching-point. We returned for the other wing, carried it across the mile of bogs, etc., that make it impossible for a trailer, and were just fixing this wing when it started to pour, and continued until, in despair, we carried the machine back whole, unrigged it, and took it home. On our return, we found that Buxton and Nicholson had arrived with the SCUD II.

AT SUTTON BANK.



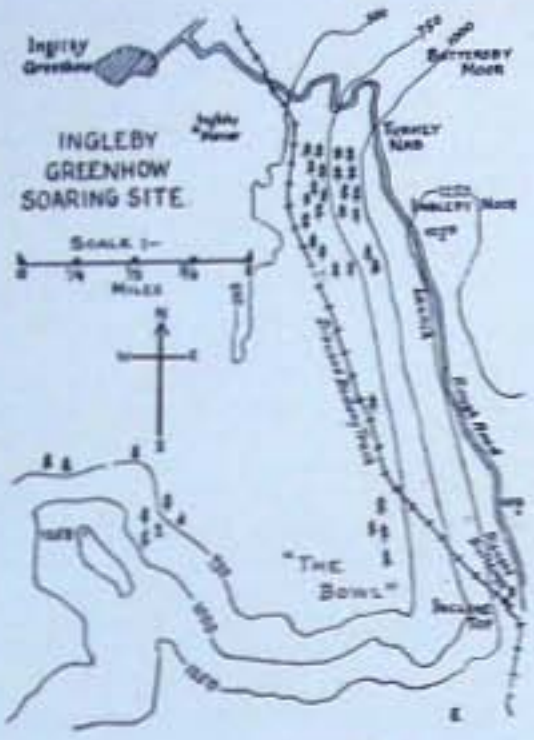
Left: the Dent variometer in position, as seen from the cockpit of the "Crested Wren." Note that the pilot can watch the rise and fall and at the same time see where he is goin g. Right: Major Petre being auto-launched in the "Falcon." The lip of the ridge is just out of the picture on the left. *Photos by J. C. Neilan.*

The Cross Fell Trials.

The following day, Saturday, was much the same: lines of watery-looking cumulus just missing the top of the hill. We rigged the SCUD and Buxton decided to try and fly to the soaring slopes of the ridge from where we were. He was auto-launched and flew for 15 minutes, but only gained 50 feet and only just got back on top. He made a second attempt, this time landing on some flat ground, 100 feet lower down.

So the WREN was rigged and carried a mile to the original point on Fiend's Fell, and Dewsbery was hand-launched off the top—the second and last hand-launch of the trip. Imagine it! A hill 1,400 feet high, a twenty-mile-an-hour wind and the CRESTED WREN! What happened? Did he rapidly disappear upwards into the clouds to return after two hours with a glowing account of the Pennines as a soaring terrain? He did not. He tried to soar along the preliminary bit of ridge at the top and failed, so he crossed an intervening plateau 200 yards wide, and tried the main slope beyond, and still failed to soar. He then flew along the face of the hill to try for up-currents over the steepness of Meikle Awfell, still lost height and by now, being 700-800 feet below the starting point, decided to land at the bottom and finally put the machine down in a field beside the road after a flight of 11 minutes and having lost 1,300 feet of height. Is this a record?

Later Buxton was launched and he made what was



the only real soaring flight over Cross Fell. Prepare for a sensation! He gained 200 feet, but so far from the launching point that he was unable to get back, and after a flight of 35 minutes he, too, landed below in a field near the WREN. The machines were unrigged, put in their trailers and the party repaired to the village pub for tea. We decided to leave Cross Fell the following morning and return to Sutton Bank.

Were we wrong in not staying longer? Did we give the Pennines a fair trial? We think we did, and found them wanting for the following main reasons:

1. They are so high that the top is either in or very near the clouds.

2. It is not possible to soar from any point near the main road. The only point at which landings are possible and the face of the main ringe accessible is a mile from the road, across ground impossible even for a car alone.

3. They are so high that the wind-flow which takes place over ordinary hills does not take place here. We heard accounts and read accounts locally of a special cloud called the "helm," which sits over the top of the ridge, especially in the spring and in thundery weather, and which is thought to be caused by an eddy on the windward face of the ridge when the wind is blowing S.W. The result of this eddy is that, with a S.W. wind up above, the surface wind on the top is in a direction opposite to this. The eddy is thought to have something to do with the formation of the "helm."

The next morning, we shook the mud of Cross Fell from our feet and returned straight to Sutton Bank, to find warm sun, clouds miles away up in the sky, and the faithful S.W. wind still blowing up Sutton Bank. But it was not quite strong enough, so we did not fly that evening.

The party now consisted of Buxton and Nicholson with the SCUD and Petre and Dewsbery with the WREN.

At Ingleby Greenhow.

The next day a fifty-mile-an-hour gale was blowing, but the day after that there was a gentle breeze from the N.N.W., so off we went to Ingleby. In the morning we had a lesson in the gentle art of not landing on the bottom and so cutting short the flying for the day. Major Petre started off: he was auto-launched and just soared for about a quarter of an hour, but the wind was fitful and, finding himself losing height, he made a hurried down-wind dash and landed safely on top.

Dewsbery then tried, and landed almost immediately, as he did not even begin to soar. This flight lasted only 10 secs.

We sat about and waited, then late in the afternoon went down to the bottom for tea at a farmhouse. In the course of conversation down there, the farmer said: "You know, them fellows that fly up there, they must have to use their headpieces, because they ain't got no engine to keep themselves up." Heartened by this and by the tea, we trudged the 900 feet up to the top to find quite a nice breeze blowing, and so Dewsbery was again launched, and immediately soared up to 1,150 feet. He landed after 35 mins. Buxton rigged the SCUD and went for a flight, followed by Major Petre in the WREN, both being launched by car. We returned home in the dark.

The next day a really good wind was blowing, and we returned to Ingleby.

The SCUD was first off and Buxton flew it for an hour at 600 feet. Dewsbery in the WREN reached 1,200 feet, the last 400 feet with the help of the rather feeble cumulus clouds that were passing over. Slingsby arrived with the FALKE, and at one time all three machines were in the air, though only four of us were present. The last machine to be launched was not held back, and the up-wind wing was propped on a box so as to be just a bit lower than the other.

Buxton left us the next day, and so the WREN was left with only Major Petre and Dewsbery to operate her, but she was rigged and launched without any trouble, and we had another day's flying.

The next two days were almost windless, so we spent some of the time in exploring a N.E. wind site some eight miles to the north, and we found a way to it suitable for a trailer.

A Fine Finish.

The last day (Sunday) there was again a S.W. wind, and Slingsby again joined us. We flew all day, doing five hours altogether between us. This formed a fitting termination to a trip which, though not resulting in any flights of the same technical importance as Collins' thermal flights at Huish and, more recently, at Dunstable, had afforded us a lot of pleasant flying, a little mild cloud-soaring, and the assurance that such a trip could be managed again with a minimum of two people.

To sum up, our total flying time was 18 hours 24 mins., and that of the SCUD 4 hrs. 12 mins.

In conclusion, the variometer, which we carried in practically all the flights, turned out to be most useful and reliable, and gave us no trouble whatsoever.

THUNDER OVER THE 'KUPPE

Saturday, August 12th, in the 1933 Rhön Competitions at the Wasserkuppe, proved to be a very interesting day, both to competing pilots and also to the many other sailplane pilots present.

During the morning, up till lunch time, the fitful south wind just managed to hold up four or five machines over the gradual south slope.

At lunch time the wind changed to west, the sky being lightly clouded, the atmosphere warm and a little sultry.

Phillip's MARABU, once a tailless machine, but now enjoying the privilege of a tail, flew off from the West Slope, returned over the 'Kuppe, and explored an up-lift area over the top of the 'Kuppe by circling—but to no avail.

Meanwhile, away to the north a rain storm could be seen. It appeared to be moving west, and did not look like reaching the 'Kuppe.

Soon after, the wind dropped and most of the machines then flying landed on the lower slope of the Westhang. Just about at this time it was noticed that the "rain storm" had changed direction and was now moving in a southerly direction towards the 'Kuppe; and that it was also changing into an amazingly good storm front. This was soon borne out by the thunder which could be heard as the "front" approached the 'Kuppe.

All this time a very slight west wind was blowing, in spite of the fact that the front was approaching directly from the north. Everyone waited for the one critical moment, when a launch would mean contact with the front, and not a dismal glide down into the valley below.

As the front approached, it appeared to improve. One solid mass of black dense cloud covered the valley, while in front could be seen loose jagged pieces of cloud apparently coming out of the very fields of the valley itself, and rising with terrific speed in front of the storm, giving the closely watching spectators a very practical demonstration of the colossal speed of the up-wind in front of the storm.

Not until the storm appeared to be at the very foot of the 'Kuppe, was Deutschmann in the SCHLESIEN IN NOT launched into the slight west wind. Making use of the up-wind from the West Slope he headed N.W., but had to return to the 'Kuppe, to regain height again, before finally making contact.

Immediately after him, Wöckner in the DE WEPER was launched, and immediately flew into the up-wind of the storm front.

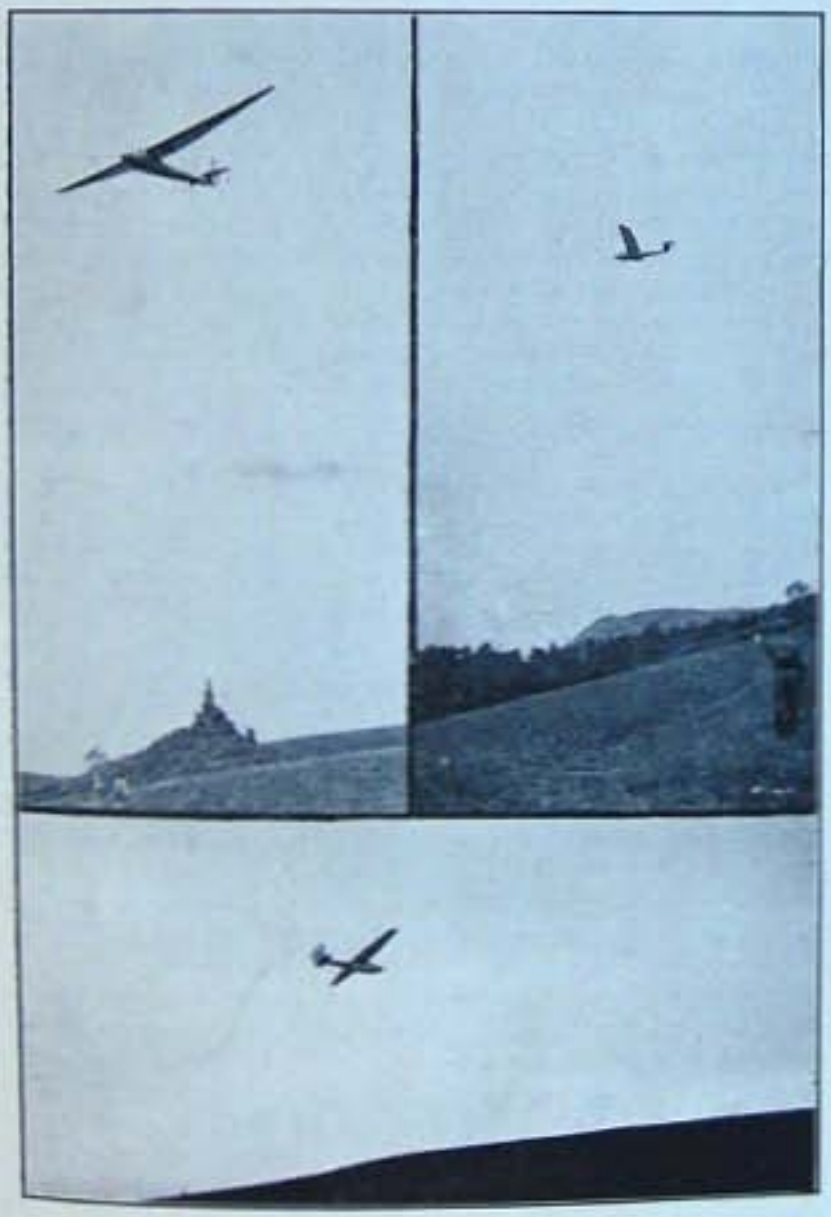
Both machines were seen to rise very rapidly, and then—the storm broke over the 'Kuppe, reducing visibility to five or ten yards, with the well-known Wasserkuppe "Nebel."

The time from the moment the SCHLESIEN IN NOT started, until the storm broke over the 'Kuppe, was just under five minutes, which emphasises the necessity of having everything in readiness!

Wöckner, who I believe is quite a young pilot, and so far with little experience, managed to do a 25 Km. cross-country flight to Delze.

Deutschmann had the misfortune to be riding on the up-lift of the thunderstorm when he met another thunderstorm, apparently moving almost in an opposite direction. So great was the resultant up-current, that Deutschmann was thrown out of his machine, but landed with his parachute, to find there was a very heavy ground wind. This blew his parachute along the ground, and, according to official reports, dragged Deutschmann over three Km.. His clothes were torn to shreds—and at the time of writing he is recovering in bed.

"SEGELFLIEGER."



Left top: The "Schlesien in Not" launched before the storm in which it later came to grief. Right: the "De Weper" starts for the storm, which is approaching from the left. Below: the "De Weper" heads off for the storm front, which has nearby arrived. The object of these photographs was to show the approaching storm, but in the process of reproduction the clouds have completely disappeared.

THE RHON COMPETITIONS.

The annual competitions in the Rhön mountains, near Frankfurt, are now concluded. Unfortunately, we are too short of space to publish a full account of them in this issue, though a description by "Segelfleiger" of the arrival of a thunderstorm "front" on the Wasserkuppe will be found on this page.

Practically all the cross-country flying in this year's competitions was done in thermal currents, often without clouds and with very little wind. Some of this was performed by experimental machines, such as two which have wing-tip rudders, and the THERMIKUS, which has warping wings for lateral control.

The longest flight of the meeting was one of 176 km. to Zwickau, by Wolf Hirth on his new sailplane, which he has named MOAZAGOTL. Next were two by Peter Riedel, of 163 km. to near Bingen on the Rhine, and 160 km. to Gera. He flew the FAFNIR. The longest duration flight was one of 13 hrs. 42 mins. by Hakenjos (a new Rhön record), and in height nothing more than 1,445 metres was achieved.

A full report of the meeting, with photographs, will be given in our next issue.

OTHER FLIGHTS IN GERMANY.

While the Rhön Competitions were on, non-participating pilots in other parts of Germany have not been idle.

The journal *B.Z.*, of August 21st, describes a flight by Willi Thiele, of Berlin, in a machine of KASSEL 20 type. He was launched by auto-winch from the Staaken aerodrome near Berlin, cast off at about 1,000 feet, and flew underneath a cloud, rising in the up-current to 3,700 feet, after which he glided down to a landing on the Tempelhof aerodrome. The machine carried no instruments.

A similar thermal flight in a KASSEL 20, also without a variometer, is described in the London Club Notes in this issue.

The same journal for August 18th describes a flight of 20 hrs. 20 mins at Rossitten, in East Prussia, made by Herr Arndt, one of the instructors at the school. The flight was only brought to a conclusion by the wind failing during the night. At the same place, the instructor Haberkorn did a soaring flight of 16 hours.

BROADCASTING FROM A SAILPLANE.

On July 27th Wolf Hirth was towed from Böblingen aerodrome in a sailplane fitted with a short-wave radio set. He soared for some time over a big athletic sports meeting at Stuttgart, and meanwhile broadcast his impressions to the assembled multitude. This is probably the first time such a thing has been done in Germany, but last year Jack O'Meara broadcast a talk from a glider while flying over New York. (See THE SAILPLANE for October 28th, 1932, p. 218.)

CROSS-COUNTRY FLIGHTS FROM DUNSTABLE.

In the article under this title, published in our last issue, a few of the details given of the first flight described need revision. We wrote from memory, being unable at the time to refer to the 1931 volume of THE SAILPLANE.

The greatest height reached under the "cloud street" referred to, was 2,100 feet (above launching point) when over Ivinghoe Aston. Mr. Buxton then turned N.E. towards a heavy-looking cloud, but when Eton Bray was reached, most of the height gained had been lost again, so he turned back to the ridge with only 400 feet to spare.

(See map on next page.)

THERMAL SOARING AT DUNSTABLE

By Abnit.

The following account of a thermal flight may possibly prove interesting to many pilots who believe that high performance soaring can only be done from sites of considerable altitude.

The take-off was at approximately 2.10 p.m. on Tuesday, August 8th—a fairly hot day with some cumulus in the sky. Wind light, enabling only about 200 feet, or 400 feet above the plain, to be obtained from the slope wind.

That convection currents were numerous was soon evident, and ten minutes after the start the machine (Professor) circled up to 1,600 feet above the hill and was then able to fly about two miles in front of the hill towards Ivinghoe, when a rapid down-draught was encountered (easily felt in the ears), making ignominious retreat to the hill inevitable.

However, after about a quarter-of-an-hour of slope soaring another thermal was encountered near the Bowl, and continuous circling was then resorted to until a maximum altitude of 2,200 feet above the start was obtained about 2 miles south of Dunstable over the London road. Only 700 feet were lost in the return (into wind) to the club house, the remaining 1,500 feet lost in steeply banked circles which enabled a landing to be made on top after a flight of 1¼ hours, more than half of which was spent entirely away from the influence of the hill.

No instuments other than a small aneroid were carried for this flight, and the rising currents were found by the sensations produced in the pilot's body and the position maintained by steering towards the wing which encountered more lift than the other.

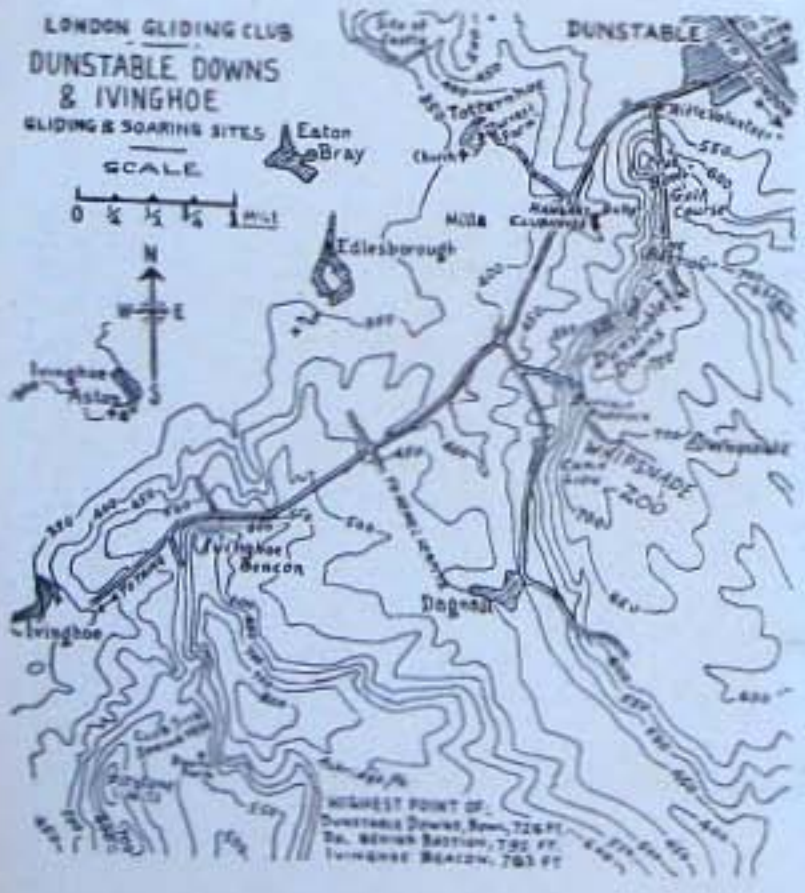
This flight follows closely after a two-seater flight with passenger to approximately 1,000 feet, and Mr Wills' flight to Ivinghoe, which goes to prove that the London Club's site is not so limited as one might imagine from its comparatively low altitude.

TO IVINGHOE BEACON AND BACK

By The Pilot.

The week-end, August 19th-20th, at Dunstable led to some exceptional results which are sketched out in the Club Notes. It is hoped that the pilots will not be too reticent in their explanations.

In the afternoon of Saturday, the 19th, the sky was



THREE YEARS AGO.

This photograph, which was taken from the top of Ivinghoe Beacon on August 2nd, 1930, shows the first camp ever held by the London Gliding Club, at the foot of the Beacon. Three years afterwards, the site has been repeatedly visited by sailplane from the Club's present site on Dunstable Downs, which can be seen on the horizon on the right.

completely covered with strato-cumulus, with ragged pieces of cumulus below. The best lift for ordinary ridge-soaring came from the buffalo paddock at Whipsnade Zoo. For three hours the Crested When persistently pushed out up-wind from this area and from the home-ridge, but could not make good more than half a mile before being forced to run back to the hill.

The cloud-sheet then withdrew in a cross-wind direction until the sun was completely exposed, whereupon, probably owing to a temporarily increased lapse-rate and to the consequent instability of the atmosphere, the machine was roughly driven up to calm conditions at from 1,000 to 1,100 feet above the plain in front of the Zoo. She then pushed forward at this height, with a ground-speed of not more than six miles per hour, until she was level with the northern flank of Ivinghoe Beacon, 2½ miles across the flat from the Zoo. She swung across the front face of the Beacon, circled the wood at the foot, and returned to Whipsnade with a loss of about 150 feet.

It should be noted that there were no clouds above the machine while she was making this trip. The pilot is inclined to adopt the following explanation:

The sudden exposure of the sun, after some hours behind the clouds, gave rise to a vigorous thermal up-thrust which drove the machine into a distinct upper stream of air which the pilot chooses to label an "Aerial Gulf Stream." This is the main air-flow which is heaved up smoothly over such a range of hills as the Chilterns and also over the turbulent air, near to the earth's surface, in which machines normally do their soaring.

The direction of the wind on August 19th was such that the "Gulf Stream" would begin to rise as soon as it reached the Ivinghoe ridge; it would then ignore the depression of the Whipsnade Valley, which would be filled in with "surface air." In effect it would form an arch over the Chiltern Hills as a whole, passing up from Ivinghoe over the Zoo.

In order to attain this "Gulf Stream" a machine needs an abnormal upward heave. This can be provided by the conditions arising from a suddenly abnormal lapse rate, or by such a vertical circulation as is made manifest by cumulus clouds.

During this flight, which lasted for more than five hours, the opportunity for reaching the upper levels only presented itself once, and it is significant that the opportunity occurred when the sun was suddenly exposed after being hidden for hours.

This flight is comparable with another (some time ago) by the same machine, when she was vigorously launched from the top of the hill *in a calm*. She shot up on her excess speed into the "Gulf Stream" which was travelling with great steadiness at about 12 m.p.h., and proceeded to soar peacefully therin until after dark. Indeed, the pilot then had considerable difficulty in forcing her to

come down. On that occasion the "Stream" was fairly close to the earth's surface, for, though the wind-sock hung dead, the smoke from a very high factory chimney was streaming away steadily at a handsome speed.

When a machine is surprisingly subjected to good soaring conditions, it is not wise to talk too glibly of "thermals" and of "cloud currents." Air can drive up over mounds of air as well as mounds of earth.

A BRITISH DISTANCE RECORD

On August 23rd Mr. G. E. Collins carried out a cross-country flight of about 22 miles in the London Gliding Club's PROFESSOR. He started at 10.45 a.m. by a winch launch, and for the first two hours or more soared in the neighbourhood of Dunstable Downs, after which he made contact with the up-current under a cloud and climbed to 2,300 feet. By this means he reached Ivinghoe Beacon, after which he turned down-wind under the cloud.

Mr. Collins kept his height for about three miles, and then began to lose it as he passed Berkhampstead and Hemel Hempstead, finally getting down to only 450 feet. He was then lucky enough to find another thermal current, which took him up to 1,200 feet, and at the same time the wind, which had been N.W., changed to W. by N. By using further clouds he was able to prolong the flight until, at about 2.30 p.m., he had to land at a point half-a-mile beyond the junction of the Barnet by-pass with the main road to St. Albans.

The machine was fitted with a variometer designed by Mr. D. Dent, of the type used at Huish, and this the pilot found most useful. At one time the instrument registered the biggest rate of climb it was capable of showing, but it has not yet been calibrated.

This flight beats by a handsome margin the previous longest distance soared by a British pilot, namely, the flight of 13 miles made by Mr. G. M. Buxton at the Askam meeting last year.

Incidentally, the day before making this flight, Mr. Collins had got up to 1,450 feet and flown over Totternhoe Church.

CORRESPONDENCE

THE "PROFESSOR" AND THE "WILLOW WREN."

Sir,

The article on the PROFESSOR and WILLOW WREN does not seem to me to bring out the qualities of the PROFESSOR.

The advantages of increased span in lowering sinking speed are obscured when the span is nearly a quarter of the height of the hill as at Dunstable, but it seems likely that the performance of the PROFESSOR is better than that of the 40 ft. span machines on high hills. Also the rolling effect of a local down-current (under one wing) is not so marked.

I think it is true to say that this six-year-old design for a training machine, simple, heavy, and built of fir wood, is still the best machine in England for many purposes and that the special competition version of the type (the WIEN) is better.

I prefer to fly it about 4 m.p.h. faster than the speeds mentioned in the article.

The steady and deliberate flight of the PROFESSOR has an attraction of its own, particularly in a long flight.

KENTIGERN.

HOME-BUILT AND SELF-TAUGHT.

Being a reader of THE SAILPLANE AND GLIDER, I notice, according to the Correspondence, that some of the young enthusiasts find it difficult to secure the knowledge to start building a glider.

I should like to mention I had the same difficulty some eighteen months ago. Finding I couldn't secure any drawing under £5, which I was unable to pay (being only an apprentice with 3s. a week pocket money), I set about and designed my own, saving up in the meantime.

I had never been in a "plane" of any description before, but taught myself to fly in my own glider, which proved a success, and now I should be only too pleased to answer any questions any beginner like myself with little capital would like to ask.

ROY SCOTT

Mr. Roy Scott's glider, which he designed and built and is now teaching himself to fly. It has a span of 44½ feet, is a two-seater, and took 12 months to construct.

NEWS FROM THE CLUBS.

After a day's soaring at Dunstable: machines assembled for the final glide home.

BRADFORD AND COUNTY GLIDING CLUB.

Saturday, August 5th.—Conditions good. No flying owing to poor attendance.

Sunday, August 6th.—Splendid conditions for all training up to "B" standard, but only a very few attended. REYNARD was brought out and flown by Holdsworth, Jowett and Robertson. Robertson has now joined the Sailplane Section, but if he flies the HOL's like he flew REYNARD we shall be seeing some really exciting displays. He went off down the hill like a scalded hen, and attempted to take cover in a large patch of bracken at about 40 m.p.h. REYNARD stopped almost dead, and then stood on her nose in indignation. Fortunately the only damage was two broken landing wires.

Monday, August 7th.—Conditions ideal, but as only Hastwell, Rose and Stedman were present, nothing was done except cursing.

Tuesday, August 8th.—Wind very strong in morning, but as it was easing it was hoped to do some more soaring in HOL's, but it looked hopeless owing to lack of skilled help. However, the telephone and two real heroes, Snadden and Roberts, saved the situation. They brought up best part of a crew themselves, including two visitors from Germany, who had witnessed soaring in Kassel. As an official observer was able to turn up as well, Stedman decided to go out for his "C." The wind was dropping fast, but he was launched, and after remaining up for nearly seven minutes signalled he was going to land. The wind was dropping so fast that he would soon have had to go down to the bottom, but as the official conditions had been fulfilled he landed on top to save hauling the machine back up the hill. After tea Hastwell was going off for some soaring practice, but the wind had dropped entirely and he was only able to make a very fine, slow glide down to the bottom, so we had to haul the machine back after all.

Thus ended what might have been a record meeting had the attendance been what one might reasonably expect.

LONDON GLIDING CLUB.

August 6th.—A light wind from between S.W. and W.S.W. Launching was by winch. The PROFESSOR managed to soar along the ridge, but evidently had to be flown almost stalled to do so. The WILLOW WREN could also just soar, until on returning from Whipsnade it stalled and dived into the hill just beyond the power cables. The pilot, Nicholson, was much shaken up, and damaged a few teeth, but luckily no bones.

August 12th and 13th.—Wind in the wrong direction, and no soaring done.

August 19th and 20th.—It is impossible to deal adequately with this week-end. On Saturday Collins took the KASSEL 20 to 2,450 feet, per aneroid; Murray flew her well, but without such startling results. Collins then took the PROFESSOR up to 1,700 feet per sealed barograph; Dewsbery flew her heartily. Humphries flew the CRESTED WREN for 5 hrs. 6 mins. (some say 5hrs. 7 mins., but we are not arguing about it), reaching 1,550 feet per sealed barograph, in an incidental cross-country trip to Ivinghoe Beacon and back. He descended after sunset. (His own aneroid said 1,100 feet, but we are not arguing about that, either.)

On Sunday, Dewsbery celebrated the CRESTED WREN's hundredth flight under present ownership by taking her up to a stable 3,000 feet, at which height he bobbed in and out of a street of clouds for about half-an-hour. Words fail us. Major Petre gave her a good run, and Humphries did as well as his bruised posterior would permit (he also had a pronounced hang-over from overnight revivers).

In the KASSEL 20 Dent soared pleasantly, and Murray was logically credited with 1,000 feet. In the PROFESSOR Collins banked vertically and exceeded 1,000 feet. He certainly can throw her about to some effect. Major Cordes and Brother Wills soared with less abandonment, but still gracefully, and Another Man soared up and down!

The KASSEL two-seater was flown all day with distinguished freight, conducted by Collins, Major Petre and Dewsbery. Our Mr. Walker got an enormous kick out of his passenger flght, during which he (with Collins) received a vertical swipe of 300 feet in one minute.

Hardwick flew his lovely new FALCON (made by Slingsby) with the courage of a lion, going slap into the Bowl with no height to spare. By rights he ought to have broken his neck, but he did not do so, and the damage was altogether extraordinarily slight. This incident tended to keep our perspective in order. He later took a ride in the back of the two-seater to correct his own perspective.

The Desoutter winch worked perfectly, flinging machines up to 300 and 400 feet from the foot of the hill. Winch driving is an art. Noble is an artist, but there are not many others I would care to trust!

Everybody flies in circles these days. Right-hand circles are easy; left-hand circles are not so funny unless one has plenty of room. It is queer.

Dent's variometers are an enormous success.

The standard of pilotage is going ahead pretty decently. Yesterday's miracle continually becomes to-morrow's commonplace. In fact, some of us weaker brethren, or less skilful brethren, get quite out of breath trying to keep up with the times. But it must be remembered that the atmosphere itself has gone clean crazy, owing to the abnormal heat and dryness of the weather, as witness all these flights which exceed 1,000 feet. Collins has now beaten this height in a B.A.C. II., a KASSEL 20, a PROFESSOR, and (most marvellous) a POPPENHAUSEN; while others in both the WRENS have done the same. All thought of retiring on one's laurels must now be banished, since laurels turn to ashes in a week, or less.

On Sunday the premises were littered with expensive cars, aeroplanes and visitors. A list of names would read like a fashionable wedding. The real point is: How much do these people spend in the bar? For thus to some extent do we prosper financially, or not, as the case may be.

PORTSMOUTH AND SOUTHSEA GLIDING CLUB.

Primary training has been carried out for the past few weeks by the highly successful low altitude method. Pupils by this method of instruction are rapidly brought on, a bungy launch presenting no difficulties after about twenty tows of half-minute duration. By efficient operation, flights are made at five-minute intervals—over sixty flights being made on one day.

The very hot weather was responsible for some remarkable flying, principally by Lympany, who seems to possess that happy combination of aptitude, skill, and lightweight. Flying an open DAGLING he passed over first a green field, steadily losing height. When at about 150

feet he crossed over the racetrack boundary. Here the grass had been allowed to remain uncut—being brown and hay-like. Immediately he began to rise and continued to do so for many seconds. The flight lasted about a minute at that height. The feat was repeated by other members: Allen, Clear, Robinson, but not so successfully as by Lympany. After an hour or so the wind rose with the incoming tide, and the "thermals," as undoubtedly they were, became less evident. Gliding and swimming have been alternate sports lately—dress, in both cases, bathing costumes.

Work on the new sailplane is going forward. Three stalwarts, camping on the site, have spent their holidays on the job.

Alterations to skid of ENSER machine have resulted in low speed take-offs. This machine tows quite well, and flies surprisingly slow. Further experiments are proposed.

R. R.

The Portsmouth Club's hangar, 60 ft. by 22 ft., containing sailplane fuselage, towing car, and R.F.D. on trailer. In foreground, sailplane wing ready for covering.

FURNESS GLIDING CLUB.

The last account of this club's activities appeared in No. 12, Vol. 4, and concluded with an invitation to Soaring *Fans*, to join us in an effort to run a summer camp on the slopes of Black Combe.

Our Secretary, Mr. H. S. Gross who usually writes these notes, has been untiring in his efforts to successfully organise a camp, with the object of proving the possibilities of this particular district.

With this object in view, the whole resources of the club were thrown into the task, the active membership rallied to his call. A fine covered trailer was constructed, capable of housing two complete machines comfortably. Our 20 h.p. six-cylinder touring car was licensed and insured ready for the road, and this was to be fitted with an independent petrol-driven winch, carrying half-a-mile of steel cable for recovery and transport over broken country.

Further we were desirous of offering the fullest facilities to visiting groups both before and after arrival in our district, hence the information and map published in No. 13, Vol. 4, of THE SAILPLANE AND GLIDER.

The writer is now firmly convinced that 13 is an unlucky number, in so far that the information published therein failed to attract those enthusiasts who so often bewail the fact that good sites are scarce in this country. He also feels that those who received invitations by post might have communicated with us before July 29th, the date set apart for the start of this expedition. There was not a single response to our invitations prior to the opening date. Yet, nothing daunted, we decided to go ahead and if possible conquer Black Combe.

Saturday, July 29th.—One group worked feverishly to complete the winch at club rooms, whilst the transport group succeeded in getting two machines and gear, also much camping equipment, to Fenwick Farm. Not until 11.30 p.m. did they sit down to a sumptuous supper.

Sunday, July 30th.—Some rain had fallen during the night, making the grass-covered tracks very slippery.

It was a beautiful summer morning with a freshening south-west wind, which gave promise of a good day's sport—although much was yet to be accomplished before flying commenced. Tents were pitched in a sheltered spot. By noon all gear had been hauled to the top of the Fell, after much ingenious manipulation of car, ropes and tackle.

The primary machine B.A.C. II. was rigged. After a heavy meal and so much accomplished the holiday spirit predominated, particularly when Redshaw landed the primary three-quarters of a mile away—after a flight of 1¼ minutes. When this was recovered we decided to give the B.A.C. IV. sailplane a few short hops in readiness for those soaring conditions which we had been led to expect. During the evening wind and rain arrived simultaneously, we therefore packed hurriedly and retired to the shelter of the farm. Throughout the night the he-men in the tents listened to a howling gale, and the rain peppered the canvas, and their thoughts flew to exploits of Herr Gunther Groenhoff.

Monday, July 31st.—Not until noon did we venture to the top of the Fell, to inspect our precious outfit. Here a gale of 60 m.p.h. was raging, and Stevens and Co. wrestled with tarpaulins, ropes and boulders in a struggle against the elements to save the machines from complete destruction.

In the meantime our only visitors turned up: the brothers Raynaught from South Shields.

Tuesday, August 1st.—What a day for the Soaring Pilot! Unfortunately Todd, Gross and Redshaw had been recalled to Barrow, whilst Britton had left us on Sunday evening. With four such stalwarts away how could we launch a Sailplane? Stevens frantically tried to free that control wire which would persist in fouling rib ends enclosed in the leading edge and which serve no useful purpose.

We rigged and trimmed the B.A.C. IV. Sailplane (and she certainly looks the goods) then waited for the return of the prodigals.

As we watched the formation of cumulus cloudlets we prayed that the Editor and his box camera might be sent to us. The sun shone brilliantly down on to a sodden turf, with a wind of 20 to 30 m.p.h. blowing from the N.W. These cloudlets formed on the windward slopes (which extend for miles) growing to a maximum size over the summits, where they passed over us, blotting out the sun for a moment, during which period there was a stillness which reminded one of an eclipse.

Was the current at that instant entirely vertical? for when the sun was again revealed, back came the breeze as strong as ever.

Whilst we were discussing this strange phenomenon someone noticed that the cloud had disappeared over the lee of the ridge; we sat and watched them come and go for more than an hour in a continual procession, the average life of each cloud being about ten minutes. We had, of course, at different periods noticed the sea fog advance up the windward face and roll down the back of the ridge. But nothing was quite so interesting as these cloud streets, yet we cannot quite see how they might be utilised for distant flights unless one hopped across from street to street.

From now until August 6th, nothing much was done in the way of flying, the hills being either covered with

fog or the day too hot and stuffy for strenuous exercise.

On **Sunday, August 6th**, the scene was reminiscent of the Wasserkuppe, for the members of the group were in sun bathing attire. On this day three good flights were made by Gross and Redshaw, both showing promise of soaring in a slightly stronger wind. Turns and landings were well executed in the R.F.D..

Monday, August 7th, Bank Holiday.—On this day one flight was made which will be long remembered and which ended abruptly, due presumably to a stalled turn, at least, that is the verdict of those who witnessed the flight. As a result, Gross, the pilot, lies in a rather serious condition in hospital, having struck a rock when landing. It is a great pity, for he is always an inspiration to fellow-members, and was making such satisfactory progress in the nacelled R.F.D. that we all expected him to soar on the first suitable occasion.

What subsequently happened on that day can best be imagined; suffice it to say that all worked heroically in face of tremendous difficulties.

We feel sure that all who have come in contact with Mr. Gross will wish him a speedy and complete recovery.

It is no use denying that there was no desire to attempt further work in the air until more reassuring news was forthcoming concerning the condition of our respected comrade.

Thus ended our Summer Camp.

OFFICIAL NOTICES

Council Meeting.

The 51st Meeting of Council was held in the Library of the Royal Aeronautical Society, on Monday, 31st July, 1933, at 6.30 p.m.

Present: The Master of Sempill (Chairman), Capt. C. H. Latimer Needham, Capt. A. N. Stratton, Sir Gilbert Walker, Messrs. D. Morland, E. G. Sanguinetti, D. E. Culver, Dr. Slater, Messrs. A. F. Houlberg, S. Whidborne and the Secretary.

Mr. J. G. Grice and Mr. G. E. Collins also attended.

Among the business transacted, it was resolved "that the proposal to summon a Conference of all B.G.A. members and guests, be postponed for the present."

1933 Competitions.—The Chairman gave a brief survey of the activities of the School and Competitions. It was noted that, due to weather and other conditions being unsuitable, the projected Competitions had not taken place.

Sir Gilbert Walker asked permission especially to express his regret at not being able to put in an appearance at Huish, owing to heavy business engagements at the time.

A hearty vote of thanks was accorded Mr. Grice and Mr. Collins, Mrs. Collins and the farmers for the help they had given at Huish.

Special prizes were awarded Mr. Laver for his four hours' duration flight, Mr. Hiscox for his altitude flight of 900 feet, and Mr. Slingsby for his distance flight.

The Secretary read a letter from Mr. Pilling, in which he offered his resignation as a Member of Council and Contest Committee due to change of address. The Council passed a hearty vote of thanks for the services he had rendered, and accepted his resignation with regret.

Records.—It was decided to offer heartiest congratulations to F. O. Mole on establishing a British Duration Record of 6 hours 57 minutes, on 29th July, 1933, to Mr. Manuel who designed the machine on which the record was made, to Mr. Wills, of the London Gliding Club, on his distance flight to Ivinghoe Beacon on the 29th July, 1933.

Next Meeting.—The next meeting of the Council will be held at 7, Albermarle Street, W.1., at 6.30 p.m. on September 4th.

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