SAILPLANE AND GLIDER

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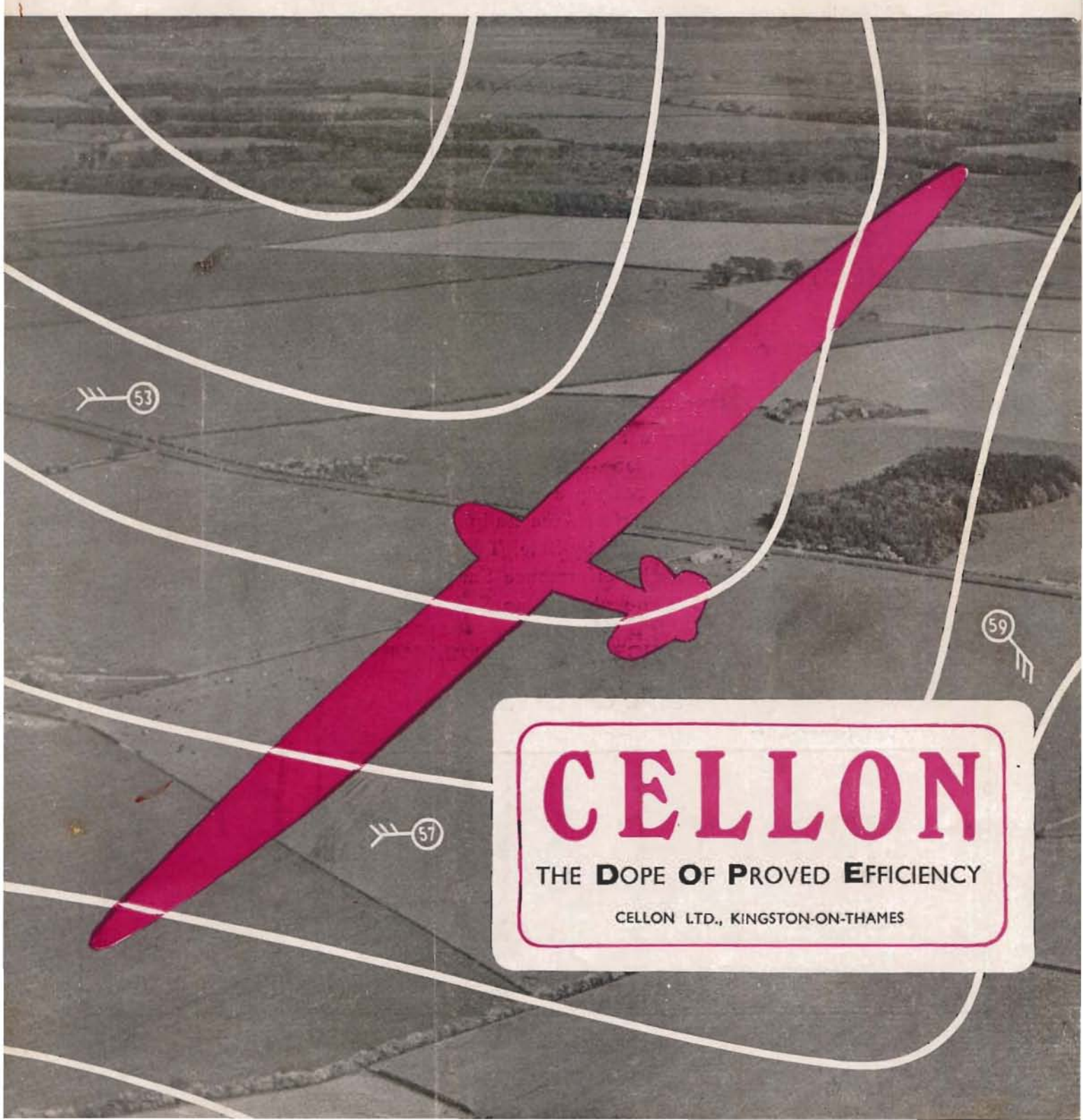

THE SAILPLANE *and* GLIDER

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Editorial Offices: 13, VICTORIA STREET, LONDON, S.W.1 Telephone: ABBey 2615-6-7

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Twenty Years of Progress

THE twenty years' period of peace between Britain and Germany, which has just come to an end, has coincided with the development of soaring flight. But this is no mere coincidence. The peace treaty which began the period was responsible also for the beginnings of an organised gliding movement in Germany under the slogan: "If we can't fly with engines, then we shall fly without." Nearly twenty years later, Oskar Ursinus, the spiritual father of the movement, was writing: "We in Germany are proud to have created sailflying and to have made a present of it to the world." In presenting sailflying to the world, in spite of the circumstances in which it began, they have shown a genuine desire to help others, and a hospitality to visitors to their own country, which will long be remembered by those who have benefited therefrom.

These pioneers were imbued with a spirit of disinterested scientific enquiry and with the excitement of adventure into the unknown, and when 1933 brought a militarisation of gliding, the only thing they liked about it, we have reason to know, was the increased flow of money which would accelerate scientific and technical progress. This encouragement of gliding from political motives has been seen in many countries in the last few years. It has even been suggested that THE SAILPLANE AND GLIDER should take advantage of the situation to gain cheap *kudos* by taking a hand in the campaign. Is this paper, which circulates to the ends of the earth, to tell its subscribers in every country that they should increase their soaring skill in order that they may the more effectively destroy each other?

The scientific and political motives cannot be mixed. One or other must be chosen. Since this journal was founded, in 1930, it has put forward progress in the art, science and adventure of soaring flight as a worthy ideal in itself for its devotees throughout the world to strive for—and one which brings its own reward. We can see no reason to change that policy now.

"The Sailplane" to Continue

THERE is no need to assume, as a few readers have done, that THE SAILPLANE AND GLIDER will stop publication forthwith. Why should it? There is no dearth of news. The queue of information waiting to be written up has grown no shorter since war began. And even if civilisation should go into decay, sailflying could survive the elimination of mechanical power.

It is not yet certain whether gliding is classed by the Air Ministry as "civil flying," but probably soaring will still be possible at several British clubs and gliding at most of them. Cross-country soaring is somewhat risky at the moment in Europe, with anti-aircraft batteries scanning the sky for "unidentifiable" machines, but there are other parts of the world where it can still be done and from which news can reach us. Moreover, a large number of sailplane pilots have recently changed their occupation, and what their present occupation is will be news to other readers (censorship permitting); so will they kindly let us know what they are up to.

It must be admitted, however, that our noted world-wide circulation is not at the moment as world-wide as usual, and there are other reasons for financial stringency, so it will be necessary to reduce slightly the size of the paper and the frequency of its appearance. Our present intention is to publish a November–December issue towards the end of November, and probably by that time we shall have a clearer idea of what the future will allow.

Meanwhile there is "soaring as usual" in America, and as it cannot all be reported here, readers with an insatiable thirst for news would be well advised to subscribe to *Soaring*, the monthly paper of the Soaring Society of America (1909, Massachusetts Avenue, Washington, D.C.), for which the subscription is 3 dollars a year. And if you can no longer visit your club to buy THE SAILPLANE AND GLIDER, it can still be obtained through a newsvendor or by postal subscription from 13, Victoria Street, S.W.1.

Training Methods

READERS have sometimes asked for a "column," or similar four-sided space, of material for beginners—invariably without offering to contribute anything towards it themselves. In the Club News in this issue will be found an article by Mr. Saffery describing his method of training Air Defence Cadets in Yorkshire, which he has done with singular success. To maintain an average of only 13 flights per "A" certificate over four camps must be unique in gliding history. So if you want to know how this is done, read it, even if it is not entitled "Beginners' Corner" and occupies a six-sided space instead of a rectangle.

From Here and There

Youth at the Helm.—Rolf Mink, aged 11 years, has passed his "B" test at the Harsberg gliding school, as reported by *Flugsport* in August.

* * *

In East Africa.—The Mbeya Gliding Club has been revived by the gift of a sailplane from the Aero Club of Germany, through Wolf Hirth's influence.

* * *

A Wedding.—The marriage is announced of Ralph C. G. Slazenger and G. Margaret Ascroft on September 14th at Sandwich, Kent. Mr. Slazenger is well known as one of the founders of the Cambridge University Gliding Club and as a sailplane pilot. After winning the altitude prize at this year's National Contests he landed into a stone wall, and for some time afterwards had to wear a plaster support for his back, but he is now a lot better. Miss Ascroft is a member of the Derbyshire and Lancashire Club, and has been responsible for much of its Press publicity.

* * *

Weather Maps.—Weather forecasts have stopped, and the Air Ministry's Daily Weather Reports are no longer sent out to subscribers as soon as published. However, it is still possible to obtain them 15 days in arrear, so that students of the weather who use these charts will now have to write down their own observations instead of trusting to memory. Evidently the German forecasters are not credited with the ability to see more than a fortnight ahead, even if they know what's coming to them from the west. The chart for September 4th, now received, shows that the thick weather encountered by the R.A.F. in the neighbourhood of Kiel was due to a cold front which stretched from the S.W. coast of Norway to the Gulf of Genoa.

Two Postcards

From opposite sides of the world we have received with much pleasure a couple of postcards.

The first, sent off during the American National Soaring Contest, says: "Thanks for the radiogram. All N.S. records were broken here," and is signed by: Wally Setz, K. O. Lange, Vic Saudek, John Novak, Jay Buxton, Ernest Schweizer, Emerson Mehlhose, Gus Scheurer, Jack O'Meara, Larry, Bob Stanley, A. Schweizer, Lew Barringer, Chet Decker, W. Merboth, R. E. Franklin, Emil A. Lehecka, Hans Groenhoff, L. Chapman, Stan Smith, Earl Southee, R. C. duPont, Lucretia Buxton, E. N. Jacoby, Art Schultz, Peter Riedel, E. Zook, "Speed" Westphal, Genevieve J. Eaton, and two (Harvey S—— and T—— F——) with names partly obliterated. In fact, nearly everybody who is anybody over there.

The other, posted at the end of the German National Contest, with the message: "After a grand contest *Fliegergrüsse* from the last day," was signed by the following constellation of sailflying talent: Wolf Hirth, D. Pelzner, C. Magersuppe, Kurt Schmidt, Edgar Dittmar, G. Espenlaub, P. Krekel, two names not very legible, and, finally, above a fine photo of his REIHER (not WEIHE, as stated last month), Erwin Kraft, the winner.

"Silver C" Certificates

The following "Silver C" certificates were received by the British Gliding Association on August 29th from the International Commission for the Study of Motorless Flight (Istus), which has its headquarters at Darmstadt:—

British No.	*Name*	*Istus No.*
53	C. J. Wingfield	No. 1539
54	F. T. Gardiner	No. 1540
55	A. P. Pringle	No. 1541
56	G. H. Briggs	No. 1542

Thus six "Silver C's" have so far been earned by British pilots this year, as against 20 last year. The other two are L. C. Withall (No. 51) and the late F. Charles (No. 52). A complete list of the previous 50 was given last February on page 32.

L. Howard-Flanders

MR. L. HOWARD-FLANDERS, whose death is reported to have taken place on August 14th at Bristol, will be remembered by all who were concerned in the administration of the British gliding movement during its first few years. In 1930 he became the first secretary of the British Gliding Association, and took on the same job again in 1934 at a time when the B.G.A. was too hard up to pay a secretary at all. Between these dates he served on the B.G.A. Council and Technical Committee. For a short period in 1930 he was also secretary of the London Gliding Club, at the time when that club was holding its first flying meetings near Tring. Further, he edited the first three and only issues of the *Journal of the B.G.A.* in 1930 and 1931.

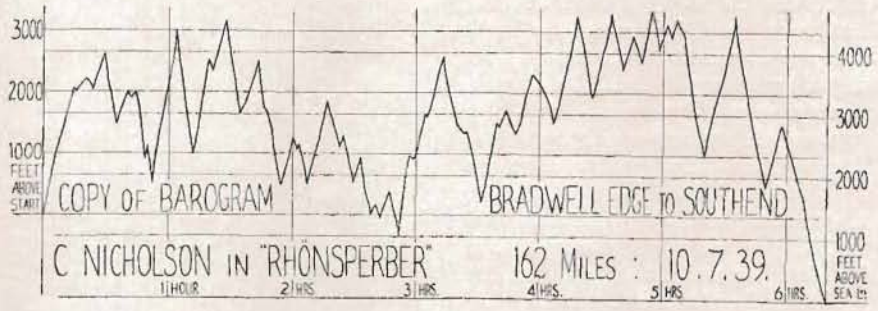
Well known in the years 1908 to 1912 as a successful designer of aeroplanes, Mr. Howard-Flanders was at his happiest in a pioneer atmosphere, so was naturally attracted to gliding at the time of its first organised beginnings. He worked hard both in the B.G.A. office and in touring the country in search of sites. He also had stimulating ideas on the need for technical research, as was shown in an article contributed to THE SAILPLANE for December 5th, 1930, on "The Need for Charting Air Currents." In one prophetic paragraph he anticipated the Soaring Map of Poland which was to be produced nearly eight years later, when he recommended an "Investigation into Cloud Sailing and the location of cumulus clouds. It will be found that such clouds are usually formed in certain definite localities because the thermal currents which cause them are produced by definite conditions." Another prophetic article, published in March, 1931—seven years in advance of the real thing—describes an imaginary cross-country flight from London to Torquay, in the course of which the pilot uses hill and cloud lift over Buckland, now the site of the Surrey Club.

Mr. Howard-Flanders had a *flair* for controversy, and took a leading part in that which arose in 1934 over the distribution of the Government subsidy to gliding. He left the B.G.A. for good early in 1935, and at the time of his death was on the staff of the Bristol Aeroplane Company.

The Wakefield Trophy Flight

BRADWELL EDGE TO SOUTHEND, 162 MILES

By CHRISTOPHER NICHOLSON



CAMPHILL and its surroundings are certainly awe-inspiring. As I sat in the SPERBER waiting for the launch on the Monday of the Competitions I felt anything but happy. The previous afternoon I had taken her, broadside and a foot over a Derbyshire wall through turbulence, into a field five miles away, and, kicking her straight, had mopped my brow and thanked God.

To-day (July 10th) the W.N.W. wind was fluky, and half an hour previously there had been a simultaneous precipitate landing by six or seven machines. The cloud base was well under 2,000 ft. above the rugged countryside and the 9/10 overcast gave little or no indication of lift. Further, it was already afternoon. Four hours later I was to find myself under an ideal sky.

The unrelieved anxiety of that intervening period seems to have obliterated all but a few strong impressions. Certainly I'm not conscious of having made any decision that could be formulated into words. There was an interminable half hour somewhere round Stamford, at the end of which I was, so to speak, some two to three hundred feet below ground level. After four consecutive failures to make sense out of turbulent patches I found something. The little brute was going up all right, but was small and quite determined to get rid of me, so much so that I was forced to offset the lift by flying the SPERBER at 50-55 m.p.h. to keep sufficient control to stay with it. A sailplane under these conditions seems to me like nothing so much as an old fashioned and malevolent Turkish Bath bent on ageing one. Anyway, with the dawning instincts of a recently and forcibly matured mind I eventually gave up the struggle and promptly flew straight into an altogether unexpected corker at about 2,000 which took me easily into the whiteness of a newly-formed cloud.

Gardiner and I made a point of scribbling the starting time on the aluminium of the instrument panel, and our maps had concentric circles with Camphill as the centre marked on them with 30 miles between arcs. I got a check over Nottingham which gave me a line and a rough average speed of 25 to 27. I got no further fix till Cambridge. I drifted over Marshall's Aerodrome going up and was soon in one of many subsequent clouds. You can guess that by this time, 16 hours, I was in the devil of a hurry. With my very limited blind flying technique it would have been stupid to try and sort things out inside even the smoothest of them, so I carried on only so long as at least 3 ft. "up" showed on the variometer and my circles were still reasonably smooth. As soon as the green ball or the A.S.I. showed signs of coming unstuck I straightened up on to a compass course, which, having some south in it, was not too difficult.

For about an hour after Cambridge I clung to a line leading to Ipswich because it was down-wind. However, all the good stuff seemed to be on my right hand, so I gave up and went wherever I thought I should have least trouble in sorting out the up-draught. At about 18.45 a river appeared, and then an island. As soon as I tumbled to it that it was the Blackwater I turned across and a little up-wind towards Southend and its airport. The sky was clearing rapidly, but I found one further piece of lift over Latchingdon of hallowed memory (Wills from Dunstable in variometerless PROFESSOR, 1934), which I abandoned as soon as I felt reasonably sure I could reach the aerodrome. I landed at a few minutes past 19 hours.

* * * * * *

The fly was interesting because it divided itself into three periods. Coping with the first, as far as I was concerned, was a matter of pure opportunism. The bits of lift were small and broken and the manœuvrability of the SPERBER a tremendous help. In the second period, when the overcast was breaking up, a quarter of an hour's activity seemed to be succeeded regularly by flatness lasting about as long. During one flat bit over St. Ives I broke my heart flying back up-wind to a cloud that looked suspiciously like one I'd used, at a guess, nearly half an hour before. However, it saved the bacon, I think, and by the time I'd got nearly up to it again the entire appearance of the sky had changed and the SPERBER and I were still in the air to take advantage of it.

The last period was nearly ideal, with short streets and lots of blue sky. The barogram, as you'll see, drops its "sales chart" appearance, and takes on the more usual St. Vitus' dance look of a normal cross-country. To anyone with a sense of proportion it would have been fun, but I was in a tearing hurry to reach the coast before the conditions died. Even so far as I can make out from the barogram, I only succeeded in averaging a bit under thirty.

I see that Riedel, who's just broken the American height record *in the course of* a nine-hour cross-country, says it's 60 per cent. pilot, 20 per cent. machine, and 20 per cent. luck. Maybe . . . . for Riedel!

At the Tenth American Soaring Contest

By WOLF HIRTH

AS one who took part in the first American soaring contest at Elmira in 1930, I received an invitation to visit the Decennial Celebration and to take part in the inaugural meeting of the S.P. (Soaring Pioneers). My voyage was dependent on other engagements, so it was somewhat suddenly that I decided at the last moment to "declare for distance."

On June 23rd I arrived in New York at mid-day. Gustav Scheurer, an ancient sailflying comrade from 1922, awaited me on the pier and at once removed me from sun-baked New York across the Hudson to New Jersey. Then, at 7 o'clock in the evening, we set out with the sailplane trailer in tow, and on June 24th arrived at 3 o'clock in the morning at Elmira, having encountered several other trailers on the way.

During my nine years' absence there had arisen on Harris Hill, in spite of restricted funds, a handsome flying centre, which blended well with the landscape. The main building, which is of wood, comprises the administration offices, a meeting room and a mess-room. One hangar is completed and another under construction. Competitors and teams live in small wooden shacks, each containing ten beds. They also allowed me to be quartered there, so as to be in the midst of it all. A magnificent swimming pool was eagerly used in the great heat.

In the afternoon the opening festivities took place, with many speeches and noble words.

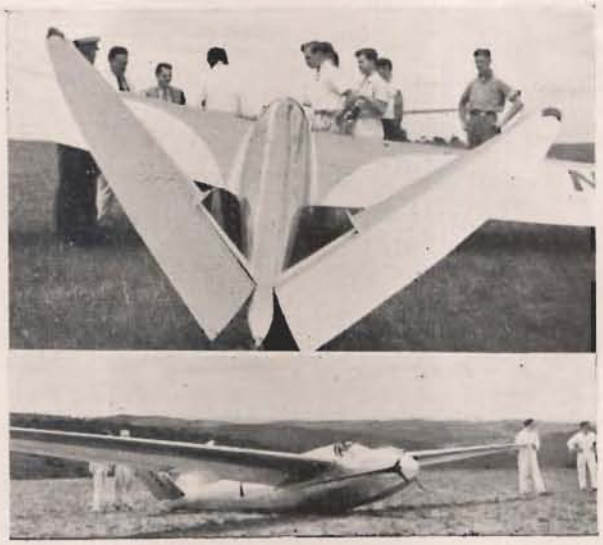
The assembled sailplanes made at first a disappointing impression on one who has known the more recent Rhön Contests. There were only a few high-performance sailplanes. By far the greatest number were practice (intermediate) sailplane types, such as old, or partly modernised, FRANKLINS, GÖPPINGENS, or home-constructed machines.

The most interesting entry was the NOMAD of Robert Stanley, a naval lieutenant from Pensacola in Florida, who was its designer, constructor and pilot. The fuselage had a duralumin shell; the wing was of wood. The empennage consisted of two surfaces with an angle of 90° between them, thus representing both elevator and rudder. So far as could be observed from the ground and deduced from its performances, the machine had good flying qualities. With it Stanley made some excellent blind flights and twice exceeded the American height record.

Near the end of the Contests, while the machine was being put through tests to determine its strength, the wing broke at a place where a previous repair had been badly carried out, and Stanley had to save himself by parachute.

Also of note were the two SCHWEITZER all-metal two-seaters, in which there were few rivets but many bolts. The little bolts were not locked. "You can hear soon enough when a nut is loose," was the constructor's explanation!

The contest itself was, apart from a small group in the lead, nothing like such a stern "war to the knife" as with us in the Rhön. For many of the competitors the meeting is almost the only flying event of the year, so that they fly more for pleasure and experience.



This machine with the surprising tail is the "Nomad," designed and built by Robert Stanley and flown by him at this year's American National Contests, where it put up a national height record of 17,264 feet.

(Photos by Wolf Hirth.

Nevertheless there was a tense duel between the two leading pilots, which Chester Decker won by a big spurt after Stanley had temporarily held the lead: 3,021 points as against 2,320. Third came Merboth in the old Bowlus ALBATROSS, with 1,930 points. There followed Lehecka in RHÖNSPERBER with 1,747, and John Robinson with 1,028 in his own design ROBIN. The remainder had under 1,000 points.

Along with the high-performance class there was also a contest for the less experienced who had no "Silver C." In this, Buell was the winner, followed by Maxey and Hamilton.

The best performances were the following new American records:—

Robert Stanley in NOMAD, 17,264 ft.: height record.

Lewin Barringer in SCHWEITZER, 6,560 ft.: two-seater height record.

Chester Decker in MINIMOA, 40 miles goal flight with return to start.

Chester Decker in MINIMOA, 233 miles to Atlantic City: distance record.

At a preliminary contest in Texas, however, a Bowlus BABY ALBATROSS had put up an unofficial record of 280 miles.

It is worthy of note that during the Contest the first three "Gold C" licences were qualified for by Stanley, Decker and Robinson.

Stanley had the special joy of accomplishing his first visit to New York by sailplane. It must have been a great adventure for an American, after a long, trying flight, to see the swarm of skyscrapers appear on the horizon and then to fly right across the great city.

On the second Sunday of the Contest those who had taken part in 1930 held their meeting. A very delightful evening concluded the foundation day of the "Comradeship of Old Sailfliers," who did not neglect

to remember those of their number whom death had taken away. But not all those living were present, for Hawley Bowlus was specially missed, and also Peter Riedel, who was away in the west on his attempt to cross the United States in soaring flight.

Under the leadership of A. L. Lawrence, the organisation of the contest was carried out by Prof. R. R. Franklin, Jay Buxton, Gus Scheurer, Dr. Karl O. Lange, and Henry Wightman.

The majority of flights were started by winch. Only in very unfavourable weather were there any aero-tows, which numbered 145.

Thirty-six aircraft and 88 pilots took part.

Launches from Harris Hill ...	460
Launches from aerodrome ...	226
Distance flights	117
Altitude flights	138
Duration flights	54
Total distance flown ...	6,808 miles

One should not make the mistake of comparing these results with those in Germany without taking other factors into consideration, since soaring flight has been developed in the U.S.A. entirely by private initiative.

"Viking" Two-Seater Takes the Air

By P. A. WILLS

SUNDAY, August 27th, 1939: the last week-end of Peace. And yet some people at Dunstable managed to get their minds off Hitler very satisfactorily. For this was the day chosen by the VIKING II two-seater to leave the egg.

In appearance this machine is extremely like the single-seater; in performance, however, there is one striking difference.

After various cautious efforts to get her 1,100 lbs. all-up weight off the ground, we did a hefty ground-hop with a winch-bungy launch. The controls seemed to function very well, so next we took her to the top of the hill. The wind was exactly along the hill from the S.S.W. We did various descents with growing confidence, and after tea found with joy that the wind had gone round on to the hill. With a reassuring self-confidence the designer and manufacturer strapped himself into the seat beside me, and we were launched.

The wind was light and oblique, and two GRUNAUS disporting themselves in the lift, varying from 100 to 300 ft., made the manœuvring of so large and novel a craft a full-time job, which gave rather less time for analysis of her handling. Nevertheless this did give one a chance to estimate her relative performance against them.

Flying speed seems to be 40–42 m.p.h.; the stall around 37 m.p.h. These figures are the same as for the MINIMOA, and surprisingly higher than for the VIKING I. Personally, providing adequate spoilers make landing easy, I consider these speeds about right for a high-performance machine built for cross-country work.

The sinking speed was hard to judge on a flight lasting a quarter of an hour in such restricted conditions; however, there seems to be no doubt that it is better than a GRUNAU. If we assume, therefore, that it is around 2½ ft. per sec. at 40 m.p.h., we get a gliding angle of 1 in 24. This is an exceptionally good figure, and one which offers first-class cross-country possibilities. The best gliding angle is likely to be at a rather higher speed than the normal flying speed.

The controls seemed good, light but firm in action. The machine was slightly nose-heavy, though I understand that the position of the centre of gravity came out right, so I expect this nose-heaviness can be cured by slightly less incidence on the tailplane.

The spoilers were adequate; in fact, I found a spot-landing after this first flight required no excessive effort of skill. The landing wheel is, of course, essential on so large a machine, both for handling on the ground and for take-off. On this flight the brake was not functioning; this no doubt has since been rectified.

The ingenuity of the VIKING fittings is now well known, and the task of rigging and de-rigging this machine is wonderfully quick and simple in spite of her size and weight.

If only Hitler had given us another week, the British height and distance records were in her pocket. This crime is yet another to be added to the long list now under consideration.

The two-seater "Viking II" arrives at the top of Dunstable Downs for its first test flight on August 27th.

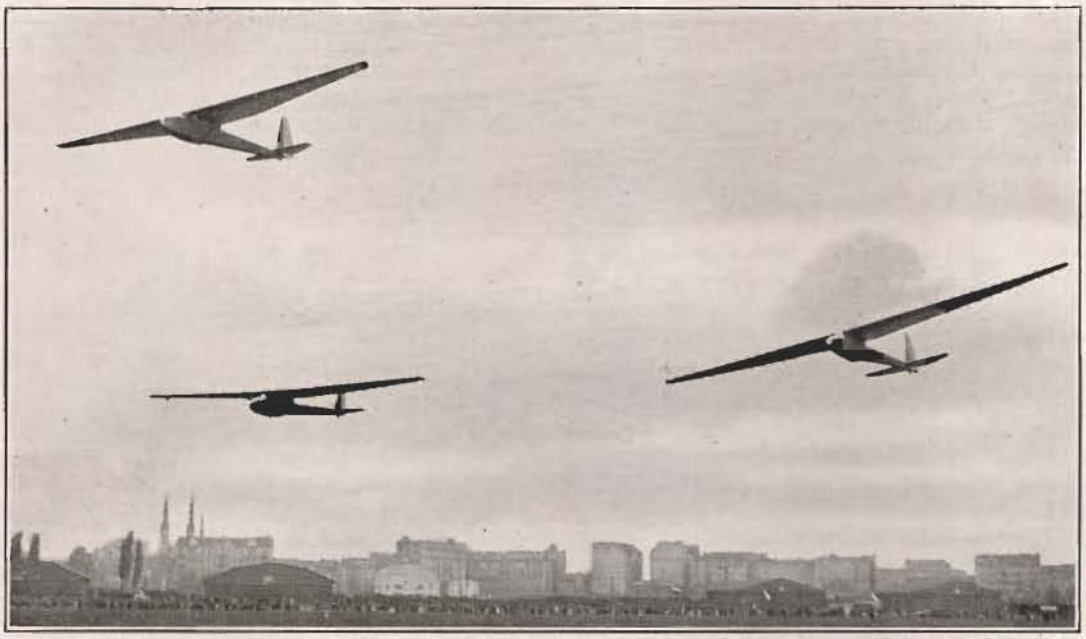
[Photo by W. J. Poynter.

EDITORIAL NOTE.—The VIKING II was fully described, with general arrangement drawings, in THE SAILPLANE for February, 1939, on page 25.

The span is 61 ft., wing area 235 sq. ft., empty weight 510 lbs., and wing loading 3.8 lbs. per square foot. Seating is side by side, and overcrowding is avoided by making room for the off-side arms of the occupants in the wing roots. Special features are that all working joints in the control system are fitted with ball-races, both sets of rudder pedals adjust separately without disconnecting the control wires, and earth can be scooped up into the detachable nose to balance the machine when flown as a single-seater.

Even before the test flights, three machines of the type had been provisionally ordered, though the orders have had to be provisionally cancelled, as unfortunately under present conditions none of these prospective customers is in a position to do much flying.

Sailflying in Poland



A "train" of three Polish sailplanes being towed across Warsaw aerodrome. The towing aeroplane is out of the picture.
[Photo from A. T. Lutoslawski.

THE first gliding meeting ever held in Poland took place in the summer of 1923, at Bialka in the Lower Carpathians. Nine gliders turned up, and the longest flight, one of 3 mins. 26 secs., stood as the Polish duration record for the next five years. News of German activities at Rossitten, on the Baltic coastal dunes, led to a meeting being held among similar sandhills on the Polish coast in 1925, but there was no wind and only short glides were made.

By 1926 the Polish gliding movement had been reduced to a single small group of students at Lwow, led by Waclow Czerwinski, who has remained the country's leading sailplane designer. In 1927 they were joined by Szczpan Grzeszczyk, also a student, who proved himself a capable organiser and also, at a meeting held in May, 1928, made the first soaring flight in Poland by keeping up for seven minutes. As a consequence of this activity the group was offered a Government subsidy equivalent to £120 in order to finish building two sailplanes which they had in hand.

In November, 1929, a flight of two hours again brought soaring into the news, and this time the authorities and the public were thoroughly aroused, with the result that a large training organisation was set in motion.

The ground where this flight was made was subsequently developed by the Aero Club of Lwow into the country's leading soaring centre. It is at Bezmiechova, in the Carpathian foothills, 25 miles S.W. of Przemysl and 25 miles from the Slovak frontier. The site consists of a ridge nine miles long, running from W.N.W. to E.S.E.; the soaring slopes therefore face S.S.W. and N.N.E. Every year since 1936 a number of British pilots have been made welcome at the school, and several have passed all or part of their "Silver C" tests there. Several more arranged to visit the place in early September this year, but we believe they all cancelled their trips at the last moment excepting A. H. Yates, who spent the last week of August there.

In 1932 two bodies were set up to control gliding in Poland: one, a Technical Gliding Institute at the Lwow Technical High School, and the other a Gliding Committee of the Aero Club of Poland. The latter, consisting of delegates from the Institute and from the clubs, was to control the flying organisation and allot subsidies received from the Ministry of Communications, the Polish Air League, and other institutions. The Ministry, through its Civil Aviation Department, was responsible for safety regulations. For administrative purposes the country was divided into ten districts,

Some of the Polish team at the international contest on the Wasserkuppe in 1937. Zabski (furthest left) won the altitude prize with a climb of 3,295 metres.
[Photo by A. Ivanoff.

each with its organisation controlling all the local groups within the district.

This gave an enormous stimulus to motorless flying in Poland; nevertheless, up to 1936 nearly all the advanced soaring was confined to the period of the annual national contests, held in the Carpathians, usually at a large military gliding school at Ustjanowa, 10 miles from Bezmiechova. Then a change was made, and in 1937 and 1938 the Poles adopted a course never before tried by any country, holding the national contests on the plains and making all launches by aerotow. Results justified the experiment, for 10,837 miles of cross-country flying were done at the 1937 meeting, and in 1938, in poorer weather, 9,730 miles, each meeting lasting less than a fortnight. The longest distance flights made at these meetings were of 195 and 186 miles respectively.

That Poland is a specially favourable country for thermal soaring is claimed by Dr. Adam Kochanski to be proved by meteorological statistics. Thermal currents, he says, depend to a large extent on the daily range of temperature, and in July, for instance, the mean range increases from 7° C. on the Baltic coast, through 8° and 9° in parts of Germany, to more than 10° along a belt which stretches from the Balkans through south and east Poland into south-western Russia.

The gliding school at Bezmiechova.

Much valuable scientific work has been done in Poland on the meteorology of soaring flight. There have been researches into the distribution of lift in slope winds, the frequency of various thermal velocities at different times of day and under different types of cloud, and the temperature of the lower layers of air at night between the crest and the valley at Bezmiechova. The last was a specially noteworthy piece of research, for it determined the source of the lift which had enabled some prolonged night flights to be made in calm air at Bezmiechova in the autumn of 1934, and for the first time explained the mechanism of the so-called "evening thermal." This, at first thought to be due to daytime-heated air rising from large woods, was shown on the contrary to be caused by the displacement of warm air out of the valley by cold air running down the slopes, which had been cooled by radiation into a clear night sky.

In 1935 Poland established itself as the second country in the world as regards soaring flight, by registering 19 "Silver C" certificates. By the end of last March this number had risen to 159, as against 823 held in Germany and 50 in Britain. Published statistics show that, at the end of 1937, there were some 10,000 glider pilots in the country, organised in 130 groups, and operating on 90 different sites, 61 of which were designated as "Schools."

The Poles have always been proud of the fact that they have built up their gliding movement without any outside help. They have designed and constructed their own machines, developed their own training methods, and done their own scientific research.

As we go to press, the Bezmiechova centre appears to have fallen within the Russian sphere of influence, the boundary of which, the River San, is only a few miles away to the south-west, west and north.

Storing Your Sailplane

MANY people and clubs who own sailplanes are not going to give up the joys of ownership merely because of temporary restrictions on flying. But when they fly again they will need something airworthy to fly. So we sought advice from Mr. H. E. Bolton, who must have inspected more machines on behalf of the British Gliding Association than any other man living. He was too busy to write an article on how to preserve gliders in storage, but gave us an interview, and this is the result:—

To keep the woodwork in condition it must be stored in air which is neither too damp nor too dry. Dryness destroys the moisture content of the wood; dampness causes the glued joints to fail. The relative humidity of the air around it should be about 60%. But the *relative* humidity of a stagnant body of air varies with the temperature, so to avoid this variation (*a*) the air must circulate, and (*b*) excessively high temperatures must be avoided.

To help the circulation it is a good idea to open up all inspection holes and leave them open, to allow a free current of air to pass through. All varnish or protective covering on the woodwork should be inspected to see if it is still exercising its protective function.

The fabric should not be exposed to the sun's rays, or it will rapidly rot away.

If the machine is kept in a large building it should be under dust-proof covers. But the ideal, Mr. Bolton said, would be to keep it in its trailer and put the trailer in a covered lean-to shed. Thus there is plenty of circulation of air, while the roof of the lean-to keeps rain from soaking through the trailer walls and saturating the air inside, and also prevents direct sunlight from overheating the interior and causing a drastic reduction in relative humidity.

In whatever position the machine or its parts are stored, see that support is given only at points where the structure will take up the strain, because if wood is subjected to prolonged stresses it will distort. So support a wing at its main spar, but not at an isolated point on its trailing edge. The same principle applies to the fuselage.

Metal fittings must be greased with vaseline or some other grease which won't easily come off. Cables should also be greased; or, better still, they can be withdrawn altogether, greased, and then wrapped in greaseproof paper.

Gliding Certificates

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

"A" Certificates

No.	*Name.*	*Club.*	*Date.*
1392	W. Middleton	Newcastle	21.7.39
1393	R. H. Campbell	Newcastle	21.7.39
1394	C. H. Hopley	Derby and Lancs.	23.6.39
1395	A. de Redder	Yorkshire	2.6.59
1396	A. J. P. Martin	Yorkshire	4.6.39
1397	H. N. Lee	Yorkshire	28.7.39
1398	J. W. Billenness	Southdown	16.7.39
1399	T. I. Alcock	Yorkshire	25.7.39
1400	F. M. Gill	Surrey	20.5.39
1401	J. E. Jameson	Channel	2.8.39
1402	D. C. Cook	Yorkshire	29.5.39
1403	B. B. Smith	Scottish Union	24.7.39
1404	G. R. Bainton	London	26.7.39
1405	J. H. Mould	London	26.7.39
1406	I. C. Sanderson	London	26.7.39
1407	B. G. A. Smith	London	26.7.39
1408	B. E. Sharp	London	30.7.39
1409	R. F. Cutler	London	26.7.39
1410	W. E. Cook	London	26.7.39
1411	L. L. Beckford	London	30.7.39
1412	E. Greenwood	London	30.7.39
1413	J. M. Allen	London	30.7.59
1414	G. F. C. G. Shirley	London	26.7.39
1415	J. Miller	London	26.7.39
1416	H. Feeney	London	26.7.39
1417	E. J. Perkins	London	30.7.39
1418	A. G. Page	London	26.7.39
1419	G. Emmerson	Yorkshire	14.6.39
1420	K. Gelder	Yorkshire	14.6.39
1421	M. H. Franklin	Surrey	16.7.39
1422	N. F. Bounsell	Southdown	23.7.39
1423	H. S. Ford	Oxford	2.4.39
1424	M. A. R. Sutherland	Oxford	9.7.39
1425	J. C. Reid	Ulster	8.7.39
1426	G. A. G. Bowden	Midland	24.7.39
1427	R. L. Perkins	Surrey	2.8.39
1428	F. F. W. Griffith	Surrey	8.8.39
1429	A. H. Gibb	Surrey	8.8.39
1430	T. G. Edwards	Cambridge	1.7.39
1431	A. H. Pocock	Cambridge	30.6.39
1432	W. J. Humphries	Cambridge	30.6.39
1433	A. R. H. Keeley	Cambridge	1.7.39
1434	S. H. Balam	Cambridge	30.6.39
1435	J. W. Caunter	Cambridge	1.7.39
1436	E. J. D. Stanley	Cambridge	1.7.39
1437	J. E. Talbot	Cambridge	30.6.39
1438	I. R. Evans	Cambridge	1.7.39
1439	A. E. Smith	Cambridge	1.7.39
1440	D. M. Roberts	Cambridge	2.7.39
1441	H. Batters	Yorkshire	13.7.39
1442	H. F. Sharp	Yorkshire	13.7.39
1443	R. Sewires	Yorkshire	13.7.39
1444	C. Constantine	Yorkshire	14.7.39
1445	R. Naylor	Yorkshire	13.7.39
1446	D. Sykes	Yorkshire	13.7.39
1447	K. Hill	Yorkshire	14.7.39
1448	J. Miller	Yorkshire	13.7.59
1449	J. Johnston	Newcastle	21.7.39
1450	W. S. Page	Newcastle	27.7.39
1451	W. G. Wood	Newcastle	27.7.39
1452	C. Bremner	Newcastle	26.7.39
1453	D. L. Smart	Midland	13.8.39
1454	G. Williamson	Midland	9.8.39
1455	Gwladys V. S. Aldridge	Midland	13.8.59
1456	F. W. Barling	Channel	16.8.39
1457	T. R. Wilson	London	13.8.39
1458	G. Fryer	London	8.8.39
1459	V. Sundaram	London	6.8.39
1460	L. W. G. Niehorster	London	12.8.39
1461	C. V. Wills	London	13.8.39
1462	C. B. Pringle	London	12.8.59
1463	C. Philipson-Stow	London	11.8.39
1464	R. P. Cue	London	16.8.39
1465	A. D. Campbell-Pollard	London	13.8.59
1466	C. P. F. Cronin	London	11.8.39
1467	A. K. Comben	London	12.8.39
1468	G. Troup	London	12.8.39
1469	C. Troup	London	13.8.39
1470	I. C. W. English	London	8.8.39
1471	T. A. Smith	London	16.8.39
1472	A. L. C. Chalk	Oxford	21.7.39
1473	A. W. F. Erskine	Oxford	17.7.39
1474	C. G. Christophers	Yorkshire	5.8.39
1475	L. G. Kilch	Surrey	13.8.39
1476	E. G. Powell	Oxford	30.7.39
1477	W. Ackers	Oxford	8.8.39
1478	R. A. Butler	Oxford	31.7.39
1479	A. J. Tomsett	Oxford	29.7.39
1480	S. H. Rose	Oxford	30.7.39
1481	D. Henderson	Oxford	30.7.39
1482	A. S. Jackson	Oxford	30.7.39
1483	D. H. Rudd	Scottish Union	29.7.39
1484	T. R. Burne	Yorkshire	1.8.39
1485	E. K. Piercy	Yorkshire	2.8.39
1486	L. S. Walton	Cambridge	10.5.39
1487	M. J. Hayes	Southdown	12.8.39
1488	R. H. Leggett	Southdown	9.8.39
1489	J. G. Swales	Southdown	9.8.39
1490	G. A. J. Flint	Southdown	9.8.39
1491	B. D. Rough	Southdown	12.8.39
1492	A. A. Jacobsen	Southdown	9.8.39
1493	E. Sandford	Yorkshire	11.4.39
1494	W. R. McComb	Yorkshire	1.8.39
1495	H. C. Adams	Surrey	13.8.39
1496	R. G. Colbran	Yorkshire	19.8.39
1497	F. H. Bailey	Yorkshire	17.4.39
1498	A. J. Hayes	Surrey	11.8.39
1499	E. B. Angold	Surrey	2.8.39
1500	S. W. Smorthit	Cambridge	2.6.39
1501	J. W. A. Armstrong	Cambridge	1.6.39
1502	Sybil M. Murray	Surrey	8.8.39
1503	W. H. Hill	London	30.7.39
1504	J. A. Crane	London	9.5.39
1505	R. J. Q. Baker	London	23.7.39
1506	D. M. Holman	London	22.7.39
1507	H. R. Hearne	London	12.8.39
1508	V. P. Ashdown	London	16.8.59
1509	Betty C. Hobbs	London	23.7.59
1510	C. H. Stocks	Yorkshire	31.7.39
1511	R. Foster	Yorkshire	30.7.39
1512	T. H. C. R. Snow	Midland	28.7.39
1513	R. L. Merrett	Midland	28.7.59
1514	A. Harper	Midland	28.7.59
1515	W. G. T. Day	Midland	26.7.39
1516	D. G. Mechem	Midland	27.7.39
1517	D. H. P. Davey	Midland	25.7.39
1518	D. M. Marquis	Midland	27.7.39
1519	D. G. Goodway	Midland	29.7.39
1520	F. W. Montague	Midland	25.7.39
1521	R. A. Humphries	Midland	29.7.39

"B" Certificates

No.	*Name.*	*Club.*	*Date.*
1392	W. Middleton	Newcastle	27.7.39
1395	A. de Redder	Yorkshire	4.6.39
1396	A. J. P. Martin	Yorkshire	4.6.39
1399	T. I. Alcock	Yorkshire	26.7.39
1400	F. M. Gill	Surrey	23.7.39
1381	R. F. Brigden	Southdown	2.8.39
1402	D. C. Cook	Yorkshire	31.5.39
1216	J. H. Gill	Surrey	2.8.39
1302	V. J. Morris	Surrey	2.8.39
1421	M. H. Franklin	Surrey	1.8.39
1422	N. F. Bounsall	Southdown	2.8.39

No.	*Name.*	*Club.*	*Date.*
1424	M. A. R. Sutherland	Oxford	9.7.39
1038	J. P. M. Wilkes	Oxford	12.7.39
1425	J. C. Reid	Ulster	11.7.39
1398	J. W. Billenness	Southdown	5.8.39
1426	G. A. G. Bowden	Midland	25.7.39
1427	R. L. Perkins	Surrey	6.8.39
1429	A. H. Gibb	Surrey	9.8.39
1383	A. C. Woodley	Southdown	5.8.39
1385	B. F. Bushby	Southdown	6.8.39
1454	G. Williamson	Midland	9.8.39
1455	Gwladys V. S. Aldridge	Midland	13.8.39
1458	G. Fryer	London	12.8.39
1457	T. R. Wilson	London	16.8.39
1459	V. Sundaram	London	11.8.39
1460	L. W. G. Nichorster	London	13.8.39
1461	C. V. Wills	London	16.8.39
1462	C. B. Pringle	London	14.8.39
1463	C. Philipson-Stow	London	15.8.39
1464	R. P. Cue	London	16.8.39
1465	A. D. Campbell-Pollard	London	14.8.39
1466	C. P. F. Cronin	London	14.8.39
1467	A. K. Comben	London	14.8.39
1468	G. Troup	London	14.8.39
1469	C. Troup	London	14.8.39
1470	I. C. W. English	London	12.8.39
1472	A. L. C. Chalk	Oxford	23.7.39
1473	A. W. F. Erskine	Oxford	21.7.39
1370	D. U. Barnwell	London	8.8.39
1085	K. J. McKelvie	London	12.8.39
1105	M. H. G. MacLucas	London	12.8.39
1401	J. E. Jameson	London	8.8.39
1484	T. R. Burne	Yorkshire	1.8.39
1485	E. K. Piercy	Yorkshire	2.8.39
1486	L. S. Walton	Cambridge	19.5.39
1245	Elizabeth M. Matthews	Surrey	26.8.39
1333	F. K. Harvey	London	22.7.39
1344	C. Bounevialle	London	22.7.39
1511	R. Foster	Yorkshire	1.8.39
1507	H. R. Hearne	London	14.8.39
1505	R. J. Q. Baker	London	6.8.39
1504	J. A. Crane	London	19.5.39
1502	Sybil M. Murray	Surrey	12.8.39
1499	E. B. Angold	Surrey	12.8.39
1498	A. J. Hayes	Surrey	23.8.39
1497	F. H. Bailey	Yorkshire	16.6.39
1496	R. G. Colbran	Yorkshire	19.8.39
1495	H. C. Adams	Surrey	25.8.39
1494	W. R. McComb	Yorkshire	1.8.39
1493	E. Sandford	Yorkshire	6.8.39

"C" Certificates

No.	*Name.*	*Club.*	*Date.*
1395	A. de Redder	Yorkshire	30.7.39
1396	A. J. P. Martin	Yorkshire	23.7.39
1399	T. I. Alcock	Yorkshire	1.8.39
1995	J. T. Robson	Yorkshire	30.7.39
1421	M. H. Franklin	Surrey	1.8.39
1302	V. J. Morris	Surrey	7.8.39
1425	J. C. Reid	Ulster	11.7.39
1427	R. L. Perkins	Surrey	9.8.39
472	M. S. Aldridge	Midland	8.8.39
1454	G. Williamson	Midland	10.8.39
1298	R. A. A. Walker	London	10.8.39
1401	J. E. Jameson	London	10.8.39
1248	O. W. Neumark	London	11.8.39
1484	T. R. Burne	Yorkshire	1.8.39
1247	E. Marianne Wakefield	London	2.8.39
1345	D. J. R. Gee	London	11.8.39
1429	A. H. Gibb	Surrey	26.8.39
1494	W. R. McComb	Yorkshire	1.8.39
1495	H. C. Adams	Surrey	26.8.39
1504	J. A. Crane	London	11.6.39
1511	R. Foster	Yorkshire	1.8.39

The number of "A" certificates, 128, is a record for any one month, and is no doubt due chiefly to Air Defence Cadets and club camps. When the Royal Aero Club granted 118 "A" certificates in September, 1938, the period covered two months.

News from the Clubs

London Gliding Club

Sunday, August 27th.—A wind blowing almost along the hill provided a little lift in the Bowl, where the VIKING II, with Wills and Scott aboard, did its first soaring flight of 16 minutes.

Sunday, September 3rd.—No one dared challenge the Government's restrictions on flying, though a few bold spirits suggested getting out a PRIMARY so that "C" pilots could make fools of themselves. The August Cadet camp went home.

Next week-end about two dozen members turned up, compared with half a dozen the week before. There was a lovely soaring wind, with thermals, very trying to those who were allowed to soar only on condition they kept below 50 ft. To do this it was necessary to fly between 40 and 50 m.p.h., so the crowds on the hill top were well and truly shot up.

We are not sure what the club will do for the future until we know who is likely to rent the land; so far, Mr. Turvey has taken the newly-acquired portion for ploughing. For the present the club is carrying on as usual with a petrol allowance of 100 gallons per month, and instruction is still available. The newest club GRUNAU is now fitted with a backward-placed hook and can be winched to 1,000 ft.

R. K. Kearney, Assistant Instructor to the London Gliding Club throughout this year's instruction camps.

Wills has become a pilot in the new civil air organisation, "National Air Communication." Nicholson has been taken on by the R.N.V.R. as a full-blown meteorologist—entirely on the strength of his gliding experience! Greenshields, like Meads and Goodfellow of the Derby and Lancs. Club, is also in the R.N.V.R. as a pilot. Murray and Withall are already in the R.A.F. and Briggs in the Army. Otherwise there is little news of what everybody is up to, and a lot of people are just "standing by" as Civil Air Guarders.

We are very sorry to have to record the loss of Reginald Kearney, our Assistant Instructor. A "Drone," which had been left at the club for anyone to use, was being taxied out of the enclosure without its wings, when Kearney, going to lift the tail round, walked into the revolving propeller. He was badly injured about the head, and died the same evening in Luton Hospital. He has been a most capable instructor, a great favourite with the Cadets and a delightful man to know, and has been a flying member of the club for many years. Kearney was a motor engineer by profession, but before that had been in the Royal Air Force during the latter part of the last war and for a short time afterwards.

Summary of Flying.

Week ending:	*Days of Flying*	*Ground-hops*	*Timed Flights*	*Flying Time hrs.*	*mins.*
August 27th	7	1,449	42	2	49
September 3rd	5	326	27	–	18
September 10th	2	72	17	3	54
September 17th	7	81	43	4	20
September 24th	1	40	11	–	41

Somewhere in Bedfordshire.

[Photo by A. Ivanoff.

Certificate Flights.

August 28th.—"A": Hawkins, Lear, Rowe, Offord, Wells, Spall, Lippold, Price, Tyson, Taylor, Jackson, Wilkins, Turner, Panter, Pennent, Carter.
August 29th.—"A": Moore, Andrews.
September 1st.—"A": Lockwood.
September 11th.—"C": McGrane.
September 14th.—"A": Dean; "A" and "B": Jamieson.

Tailpiece.—Overheard by club member in a Dunstable pub:—
First Local: "Why don't they put a little engine in?"
Second Local (contemptuously): "Putting an engine in a glider is like putting an organ in Free Church."

Yorkshire Gliding Club

Air Defence Cadet Camps at Welburn.

The Yorkshire Gliding Club has just completed three months' almost continuous cadet training on Welburn Aerodrome. Records were kept of every flight, and the following is a brief summary of methods and results.

Training is on a flat field of about 600 by 400 yards, with a longest diagonal of about 800 yards. The cadets are trained entirely on the winch. The primaries are fitted with a standard quick release and, for the trundling period, with wheels. During the early stages of flying the machines are rigged to have a considerable wash-out, consequently there is not much incidence on the wing; the glider is not very buoyant and ballooning and bouncing are reduced. When the cadets are ready to leave the ground the wheels are removed, as Welburn has a slight ridge and furrow surface, and the wheels were found to accentuate bounces; they also increase the landing run and the danger of running into boundaries on a field that is rather small for training.

Later on, when the pupils are flying up to heights of 60 ft. or more, the machine is rigged with more incidence, but with a very slight wash-out at the tips to improve aileron control, as our primaries are the square-winged type and do not have reflexed ailerons. They are also given a slight dihedral angle to make them more pleasant to fly, particularly in turns. We find it good policy to pay attention to accurate rigging and to keep all wires tight throughout the day, then the machines fly consistently and are less liable to damage in hard landings.

There have been five camps at Welburn and we have had 89 cadets. The second camp had very bad weather and flying was only possible on five days, so no very useful results were obtained. In the remaining four camps the progress was very consistent.

We try as far as possible to keep the cadets to the same standard; that is to say we launch them strictly in rotation, so that quick and slow learners have the same number of flights for about the first ten days. Then for the last two or three days the people who have got on well fly whenever possible, even if there is a bit of wind, and eventually go for their "A." The others, who are rather behind, fly in the evenings when the weather is calmer. The weather is, of course, a tremendous factor in the getting of "A's" on a field like Welburn, where there is barely room for the flight unless the wind is blowing gently along a diagonal of the field. However, we have found that a normal boy is ready to go for his "A" after about twelve flights.

The programme is usually as follows: Three trundles, on wheels and on the cable all the way. The movement of the rudder bar is also limited to about 1 in. either way. The wheels are then removed and the stick is set very silghtly forward of neutral. The boy is told that the winch will tow him just off the ground for a short distance. He is not to move the stick fore and aft, but is to keep the machine level laterally. The next flight is much the same but is up to about 6 to 10 ft. and rather longer. He is told to use his elevators as little as possible but to keep the machine level fore and aft and laterally. He is on the cable the whole time and the winch driver tries to keep him in the air at the appropriate height as long as he can. Once he is down, however, he is stopped, and if the flight was very short, flagged off again.

The next two flights are up to about 20 ft. The pupil is told to lift the machine gently off the ground when he has plenty of speed and let it rise to about twice as high as he has been before, then to fly it level until he feels the winch cease to pull him, when he is to put it into a gentle glide and try to make a landing. We find that as soon as a man can keep the machine level on his ailerons in the air and has shown average aptitude with the elevator, the best policy is to put him up to 15 ft. or more. From this height undulations of 10 ft. or so do no damage and the pilot has time to gather his wits and correct. To keep a primary flying across a field at 5 ft. is difficult for the winch driver and very difficult for the pilot, as the slightest excess of stick forward will put the machine on the ground and make it bounce badly. The pupil has not used his quick release at all, and up to this stage the glider is virtually flown by the driver of the winch. The rudder is still limited to less than half its range.

On his seventh flight the pupil is told to let the machine climb gradually until it is again about twice as high as he has been before, in fact to about 40 ft., when he will feel the winch cease to pull him. He is to put the nose down, and when he has the machine in a comfortable gliding attitude, to release the cable. He then has about four more flights in which he learns to use his rudder to keep the machine straight, and in each of which he climbs rather higher than before. At about his eighth or ninth flight the pupil is reaching heights where he can see well above the trees surrounding the aerodrome and out to the horizon beyond. This has a rather bewildering effect and some people have a phase of slow flying about this time. Some sort of indicator of the machine's attitude, such as Mr. Kronfeld's horizon bar, is an invaluable check and safeguard on a primary.

On his eleventh or twelfth flight he has to learn to make a gentle curve, as it is nearly always necessary to make a turn one way or the other to avoid obstacles on an "A" flight at Welburn. He is told to let the machine gather a little extra speed before starting his turn, and also to have the turn completed and levelled up again while he is still 50 or 60 ft. up. About this time he is also given a rather faster launch and told that he can take the machine up a little steeper. After this he goes for his "A" and nearly always gets it on his 13th or 14th flight.

The period that produces the crashes is the 10 ft. to 40 ft. stage, when an error of judgment is very quickly followed by a bump. Given height, and therefore time, a boy will nearly always correct a faulty attitude by himself. The usual prelude to a smash is flying on an uneven keel laterally, which causes a swing one way or another and probably a heavy landing with drift. This can be guarded against to some extent by rigging the machine for lateral stability.

The two prime necessities for successful training in a short time are good weather and a very skilful winch driver. Mr. McFall, of the Ulster Club, who was with me all the summer, was an absolute master of his art, but the weather played us some knavish tricks during June and July. One other point: the winch driver was always told who was coming next and what sort of flight he was to make. Also both instructor and winch driver kept records of each flight and periodically compared notes, as the winch driver can see a lot that is hidden from the people at the starting point.

J.H.S.

Summary.

Camp	*Boys trained*	*No. of launches*	*No. of "A" certificates*	*Average launches for "A"*
1	20	274	6	14
2	20	127	—	No certificates. Bad weather.
3	20	190	8	12
4	19	211	16	12
5	10	130	8	14
	89	932	38	13

Midland Gliding Club

Long Mynd.—The general equipment at the Mynd is better now than it has ever been. A small bunk-house has been made at one end of the new primary hangar and water laid on from our own private spring. Each week-end some one has to do three-quarter of an hour's hard work on the pump at the spring end, where a new 100 gallon tank has been installed.

Mr. Price has very kindly offered to lend us his grainary to store machines in this winter, if the present circumstances force us to curtail our operations.

Hereford.—This branch has had to be closed down for the time being.

Handsworth.—Steps are being taken to bring Handsworth into more active operation, and as petrol rationing will curtail the number of visits to the Mynd, it is hoped that most members will turn up for some flying on Sundays. The old price of 3s. for any number of flights per day has come into force. A new secondary will be there, and there are possibilities of a KADET.

Public Schools Camp.—We had 12 applications for this camp, but there were four cancellations. Only on the last Sunday did the campers get a westerly wind, and then only in the late afternoon, so although everyone had got his "A" and some their "B's," only one—Goodman Jnr.—was able to get his "C."

Theo Testar, who has now got his power "A" at the Midland Aero Club, put everyone through the winch-trundling and later longer winches so successfully that nothing was even bent.

Highlights of the Camp were Thwaite's car on fire and the falconing for grouse by a Mr. Stephens working from Pole Cottage with six birds. The week's bag exceeded 18 brace. (Falcons can rise higher than aeroplanes, we are told.)

We were also pleased to welcome Keeble, who did little flying but a lot of work on his machine.

The technical section of the Birmingham Reference Library, at Ratcliffe Place, now has THE SAILPLANE AND GLIDER regularly, and also Wolf Hirth's *Art of Soaring Flight*.

September 10th.—The first soaring day since the restrictions were put on civil flying, so being rather cautious we rang up the Wing-Commander at —— to enquire if we could soar. He saw no reason why we shouldn't as long as no cross-countries were attempted.

Testar and Thwaite had a very exciting ride in the TWO-SEATER after Thwaite had overshot as the S.W. wind was failing. While this was going on Wright flew the TUTOR into a hedge at the bottom, writing it off.

Certificates.—"A": Rayner, Skelcher, Goodman Snr., Goodman Jnr., Fearon, Hatwell, Flt. Lt. Joshua.
"B": Rayner, Skelcher, Goodman Jnr., Flt. Lt. Joshua.
"C": Goodman Jnr., Flt. Lt. Joshua.

Air Defence Cadets.

Shropshire gave our Cadet contingents at Long Mynd a great welcome, and invitations were received by several squadrons to dances, etc. On the flying side satisfactory results were obtained, and 21 "A's" were gained by 50 Cadets. The first two squadrons got no certificates owing to bad weather, but the last squadron from Cardiff did particularly well, all obtaining their "A's" and their Commanding Officer, Fl. Lt. Joshua, his "A," "B," and "C."

The lesson of our camps was the value of the dual FALCON, in which chief instructor Testar gave over 100 hours' tuition to the Cadets. With the use of this machine at the beginning of each camp, crashery, we think, should be practically avoided and the general quality of flying much improved.

Great credit is due to Theo Testar and Jolly for their able team work with the winch and wheel primary; the satisfactory progress made by the Cadets in this manner was gratifying in the extreme. There were, of course, hectic moments, particularly when a pupil got too high on the winch and threatened to overshoot the edge of the Mynd into the chasm on either side! Testar received appreciative mementos from several squadrons.

Mrs. Jarratt and her staff did excellent work and all praised the excellence of the fare. Colcombe and Ellwood worked long and hard at early crashery and were assisted by relays of Cadets. Model making and flying were indulged in in the evenings, and each squadron with their officer seemed to find time flying with great rapidity. We hope to see all these squadrons again next year.

The following took their "A" during the last camp: Hampton, Dennet, Murray, Williams, Bates, Cook, Annon, Hogan, Fidoe, Bryant.

C.E.H.

Southdown Gliding Club

During the last week of the Air Defence Cadet Camp, the wind continued to blow from the N.E. until 3.25 p.m. on the last Friday, when, during a period of only five minutes, it changed to S.W. Great activity then ensued.

Throughout the fortnight's camp there were nine heavy landings, resulting in five broken landing wires, two damaged wings, and one fuselage. Two of the cadets strained their ankles twice, but not to any great extent. Only members of one squadron were responsible for the damage, and during the second week it was noticed that a number of cadets preferred to keep the stick just far enough forward to prevent them leaving the ground.

The eight who finally got their "A's," Tanner, Curtis, Walker, Barnes, Teague, Smith, Waters, and Manthorpe, all made one or two flights of 28 or 29 seconds before the necessary half minute. Manthorpe made two landings very close to the hangar, on one of which Filmer, seeing his trailer and VIKING endangered, rushed across the front of the PRIMARY and pulled it round by a wing tip just as it landed. Waters succeeded with the longest flight of 38 seconds.

During the camp one wing was completely rebuilt from the aileron gap inwards, including a new rear spar, in five days. Every day of the camp Filmer drove from Horley, arriving soon after 9 a.m., to help in lecturing, instructing, and repair work, and never left the club until well after dark.

Sunday, August 27th.—S.S.W. breeze; fine. With the new 3,000 ft. of cable added to the winch, extended launches were given to the KIRBY KITE and TWIN, from the field to the N.W. of the hangar, using a total of about 3,500 ft. of cable, but nobody was able to contact a thermal.

Sunday, September 3rd.—War. With the prospect of gliding having to stop for months, or may be years, those few who turned up helped to close the hangar and club and took with them as souvenirs all perishables, such as petrol from the cars and food and drinks from the bar.

Gliding Club of Victoria (Australia)

The gliding club of Victoria was formed in 1929. The interest aroused resulted in membership figures rising to over 300, but unfortunately with only one primary machine little could be done, and both membership and support gradually dwindled until there were less than 10 members left. It was not until August, 1936, when the club was formed into a company to obtain Government Subsidy that real progress commenced.

Then, in 1937, the club decided to import a GRUNAU BABY II sailplane, which arrived in September of that year, and immediately gliding in Victoria received an impetus. Since that date the club, with the aid of the GRUNAU, has captured all the major Australian Gliding Records:

Duration: 7 hours by R. Roberts.
Altitude: 3,700 ft. by K. Davies.
Distance: 30 miles (goal flight) by N. Hyde.

On July 9th R. Roberts made eleven successive loops in the GRUNAU.

The club is at present considering adding a KIRBY KADET to its fleet, which at present consists of the following: an open ZÖGLING Primary, a nacelled RHÖN Primary, and the GRUNAU.

The club has a soaring site at Mt. Fraser, Beveridge, with winch car and 2,700 ft. of hangar space. Mt. Fraser, five miles from the Great Dividing Range, and 24 miles from Melbourne, is an extinct volcano rising 600 ft. above the surrounding plain, and its best slopes face N. and S., from which direction come the best soaring winds.

At Laverton, 30 miles from Beveridge, 14 miles from Melbourne, and three miles from the coast, the club has a training site, with towing car and hangar space of 1,000 ft. Laverton and the surrounding country are perfectly flat, and the towing run is over one mile long. Heights of over 2,000 ft. have been obtained on the tow. All hangar construction and repair work is carried out by members.

In 1938 477 flights were made for a total of 43 hours, while the first six months of 1939 have produced 402 flights for a total of 44½ hours. Flying is only carried out on Sundays.

The subsidy paid by the Commonwealth Government is on the following basis: Sailplane, £10 per quarter; Secondary, £7 10s. per quarter; Primary, £5 per quarter; subject to all machines being flown, and not less than 10 flying days per quarter; a minimum of 20 members for the first machine, and ten members for every further machine.

Other Gliding Clubs

Tees-side.—The Tees-side Gliding Club has a nacelled Primary, hangar, winch and other equipment all in good order, and hopes to continue gliding if allowed. The secretary, T. Anderson, obtained his "A" at the Derby and Lancs. Club's August camp. Two members, J. Lodge and B. Ward, are now in the R.A.F.

Beacon Hill.—The Beacon Hill Gliding and Aero Club, Southend-on-Sea, suspended operation on September 1st and stowed away all the equipment. Five members have "A" licences, and have notices to stand by for service in the R.A.F., and one is a motor-cycle dispatch rider.

The secretary, G. J. Harris, was at Southend Airport when Nicholson arrived in RHÖNSPERBER from Derbyshire during the Competitions, and stayed with him until his retrieving car arrived at nearly 2 a.m.

Newcastle.—The club has lost its training ground, which has been taken over for other purposes.

Enfield.—The *Enfield Gazette*, in its issue of September 1st, says it will put readers in touch with a local gentleman who wants to form a gliding club. It promises a series of articles on gliding "as soon as the present trouble has blown over, though in the meantime there seems no reason why the suggested club cannot be discussed."

PERSONAL.—Second-Lieut. C. J. WINGFIELD, K.S.L.I., regrets that owing to the international situation he will be temporarily out of circulation from the gliding world, but sends his regards to all his friends. Any letters will be welcome if sent to his home address.

RECOMMENDED GLIDING CLUBS

London Gliding Club

(Affiliated to the B.G.A.)

Address :—Tring Road, Dunstable, Beds. (Tel. : Dunstable 419.) Flying ground, Dunstable Downs (1¼ miles S.W. of Dunstable). Primary training and soaring. Clubhouse and hangar; sleeping accommodation; 20 gliders and sailplanes for members' use. Subscription, 3 guineas p.a. (country member, 2 guineas); entrance fee, 2 guineas. Associate member, 2 guineas p.a.; no entrance fees. Flying charges, from 3s. per day. Resident full-time instructors. Flying on Sundays and every week-day except Thursday. London Secretary : Arthur Sweet, F.C.A., 11, Bow Churchyard, E.C.4. (Tel. : City 5997-8.)

Yorkshire Gliding Club

(Affiliated to the B.G.A.)

Secretary :—L. A. Alderson, "Malham," 32, Wensley Green, Chapel Allerton, Leeds 7. Primary training and soaring. Flying ground, Sutton Bank, between Thirsk and Helmsley, Yorkshire. Clubhouse and hangar. (Tel. : Sutton under Whitestone Cliff 219.) Resident Steward; full residential facilities. Full range of machines for members' use. Branch Clubs : Co. DURHAM (Sunderland) and WEST RIDING (Huddersfield). Regular Instruction Courses for Beginners and Advanced Pilots.

Southdown Gliding Club

(Affiliated to the B.G.A.)

Secretary :—S. G. Stevens, "Southerlea," Meadow Close, Hove. (Tel. : Preston 3284.) Soaring at Devil's Dyke and Atlingworth Ridge. One of the finest Primary and Secondary training sites in England. Clubhouse and hangar ½-mile S.S.W. of Devil's Dyke Station. Subscription, 2 guineas and 1 guinea entrance. Auto towing and winch launching facilities. Very moderate flying fees and expert tuition.

Oxford University and City Gliding Club

(Affiliated to the B.G.A.)

Secretary :—Miss B. M. Nicklin, 532, Banbury Road, Oxford. (Tel. : 58300.) Primary training and soaring site at the Lambert Arms, Aston Rowant, Oxon, 15 miles E.S.E. of Oxford on the Oxford-High Wycombe-London road and 39 miles from London. Resident full-time Instructor : R. Kronfeld, A.F.R.Ae.S. Flying every day except Mondays. Subscription, 3 guineas p.a. Entrance fee, 1 guinea. Flying charges, 1s. to 2s. per winch launch. Temporary (course) members, entrance fee, 1 guinea. Subscription, 1 guinea per week. Flying charges, 1s. to 2s. per launch.

Scottish Gliding Union

(Affiliated to the B.G.A.)

Patron : Lord Weir. President : Hon. A. R. Boyle. Secretary and Treasurer : R. B. Rogerson, 20, Blythswood Street, Glasgow, C.2. (Tel. : Central 4209 and Shettleston 1328.) Main training and soaring site and clubhouse : Feal Farm, Bishop Hill, Lochleven, Kinross; also other training sites in other parts of Scotland. Primary training and soaring. Full residential accommodation, including rooms for married couples. Flying and training every week-end, together with organised camps. Flying charges from 6d. per flight. Soaring flight from 2s. 6d. Subscription, £3 3s. flying member per annum. Associate, £1 1s per annum. Entrance fee, £2 2s. Full range of machines for members' use. Large hangar accommodation.

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