Sailplane and Glider

The First Journal devoted to Soaring and Gliding

NOVEMBER 1948

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Sailplane and Glider

and ULTRA LIGHT AIRCRAFT

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

NOVEMBER 1948 ★ Vol XVI No 11

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COVER PICTURE:
"The Old Way of Training," Czech National Training School, Rana, Kine-Exakta, Agfa-super Pan. F 5 cm.—5.6—1/100 sec.

REGULATIONS

WE admit that recently two of these Editorials have been what have been described as "violently reactionary" to the proposals of the Ministry of Civil Aviation that Government licenses should be introduced both for Glider and Power Pilots. But we are proud of it, and in both senses. First that we reacted violently to the proposals, and secondly that we would have nothing to do with them. In short we are resisting this so called "Progress," which isn't progress at all, but merely, as we stated, regulation for regulation sake.

Boiled down to their essentials, the reasons given by the Ministry for wishing to bring in the new regulations are these :—First, that it is necessary for the safety of Air Liner Transport that Light aeroplanes (and gliders) should not be in the same air space as air liners at the same time (or any time), and that the Government have agreed at the International Civil Air Organisation meetings that they would, on this account, bring in these regulations about Licensing pilots.

There are two aspects to this problem. First there is the question as to when a pilot is fit to fly an aeroplane solo, and then what sort of aeroplane, and then how he or she is to be kept away from Air Transport Lanes and homing areas.

As to the first question, we are sure that the present system of putting the responsibility on the instructor as to when the pilot is fit to risk his own neck flying solo, is the best, because it has stood the test of forty years experience. But we would be the first to admit that the mere possession of an "A" licence should not permit its possessor to risk someone else's neck as a passenger. We would insist on a further test, and more experience, before a pilot could even take up a single passenger, whilst to fly a four seater, or any other type of aircraft with non paying passengers should require a proper qualification. But that is quite a different thing from making it more difficult for the beginner to get into the air and fly himself about, or to demand that he or she should fly a quite arbitrary number of hours before being granted a certificate. This applies also to glider pilots. The intervention of most Club instructors is usually immediately effective, because no one wishes to come to grief himself or crash a club machine, and a ban by an Instructor can stop anyone flying at once, if only because the consent of a C.F.I. is essential to Insurance cover. Of course a lunatic might get into a craft and crash into an air liner, but no amount of licensing could stop that, but so far it hasn't happened and the M.C.A. are unable to produce a single instance of such an event.

Now we come to the International side of the question. Was there no one at the I.C.A.O. Conference to speak up for Britain and the Empire (No apologies) and say that the Empire Aviation world should be consulted first ? We understand too, that although various official Aviation bodies in this country have conferred on this subject with the M.C.A., no one has said definitely and categorically that they would not support or take any steps to carry out the proposed new regulations. The reasons for this almost "laisser faire" attitude is that some one believes that some Government assistance is going to be given to Gliding and Light Flying but that it won't if the Powers-that-be get annoyed because the flying world won't toe the line. Now to our mind that point of view is most immoral and weak. Regulations and Assistance are separate questions, the former on the ostensible grounds of Safer Flying, and the latter because Air Mindedness is a National Need. Not to oppose Regulation because we might benefit if we are good boys is indefensible, and to offer a Subsidy to overcome our objections is both insulting and dastardly.

That is how it appears to us at the moment, and we hope this article has cleared the air. We want more people in the air because flying will become cheaper that way. If it's cheaper more people will do it, and we could then do without Government aid, so that the fear of the M.C.A. that any assistance they might give would be to help already rich people to enjoy more flying would have no foundation in fact. What we want is to get started. Any help we can get will be most welcome. Lord Kemsley's help in the last 12 months has resulted in two more Gliding Clubs being formed, and increased the activities of six others, besides helping half a dozen power clubs and two Aeromodelling Clubs, and buying J.A.P. engines for the U.L.A.A., and all this on loans of about £14,000.

If the Government really want to help poor people who want to fly they should

(a) Subsidise "ab initio" gliding training to "C" certificate standard for anyone under 25.
(b) Pay for the development of a 35-45 h.p. aero engine for the Ultra Lights. (This would have a world-wide potential export market).
(c) Allow the use of unused R.A.F. airfield facilities for a nominal sum to Flying Clubs.
(d) Pay half the cost of getting an "A" under present regulations. (Under 25.)
(e) Pay half the cost of 5 hours' flying per year for all "Ab initios" "A" for the first two years provided they are under 25. After that they should be able to pay for their own flying, and
(f) Don't bring in useless and costly regulations.

SCOTTISH SOARING SITES SURVEY

By JACQUES COCHEMÉ

THE aim of this party was to try out some of the soaring available around BALADO BRIDGE AIRFIELD in Kinross, the headquarters of the Scottish Gliding Union.

Early in the spring of this year I spent a month in the Meteorological Office at 18 Group, R.A.F. Coastal Command, during which I had been over some of the ground involved by train, bus, and on foot. It appeared to offer good hill soaring for practically every wind direction, contrast for producing thermals, the promise of standing waves, and finally anabatic and slope thermal soaring of the kind developed in Switzerland and, as yet, practically untried in this country. Besides demonstrating further the possibilities of Scotland as a gliding resort, it was intended that this survey should provide first hand experience in the organisation and running of expeditions for the systematic collection of soaring data away from regularly organised sites. It was also hoped that an opportunity might arise to contribute to the science of soaring meteorology. It was intended to select daily the site to be investigated according to the weather conditions, present and forecast, and then to concentrate on it a sufficient number of flights to avoid the unreliability of isolated personal experience. This required a mobility which could only be made possible by the use of aero towing.

The expedition was under the kind patronage of Professor David Brunt, F.R.S. To the final muster on Monday, August 2nd, at the KIRKLANDS HOTEL, a fishers hotel which the S.G.U. was breaking gently to the ways of gliders, came J. C. RICE with his "Tiger Moth" tug and a road party composed of his wife and his son and daughter-in-law who brought up his cream "Olympia," Dr. IVANOFF and his "Camel" supported by Miss MARY GREAVES, TONY REILLY, a spare pilot, and myself with my Olympia "AIRY TALKS" of a hue which perplexes the Philistine. We were joined locally by DONALD CAMPBELL with his beautiful spotless little "H-17" which he built. The machines were kept at BALADO in the hangar of MACDONALD AIRCRAFT LTD. We became temporary members of the S.G.U., whose officials and some of whose members were extremely helpful and generous. Weather information was kindly given to me over the telephone by the forecasting staff of the Meteorological Office at 18 Group.

The first series of flights was planned to last a fortnight. During these first 15 days of August the weather in S.E. Scotland was terrible: the rainfall was most exceptionally heavy, and there was an almost total absence of sunshine or wind, the two motive forces of soaring flight. One depression after another passed to the south of us. (They had no business to be there. They should have been skimming the Arctic Circle). In the intervals of fair weather, never far away from convergence areas, the top of the convective layer was very humid, and either it was already clogged up with multilayer clouds in large grey patches, or it would soon flatten out the first flush of convection into a cloudy lid on any further thermal production. Very little was achieved during that period: on Tuesday the 3rd, late in the afternoon I had, in a light south easterly wind, a pleasant hour in what appeared to be an almost continuous wind shadow cum slope thermal off the west flank of THE BISHOP which the setting sun, lighting up the industrial haze in the FORTH valley, was quietly warming. I was able to fly back to BALADO as by LOCH LEVEN, on one side or the other of its shore, there always seems to be gentle circulation lift, on which to lean until the runways of the airfield are reassuringly hidden by the nose of the sailplane. The rest of the week was taken up with uneventful local flying whenever it was not too wet. We had the visit of Mr. Burdett of the Air Registration Board who availed himself of the opportunity to add another chapter to be approved by his organisation of Campbell's "H.17." Thrice he was towed to a height made to look even greater by the small span of the glider.

On Sunday the 8th, a deep depression coming up the English Channel gave us at last somewhat stronger winds from the N.N.E. The weather was cloudy with intermittent rain, as there were, in addition, a few old fronts floating about. Ivanoff, riding his "Camel," and Reilly in the Rice "Olympia" were towed by Rice to BENARTY HILL where each had two and a half hours' hill soaring at between 2,000 and 2,500 ft. landing, as agreed, at the bottom of its bowl where there are several convenient pastures. I can imagine in fair detail a certain type of weather, not uncommon, in which the hill lift of Benarty would provide a most convenient platform where to wait for the first morning ebullition of a fast unstable airstream and start on a cross country flight which would not be limited by the lack of land. Be this as it may Benarty had been soared for the first time and Ivanoff and Reilly had collected useful measurements on the size and extent of its lift at various heights for that day.

Meanwhile Jack Rice had towed me off for a first crack at the DOLLAR WAVE. As soon as I began looking at maps of the area I was captivated by the contours of the steep southern slopes of the OCAILS from Dollar to ALVA. With a wind from the northernly quarter and an air mass in which vertical exchange of momentum was not too free one would be entitled to expect substantial lee lift. The cloud picture on that day was somewhat confused. (Too much importance, I venture to say, is given to it by the newly wave conscious soaring fraternity: each lens shaped cloud in the sky does not make a standing wave; and there is much that goes on in clear air). When we got to Dollar, to be confronted by the peculiar brusque turbulence of the shear layer, I was flying with a nervous left hand on the yellow knob, and a sudden flash made me release, unintentionally. I found myself in a down draught and came down from 1,400 feet in

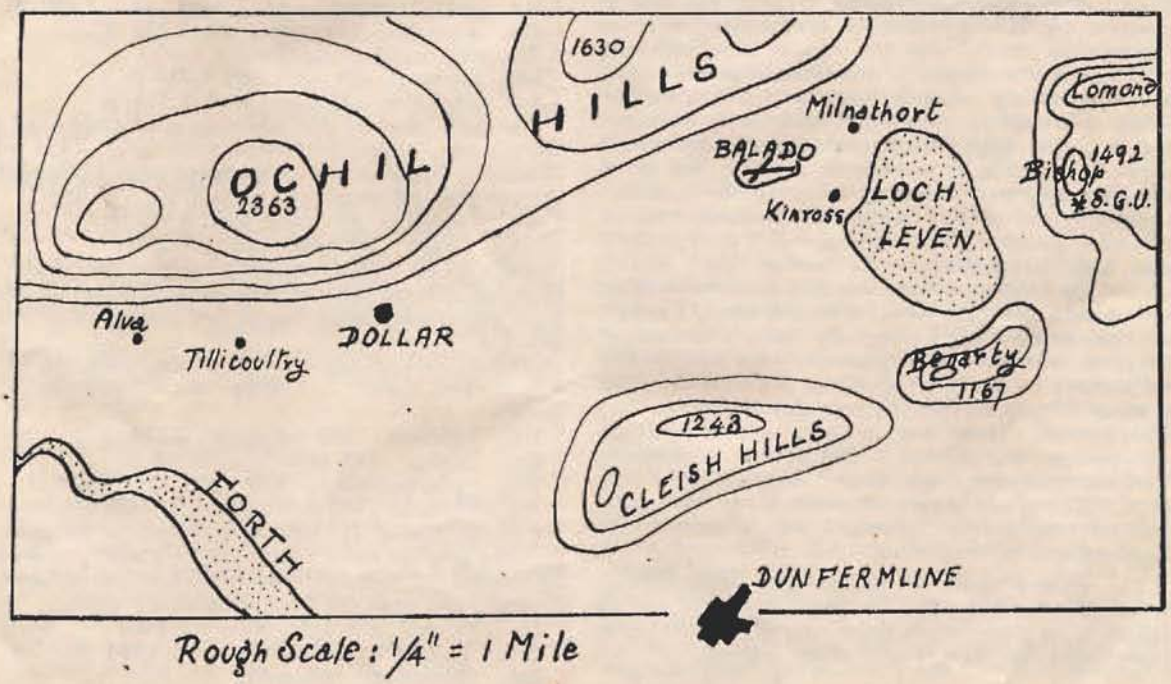
70 seconds, landing amongst cows, their sides shining with rain. There must have been fair lift not very far away.

We then reverted to dull listless days and Ivanoff, Reilly and Mary Greaves departed with "Camel" entire. Some more local flying was done, after that. I converted to tug piloting thus making it possible for Rice to fly his "Olympia." On Friday the 13th, with an approaching ridge and still some humid air at inversion level, the convection once more choked itself early in the morning and we visited AIRWORKS at PERTH to demonstrate sailplane towing. On the way back, in the clearing skies of a convection evening, the wind was blowing from the north as the ridge of high pressure had come in. We therefore, made a detour to Dollar where I released at 4,000 ft. I found gentle lift and decided to glide back to Balado forthwith in order to make sure of another try later when the effect would be bolstered up by the evening surface inversion. There was support in the lee of the OCHILS all the way back. Full of high tea we set off again at 20.20. The band of lift was punctuated by tenuous condensation. I cast off at 4,500 ft. and, after some fumbling, managed to remain above 4,000 ad libitum, once climbing to 4,700 ft. Just as I was beginning to enjoy myself and relax, my thighs no longer knotted with anxious rudder work, darkness forced me to dive back at Balado. I had been airborne for one hour. Meanwhile Rice had throttled back and using his extraordinary ability to fly his "Tiger" at substalling speed he was investigating the wave and collecting most valuable information on its vertical currents: without changing his engine setting he came down to 2,000 ft. and went up again to 3,600 ft., circling through the tenuous cloud in which turbulence caused him to stall the "Tiger" at 40 m.p.h. The gradient wind was less than 20 knots. With a little more wind pressure fed into it, I am sure that the Dollar wave is good for at least 10,000 ft.

At this juncture, I would like to suggest that if the name standing wave is used, as there seemed to be a tendency to use it, to describe a very wide variety of lift phenomena not always of a strictly kind, the expression, if retained must perforce be considered to have become most generic.

After this the weather again became bad or useless with the exception of Monday the 16th, when we were presented with fairly deep unstable air. In this I had two flights of one hour's duration each of the kind which seems to amuse the sad chronicler of the Dunstable Club; when the aim is height and the result: a little distance only. The next morning Jack Rice flew away.

A second series of flights was planned for the beginning of September when the chance of finding wave generating weather was greater. As the attendance of Rice to this second meeting was doubtful, alternative provision had to be made for aero towing. Innocently I believed that the fitting and approval of a glider towing attachment of a previously approved design to a type of aircraft for the fitting to which it had already been approved was a simple and expeditious matter. I know better now. On Monday, September 6th, arrived Dr. Ivanoff, Mr. Hanks, Miss Mary Greaves and the "Camel." Rice was unable to come. The hook fitting saga was still tortuously progressing. (I am glad to say that approved tugs are now available both at Balado and Perth). We had, therefore, to resort to other forms of launching on that Monday,



in a fair westerly wind, I was, in anticipation, auto towed with local help to 1,200 ft. Finding lift over MILNATHORT I crossed the loch near its northern shore to soar the BISHOP and experience a particularly striking instance of what I suggest might be called pseudo hill lift: a form of lift ahead of a soaring slope caused by a surface inversion, vespertine or otherwise.

The next day, in very similar weather, I damaged my glider whilst being auto launched. The circumstances are particularly tantalizing: as I was airborne and climbing, having jettisoned my wheels, a passenger in the tug car exclaimed that I was off (the ground), whereupon the driver, assuming that I was off (the cable) stopped the car without looking back—unlike that of a cable break the deceleration was gradual and I stalled in pushing the rubber shock absorber through the keel.

During the following days, with brief frontal interruptions, the fast fair westerlies persisted. In such weather a surge of pressure off the western seaboard would produce a wave generating air stream. Convinced that the Dollar wave could be contracted with a winch launch from a ridge in the valley (which coincided with the lowest roll cloud and may well be inducing a kind of resonance effect), we looked for and found a very convenient field, 400 yards long, on the farm of a Mr. Scobie who kindly allowed us to operate from it. It was up wind of and not very far from the scene of my rapid descent in August. The next step was to transport a winch from the top of Bishop Hill to this field near COALSNAUGHTON, south of TILLICOULTRY. This major operation took several days and was made possible by the help of Mr. GEORGE WHITE of the S.G.U., a sportsman who can produce anything from a typewriter to a tractor. The winch was in position by Monday and on Wednesday 15th, as the weather cleared after the passage of a front, and in the wind near behind it, the Dollar wave was seen to be operating. Lunch forgotten, with the slow haste of trundling cumbrous equipment, we made for Scobie's field which, we found particularly slippery. By the time we were ready a few hours sunshine appeared to have broken up the LAMINAR CORRUGATION of the airflow. Nevertheless we launched Campbell who only found "Burbly lift" and had the misfortune to damage his "H-17" coming in. When, having put the machine back in its trailer, we got ready to launch the "Camel" in this evening inversion, the supper smoke of TILLICOULTRY showed us that the wind had backed sufficiently to be blowing along the valley; after skating Donald off her slippery side the wave had disappeared. There was nothing left to do but dis-member the "Camel" and return to Kinross. The wave did not come back during the next two days. There was plenty of tidying up to do and we did not fly the "Camel" which returned to England entire, once more.

The second series of flights had, immediately, achieved even less than the first. But this sort of failure is, in many ways, more interesting, and even, more enjoyable than ready made soaring.

J.C.

SOARING IN FRANCE

The Beynes International Competition

by GUY BORGÉ

THE French Aeronautical Federation organized an international competition at Beynes Soaring Centre in August last.

The French competitors flew "Weihe," "Air 100," or "Nord 2000," while 6 entrants, from Spain (Ara Torrell, Juez), Switzerland (Kuhn, Schachenmann), Sweden (Akerberg), Egypt (Kamil), used similar machines: "Weihe," "Air 100," or "Nord 2000."

The winner must gain the greatest number of points, earned by goal and altitude flights.

On the opening day, August 8th, wind was too strong (60 miles), and nobody flew.

On August 9th, a sensational climb in a Cumulonumbus cloud gave Mazoyer the first place of the day: enduring numerous electrical discharges, he gained 20,631 feet of height.

On *August 10th and 11th*, bad weather prevented flying, but on *the 12th*, Alwin Kuhn broke the Swiss Altitude Record, and performed the best distance of the day. Beltrando, a young pilot, got his Golden "C" Altitude.

1st. Kuhn. Distance: 96 miles. Altitude gain: 15,134 ft.
2nd. Mazoyer. 95.5 miles and 11,562 ft.
3rd. Beltrando. 83.5 miles and 12,287 ft.

August 13th. In spite of worse meteorological conditions, strong wind with rain, there were some good flights:

1st. Rosset. 155 miles and 9,413 ft.
2nd. Pierre. 176 miles and 7,422 ft.
3rd. Schachenmann. 147 miles and 8,640 ft.
4th. Lepanse. 134 miles and 8,134 ft.

The 15th was a weak day:

1st. Lepanse. 38 miles and 6,284 ft.
2nd. Mazoyer. 47 miles and 1,758 ft.

The 16th showed the abilities of Lepanse and Pierre, who, alone, performed their goal flight of 32 miles. But it is curious to record such a different altitude gain, although both were flying "Weihes."

1st. Lepanse. 32 miles and 8,659 ft.
2nd. Pierre. 32 miles and 1,892 ft.

August 17th. Mazoyer alone made a goal flight: 34 miles. Pierre did the best altitude gain: 6,560 ft., a remarkable achievement for conditions of the day.

August 19th. Lambert and Kuhn collected the rest of their Gold "C" badges with the same distance:

1st. Lambert. 193 miles and 9,735 ft.
2nd. Kuhn. 193 miles and 9,003 ft.
3rd. Schachenmann. 168 miles and 8,620 ft.
4th. Gasnier. 197.5 miles and 3,811 ft.

On the 20th. 11 sailplanes soar to Belgium. Rosselet gets his Gold "C" badge. Pierre performs his Golden "C" distance again by landing in Liege, his goal, and wins the first place of the day:

1st. Pierre. 200 miles and 9,905 ft.
2nd. Beltrando. 179 miles and 6,264 ft.
3rd. Rousselet. 189 miles.

RESULTS

1st. Mazoyer (France). " Weihe." 1,723 points.
2nd. Kuhn (Switzerland). " Weihe." 1,380 points.
3rd. Pierre (France). " Weihe." 1,374 points.
4th. Lepanse (France). " Weihe." 1,254 points.
5th. Schachenmann (Switzerland). " Air 100." 1,130 points.
6th. Ara Torrell (Spain). " Weihe." 949 points.
7th. Rosset (France). " Nord 2000." 942 points.
8th. Lambert (France). " Air 100." 902 points.
and 14 other competitors.

During the contest, the entrants flew 450 hours for 8,773 miles. In spite of the bad weather, it is noteworthy to see that several competitors made together some long distances and important altitude gains during storms. Another noticeable fact is the good flying of very young amateur pilots such as Pierre and Beltrando, who acquired their training at the Beynes Soaring Centre.

We hope that this Competition will be organized again next year, but with some more publicity. A week before it began, nobody knew the name of the entrants !

English pilots could find here, in a flat site as Beynes, similar conditions to their own and take the opportunity to perform some long distance flights.

Their presence would be welcomed.

GUY BORGÉ.

News from France

A NEW WORLD RECORD

On the 21st September, 1948, Messrs. Rousselet and Faivre, the former an instructor and the latter a mechanic, broke the Two-seater altitude record at the Saint Auban National Centre. Aero-towed to 984 feet at 4 p.m., they climbed to 22,468 feet in a special " Kranich " equipped with oxygen. They landed at 6.37 p.m.

SOARING STATISTICS

During the 8 first months of 1948, the Soaring National Centres have registered great activity, indicated by the following figures : from the 1st January, 1948, to the 31st August, 22,960 soaring hours were flown in 97,072 launches. During this period, 331 " B " badges, 246 " C " badges, 501 legs of Silver " C," 104 complete Silver " C," 43 legs of Golden " C " and 6 complete Golden " C " were acquired.

SILVER " C " BADGES

The number of French Silver " C " holders increases rapidly. The last list, issued by the French Aéro-Club, exceeds the 400 mark. There are in France 402 " official " Silver " C " holders to-day. But the actual number is more because the French Aéro-Club publishes them very late. The preceding paragraph shows that in the National Centres alone (without the Aéro-Clubs) 104 Silver " C " were obtained during the first 8 months of 1948.

THE SOHAJ (ZLIN–25)

The latest high-performance sailplane now flying in Czechoslovakia.

T. REX YOUNG

ALTHOUGH the gliding and soaring fraternity of Czechoslovakia have for the past three years been using the large number of German gliders and sailplanes which fell to them at the end of the World War, they have not neglected to make provision for future requirements.

Their " Honza " primary has now replaced the German " S.G.—38 " for *ab initio* training ; their " Krajanek " intermediate sailplane has proved a worthy successor to the ubiquitous " Grunau " and is in use at nearly all their schools and clubs ; and they have now produced, in the " Sohaj," a high-efficiency sailplane of attractive appearance and impressive performance, which will replace the " Olympias " and " Weihes," and thus complete their main requirements in the single-seater field.

The " Sohaj " is in fact a design of considerable merit and attraction, and is of all the more interest because it is the last design produced before the recent trend of political events in Czechoslovakia.

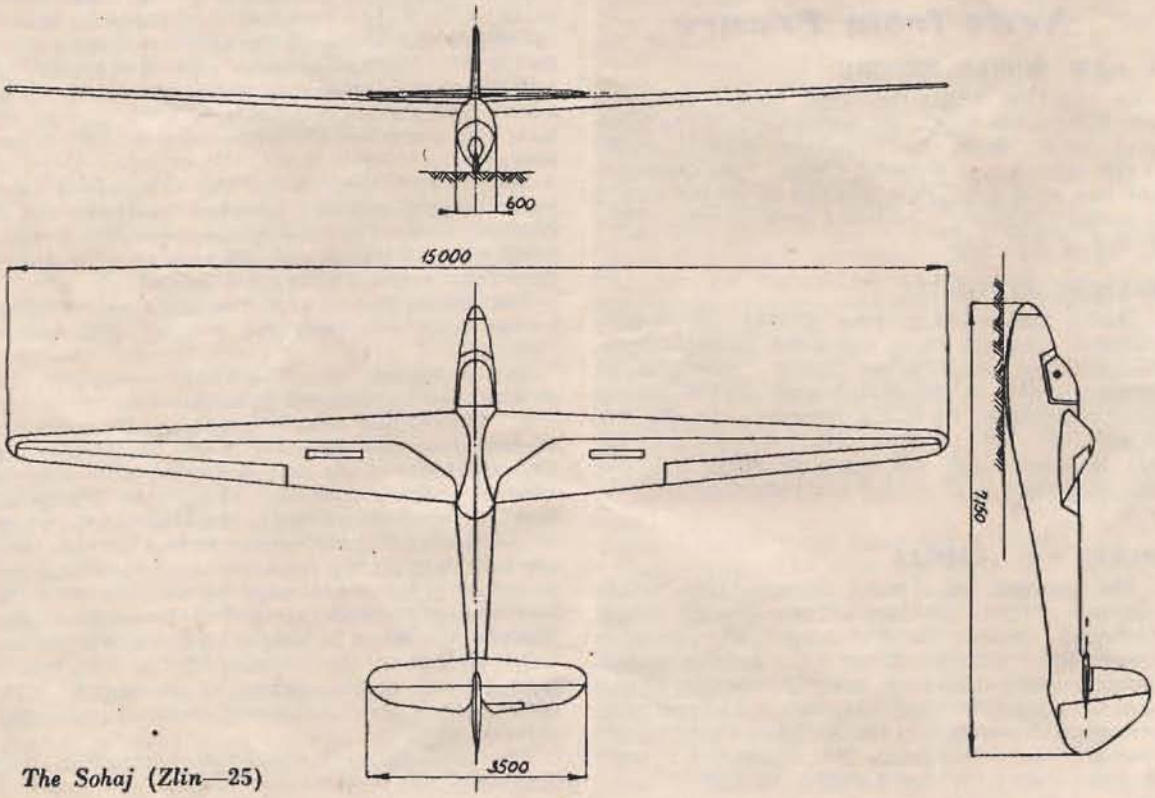
The fuselage is of oval section, with a plywood skin built up on three main longerons. The nose-piece includes a detachable electron fairing giving access to the forward controls and pulleys, rudder-pedals, and release-hook. The cockpit is spacious and well laid out, containing a neat instrument-panel, a back-type parachute compartment behind the pilot's seat, and with the auxiliary control-levers (tail-trim, rudder-adjustment and dive-brakes) all well placed and coming conveniently to hand. Large leather pockets are available on both sides of the seat, and a comfortable leather seat cushion is also provided.

The cockpit hood is of the one-piece perspex bubble type giving very adequate headroom and an excellent view. The hood contains ventilators and is fitted with adjustable curtains to prevent sun-glare. It is fully removable and not hinged.

The landing-skid is of orthodox design, with two rubber shock absorbers, and is faired with leather-cloth.

The mainplane is of cantilever monospar construction with a diagonal subsidiary spar at the root end. The leading edge is of plywood torsion box construction, the plywood being diagonally set. The remainder of the mainplane, together with the ailerons, is fabric covered. The aileron fittings are anchored in reinforced ribs in the wings. Attachment to the fuselage incorporates orthodox fittings, with one main bolt for top main-spar anchorage, and four secondary bolts in two pairs for attachment of the lower end of the mainspar and of the auxiliary spar. The mainplane can be hinged on the four secondary bolts, permitting the lowering of the wing-tips to ground level during rigging or de-rigging. The centre-section gap is covered with a removable plywood fairing.

The tailplane is of monospar construction, with diagonally set plywood covering. The elevator is



The Sohaj (Zlin—25)

also of monospar design, fabric covered, with a trimming tab on the starboard side. Attachment to the fuselage is three-point. The fin is removable, monospar, plywood covered, and attached to the fuselage by metal fittings and bolts. The rudder construction follows that of the elevator, and is anchored by three vertical bolts the lowest of which is fastened by nut and split-pin.

The controls are well designed and are light in operation. The rudder pedals are adjustable in flight. Aileron control is differential, operated by push rods, levers, and cables.

The normal provision of instruments includes: A.S.I., T. & B. Indicator, Altimeter, 5-m./sec. and 15-m./sec. Variometers, Compass, and Clock. Optional extras include navigation lights, battery, and parachute. General performance data is as follows:—

Dimensions:	Wing span	49.12 feet
	Length	23.45 ,,
	Height	3.94 ,,
	Wing area	150.7 sq. ft.
Weights:	Empty weight	364 lb.
	Useful load	210 ,,
	Gross weight	574 ,,
	Wing Loading	3.8 lb. p. sq. ft.
Performance:	Gliding Angle:	1:27 at 46.8 m.p.h.
	Sinking Speed:	2.13 f.p.s. at 37.5 m.p.h.
	Stalling Speed:	31 m.p.h.
	Winch Launching Speed:	56 m.p.h.
	Maximum Aero-Towing Speed:	93.7 m.p.h.
	Maximum Diving Speed (W/Brakes):	134 m.p.h.

The illustrations reveal the pleasing appearance, good lines, and workmanlike cockpit of the "Sohaj," and it is apparent that in this modern design the Czechs have produced a highly efficient sailplane of the 15-metre class.

GLIDING IN NORTHERN ICELAND

AKUREYRI Gliding Club was founded on 9th April, 1937, with 8 members. A "Grunau 9" was built in the town and transported to a field at Melgedis Melar, 13 miles south where is now situated Akureyri aerodrome. This was soon augmented by a 2-seater "Scweitzer" from America and since then the membership has grown to about 50, members practicing on the above aerodrome every week-end in the Summer. The accommodation now consists of two nissen huts on the aerodrome, one used as a hangar and the other for sleeping accommodation and a third nissen hut in Akureyri is used as a workshop. During the winter months the club meets at regular intervals for discussions and constructional work. A "Grunau Baby II" is now in course of construction.

The following successes have been recorded to date:—

"A" Certificates	23
"B" Certificates	18
"C" Certificates	7
Instructor Certificate for 2-seater	1

Many of the older members have left the club for various reasons, some going into private or commercial flying. Two past members are now Icelandic aircraft pilots, one in the Loftleider ("Skyways") and the other in Flugfelag Islands ("Icelandic Airways"). Four others have completed their commercial pilot's licences.

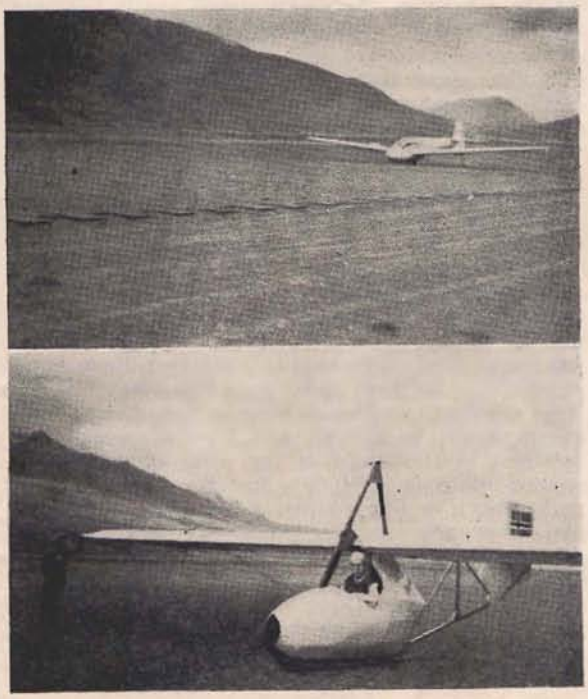
The Secretary of the club who very kindly showed me round the club and explained the progress that had been made, is a police officer in Akureyri and has devoted a lot of time and energy in its development. He has also learnt to fly power aircraft, having a private flying licence with 100 hours' flying time.

At the outbreak of war the aerodrome was taken over for defence purposes and gliding was at first forbidden. Due to efforts of the secretary however, efforts were made for gliding to continue at specified times.

No serious accident has occurred during the history of the club. The "Grunau 9" sustained slight damage three times but this was repaired locally in each case.

Reciprocal arrangements are in force with the parent club at Reykjavick in the south, members visiting each other's gliderdrome as desired and frequent liaison visits are made each way. It is hoped to glide in both directions between Reykjavick and Akureyri but the presence of glaciers is bad for the formation of thermals.

W.H.S.



STRATOSPHERE GLIDING—Flight Report

Gliding at the height of 11,460 metres (37,800 ft.). (World's Record Height).

By ERICH KLOCHNER

ON the morning of October 11th, 1940, at about 6.30 a.m. just before the sun rose, there was a wonderful dawn, making the sky quite red in the east. (The point of observation—Ainring). At what seemed a very great height lay cloud-formations across the eastern Alps, that seemed to rise higher and higher in waves. The lighting also helped to give the impression that the clouds were very high up. Across the Central Alps lay a heaving cloud that looked as though it had been cut off at its southern side, this could be estimated to be at about the height of the " Cirrus " and evaporated at the northern chain of the Alps. About half way up there were a lot of tattered clouds that didn't promise a south wind and that partly covered the big cloud wave. Added tc all this there was a ground mist that prevented a tow. Having spoken to the " met. " department a tow was promised as soon as the mist had cleared a little. In the meanwhile the great cloud had wandered further and further south so that it seemed that we had a north wind high up. But this was a mistake as we discovered later. We started at about 8.30 a.m. I was in the glider " Kranich D-11-4002," " Peter " towed by " He 46-D-JHAA." In the airport at Ainring a west wind was blowing at ground level. At ground level there was a slight tendency to depression. At first we were towed westward along the mountains. At the height of Traunstein we turned south west in the direction of Innbruck. Above the Wetterstein Mountains a fluctuating cloud rose into great height with several interruptions. (Lentikularis-Duplikatus). At about 3,000 m. there were strong squalls but only for about 200 m. During the rest of the tow we did not meet any more squalls. When our fleet or train of gliders were at about the height of the Kaiser Mountains we turned south east again as there was a stronger fluctuating cloud (or wave cloud) across the Central Alps than across the Wetterstein Mountain and this was more favourable to gliding. At 5,000 m. we reached Zell am See (Pinzgau) in the Salzach valley from the west. Here we fell a little but soon we began to rise again. I let go north west of the " Gross-Glockner " peak at about 5,700 m. During the tow, from Salzachtal onwards we had gone through three " Plus and Minus lift fields ". I found myself at the moment of unhooking on the front edge of a characteristic " southern fluctuating cloud " that lay high above me. I had let go at the right moment, because as soon as I had done so I found myself in a " lift area " of 1.5 metres per second. As the speed of the wind at this height seemed quite fast (50-60 kilometres/h.) I couldn't make much headway with a southern course. I had time now to look at the general weather conditions.

As on all days with a southern wind that can be used for gliding there was a wall of damp southern wind. At a height, north of the Glockner-Venice massive the cloud-bank towards the south was dissolving itself. The summit of these mountains was not visible. While on previous occasions when there had been a wet south wind the " wall " had run usually in an east-westerly direction, this time it ran towards the north from Venice to the Glockner and then progressed in a south-eastern direction along the Sonnblicks-Ankogel-Hochalm peak and so on. There, where the north edge of the " wall " (Moazagotl) lay, a fluctuating cloud began practically perpendicularily to stretch itself northward. In the foreground of the Alps lay some single Ground-mist-patches. While I with a practically continuous south course and a climbing speed of 1.5 m/sec. rose in glorious sunshine to the front edge of the Moazagotl, I reached its base at 8,000 m. Between 7,000 and 8,000 m. the " upward " wind went down a little. I noticed, how on the nearer, upper edge, the cloud was showing signs of dissolving. After that I flew in a south eastern direction along the cloud as it was still showing sharp outlines there. Now I was also able to get a better climbing-speed of about 2 m/sec. The cloud ran, when seen through a cut, in the shape of a wedge south-ward, through this the upper front edge seemed to lie as far as the weather-side of the Central peaks, and could be estimated to be at a height of 13-14 km. The cold made itself already painfully felt. The control column could only be moved with both hands. The rudder squeaked at the least little touch and in the hull cracking noises could be heard. (All through the cold). The cloud had marked itself out beautifully and I did not doubt that this time I would succeed in passing the 10,000 metre limit. As my altimeter did not show more than 10,000 m. I decided regardless of the " up-wind " to stop climbing on reaching about 500 m. above the 10,000 m. mark, as I should have no control on the height reached and especially as I was nearing the boundary where even when breathing the purest oxygen the inner organ give way as a result of the low pressure. The lift got stronger in places, sometimes as much as 4 m./sec. I got nearer the 10,000 metre limit. Extraordinary squalls and gust came up. The machine made, although I was in an " up-wind, " several tipping-movements on the length and the cross axis, it was the same feeling as in a covered airplane-stand although the A.S.I. showed 90-100 km/h. This " swimming sight " was about 100 m. thick. I found myself still on the front side of the cloud. The altimeter was now showing more than 10,500 m. The time used for the last 500 m. had seemed long. Emotionally I felt as though I were much higher than 10,500 m. Bodily I felt well in so far, that I only had a light pressure-ache in my head. The cold, however, was practically unbearable, especially in the hands and feet. I decided to interrupt the flight although there was still an " up-wind " of more than 2 m/sec. I wanted to use the " dive-brakes," but even using the greatest strength I could not (the reason being

the excessive cold). I could not fly north as a great cloud stood in the way and great " upheavals " were probably taking place within them. Therefore I flew southwards looking for a down-wind-area. Suddenly I got a 3-4 m/sec. climb and I pressed the machine to a speed of 150 km/h. but this gave me partly a climb of 0-1 m/sec. On the " Kranich " a speed of 150 km/h. corresponds to an " up-wind " of about 5 m/sec. As I, at the beginning, in spite of the high speed only fell a little and couldn't find a down-draught; I have to openly confess that for the first time in my career as a glider-flyer the thought came to me " how do I descend." I was now flying an easterly course and found at last the wished for " down " where I, through continuous spirals quickly lost height. As my altimeter showed 8,000 m., I found myself above Zell am See. To get out of the cold as quickly as possible I dived steeply and arrived at my port of departure smoothly after a flight of 3 hours at about 11.30 a.m. My feet and fingers showed light signs of frost bite. About 15 minutes after landing I felt slightly indisposed and had quite a strong headache. The calculations according to the " Meteorograph " that I had with me gave the absolute height as 11,460 m. and a temperature of—55 degrees centigrade.

I would like to mention that while gliding at about 9,000 m. I saw on the Moazagotl-cloud a " Glory " or " Halo " with a diameter of approximately 18-20 metres. Ainring, October 12th, 1940.

GOAL FLYING SAMEDAN—GENEVA

By P. A. Persson (Sweden).

Winner of the International Glider Flying Competition of the F. A. I., 1948.

I STARTED with the wind in my " Weihe " at about 10.20. At first I had some difficulty in reaching a sufficient height to leave the " Engadin." Not until I reached the Piz Ot did I find a favourable cloud into which I flew and with the help of blind-flying-instruments worked myself up to 4,000 m. above sea level. Towards 12.30 I reached the district of Piz d'err, after having left the above cloud at its highest point and taking a westerly course. Soon I had to return, however, to my north-easterly course; as the district in the west was covered by clouds. Nevertheless I reached the Borough of Tiefencastel, over which I was able to fly by " ground sight." I flew further towards Tusis, later to turn into the Valley of the Further-Rhine. Here too I found favourable conditions: in the upper part of the valley, above the Bärenhorn, a beautiful CUMULUS attracted me, it seemed to promise me the attainment of great height. I was actually able to make use of this cloud and reach a height of nearly 5,000 m. above sea level. I left this cloud with a northern course to fly into the Near Rhine valley. I sank, however, to 2,800 m. and was therefore desperately in need of more height. Above the Piz Sezner I dived into a great Cumulus, after I had assured myself that no dangerous mountain peaks were hidden therein.

Axel-Persson at Samedan before the flight.

Here I went up at a speed of up to 12 m/sec. At 5,000 m. I began to use oxygen. At 5,700 m. I got on my way towards Oberalp (the higher Alp) and Furka. Above the Quell (Well) district of the Rhone I met the two Swiss, Maurer and Kuhn, with whom I flew as far as Fiesch. There I decided to dive again into a cloud as I had definitely been losing height. I climbed up to 4,800 m. above sea level in order to continue my flight along the southern slope of the Bern Alps. I found a splendid cloud that was just forming itself above the Six Noir; this was going to be very useful to me as I had sunk again to 3,100 m. I flew in at once and rose quickly again. But already at 4,000 m. I was forced to notice that ice was forming on my brave bird. On the tips of the wings the ice was in places as thick as 2-3 cm. My cabin was also getting covered by ice so that I could only see through the small side windows. At 5,300 m. above sea level I reached the top of the cloud and took a westerly course again. On account of the ice I was losing height rapidly; the ice did not melt before I came as low as 3,500 m. At 2,900 m. I reached the district of St. Maurice, where I decided to fly over the Savoy Hills as there seemed to be favourable conditions. I gained some height above the Pointe de Grange and worked myself pretty easily across the French shore of the Lake of Geneva towards Geneva itself. The lift was so favourable that I reached the Rhone town with a height of 3,000 m. Here the question arose of course, should I fly on or land. If I landed in Geneva it would mean that they would multiply the distance that I had flown with the factor 1.3. Therefore I should have had to fly at least another 90 km. in order to get the equal number of points. As however, the transport would take very long and perhaps hinder me from taking part in other competitions, I decided to land.

(The above short description is of the flight—the best in the competition—which gained Axel-Persson the title of World Gliding & Soaring Champion)

STANDING WAVES AT CAMPHILL

IN 1936 the National Soaring Contests were held at Camphill. The first Saturday of the Competitions was warm and bright and in the evening, one of the last pilots to take off was Fred Coleman in the " G.B. " which he had made himself at the cost of some domestic felicity. He landed when it was almost dark after what might almost be called an epic flight, reaching 4,000 feet and only managing to get down by flying for long periods at over 60 m.p.h.

That was the first evening thermal at Camphill and was so called because it was believed to be due to warm air rising from the valley after being displaced by cold air from the slopes of the surrounding hills. There were several different theories but this was the one generally accepted. It was too high for hill lift, too late for thermal lift, it was above the clouds sometimes and the standing wave had not yet been invented. What else could it be but evening thermal.

Fred's flight was quickly followed by others the circumstances being nearly always the same. Low cloud far away in the west, a warm day and a north west wind. Sometimes gentle lift in clear air and sometimes strong lift with cloud forming on the Edge.

This theory was occasionally upset by outstanding flights in conditions not easily explained. On the 2nd July, 1938, Charles Verity, in a " Tutor," climbed over light scattered strato-cumulus to reach 4,000 feet at mid-day. In April, 1946, also, Charles reached 5,100 feet off Rebellion Knoll and many other pilots obtained 4,000 feet and over in clear air. The flight that really finished the evening thermal theory was by G. O. Smith in April, 1947, when he reached about 4,000 feet well out in front of the south slope.

These flights which failed to fit any theory other than that of the standing wave, gradually undermined the evening thermal theory until a flight of over 10,000 feet put the matter beyond question as regards many unusual flights at Camphill.

Many will regret the passing of the evening thermal. It was a good friend and a fairly regular attender at the Club. More than one pilot has sneaked a " C " Certificate in a " Nacelle " in air as smooth as cream. The standing wave has, in a manner of speaking, come to stay, but in the evening our old friend will have the last word because a standing wave after tea will always be known as the evening thermal.

The pilot who was fortunate enough to contact the standing wave on two successive week-ends sends the following account :—

I took off in the " Olympia " at 2.55 p.m. It was fair and warm and the wind was about due west 18 m.p.h. There was some broken strato-cumulus at 1,500 feet and conditions were obviously fairly good. I dropped the winch wire at 500 feet and made one short beat to the north, by which time I had reached a temporary lull at 1,000 feet. Derek Roper, in the Club " Kite," who had been launched at about 2.45 p.m. appeared out of the cloud just on my right. I turned south to find some more lift and Derek turned north. When I turned north again, not two minutes later, the " Kite " was over Rebellion Knoll at 2,500, far above me. I scuttled off to Rebellion Knoll and almost immediately I encountered strong lift. I arrived at the Knoll, which is the northern-most point of the Bradwell Edge, and as the lift had dropped to 6 inches a second, was turning south again when I noticed Derek at least 2,000 feet above me, in the Wrong Place, that is, well behind Rebellion Knoll.

I think, myself, that machines never look quite so well from underneath but I remember noticing how strikingly the white " Kite " showed up against the clear blue sky as I swallowed my pride and tucked myself underneath it. The lift was good behind the Edge and the altimeter soon showed 3,000 feet, the " Kite " still far above.

The general situation at this point was as follows : We were soaring behind Rebellion Knoll and doing well, but the ground was almost entirely covered in every direction by a layer of strato-cumulus between 1,000 and 3,000 feet. The only thing to be seen through the one small gap was the cement works chimney, smoking away. As I drifted further back, the tops of the clouds behind me reared up almost to the same level, visibly climbing, I ran out of lift and began to sink towards the clouds below. I put the speed up and made for the gap over the chimney, being in a panic in case I should get into cloud and miss the gap altogether. I need not have worried. Just before I was about to dive through the last bit of cloud before the Edge, I noticed the rate of sink decrease, so I eased up and flew into gentle lift.

I released somewhat and looked for Derek, last seen heading north west, but he was nowhere to be seen. I found out later that after reaching 4,000 feet he had gone back to the Club for a barograph. I was now over Rebellion Knoll with the choice of flying south over Bradwell Valley which was relatively clear from directly overhead, or flying over more cloud in the north to a gap which I could see over the Ladybower Reservoir. I still had 6 inches of green ball and as I thought the " Kite " was still heading north west, I just kept on.

I had gentle lift all the way to the gap over the reservoir, but when I reached it, the lift went up to 5 feet per second and stayed there. I drifted very slowly north climbing steadily until I reached 10,500 feet on the altimeter (11,800 ft. A.S.L.). There were times when the lift ran out. When that happened it was usually because I had drifted slightly east ; as soon as I centered over the gap again, the lift came back.

Further to the north, the clouds were thinning to about two tenths, beneath was the reservoir at Strines, and Stocksbridge appeared just to the right. Behind I could see Sheffield through a gap here and there, elsewhere was a smooth sea of practically unbroken cloud. A faint trace of rime appeared on the wings of the machine but the sun beat down through the cockpit cover and burned my face; I had no flying clothing or coat and the cockpit temperature never altered from 60 degrees F.

At 10,500 the lift ran out and I looked round for some other spot. I had noticed a large number of lenticular clouds lying about 2,000 feet above the top of the strato-cumulus but I had not taken much notice because I thought they ought to be bigger, fewer, higher and further from the strato-cumulus. When I looked round, however, I saw regiments of them right behind me, close, smooth and motionless.

I at once had thoughts of sitting on top of the lenticular behind me and being carried to heights which would make 10,000 feet look like a puddle jump. However, as soon as I turned down wind the sink went up to eight feet and even as I turned back again it went up to ten or fifteen. The lenticular cloud was now directly below and very slightly in front, ahead was the gap I had left. The more the sink went up, the more I pushed the nose down until in about twenty seconds I had reached 100 m.p.h. The lenticular grew with great speed and although I knew I had started at least 4,000 feet above it I had doubts about clearing the top. I reached the gap again, after about two minutes, having lost about 3,000 feet. After this I decided not to do any more exploring but to use the rest of my height to try and find my way home. I had been watching the clouds carefully and my impression was that they had not changed their form to any great extent. I guessed therefore that the dark shadow on the clouds about five miles south-west might still be the gap over Hope Valley. I went along to have a look at it and was surprised and happy to see familiar ground underneath. I landed at 5.10 p.m. and the barograph showed 3,400 metres above take-off height.

The second attempt took place on October 2nd. The wind was about 15 m.p.h. rather south of west, the sky being about four-tenths strato-cumulus. I took off about 3.30 and for half an hour had the utmost difficulty in maintaining 300 feet. At this time the " Kite," the " Viking," and Fred Coleman's " Olympia " were at 4,000 feet.

After sprottling nervously about for a little while I found some lift under what appeared to be a cloud street running S.W. to N.E. over Great Hucklow; there was some lift under and alongside this cloud and by popping in and out I at last managed to get almost level with the top. My impression was that it was necessary to sit on top of the cloud to do any good, therefore, instead of going right inside, I turned N.E. and flew very closely alongside in gentle lift until I reached the higher cloud masses just behind the back wall of the site. Rather than venture inside, I turned back along the cloud. By this time I had reached 2,000 feet or so and was just above the lower parts of the strato-cumulus. Soon I was well over this cloud and heading W.S.W. in about 2 feet per second lift. In contrast to the previous occasion, the clouds closed in except for the small spot directly underneath which I was soon quite unable to see. This closing in gave me some minutes of great uneasiness but it happened so quickly and completely that it was never any good trying to make a dash for it. I watched the pattern of the clouds as closely as I could and for two hours I didn't see the ground except for a few seconds on two occasions, too brief to recognise the spot. There appeared to be a little valley where the cloud was lower than elsewhere and it seemed likely that this valley was above, or related to, the position of the Bradwell Valley. The higher clouds formed a crescent, mainly lenticular, stretching from Great Hucklow, back behind the site, round by Rebellion Knoll and right forward to Mam Tor, or where I imagined these places to be. The wind was strong and smooth and the lift poor, I had to change my position in the crescent continually and I kept losing a couple of hundred feet trying to find the lift again. Slowly, bit by bit, exercising much patience, I managed to squeeze up to 7,800. The sun was going down and I was sore, so in a temporary lull, I clapped on the brakes and pointing to the cloud valley mentioned above I sank down steadily, through the lower layers and out of the bottom over Bradwell Valley. I switched on the turn and bank indicator on the way down but there was really no need for it and one of the pleasantest recollections of the whole flight was the swift smooth descent through about 2,000 feet of cloud, marred only by the sudden complete fogging of the cover on the outside.

We have been fortunate in experiencing the standing wave on several occasions and although we can scarcely have learned anything yet about how to find and use it, it might be helpful to summarise what has already been discovered. The meteorological conditions favourable to the formation can best be left to the experts. The characteristics of the condition usually result in the formation of strato-cumulus which in the early stages, stops short on the other side of the valley and forms again over the site. It is necessary to get on top of this layer when it will sometimes be found that it shelves behind the site and commences to rise another 1,000 feet or so. By flying on to the shelf close to the higher parts of the cloud behind, it is possible to climb over the tops over which lenticular clouds are found at close and regular intervals. The lenticular clouds seem to indicate the maximum lift in the region and the best position seems to be slightly ahead of the lenticular. The area of lift is small and as the wind is usually very strong, circling is out of the question. The lift is easily lost and sometimes difficult to find again. The lenticulars dissolve frequently and this may coincide with the loss of lift although this is difficult to prove because the lenticular which is giving lift is difficult to see.

So far, it has not been difficult to find the site again for lack of visibility, the cloud pattern on top seems to retain enough shape for positioning purposes. The worst feature of the condition is the tendency for the cloud base to come down on to the hill.

FIVE-HOUR LOCAL THERMAL FLIGHT

By T. REX YOUNG

Date : 29th August, 1948. W/V. : SW.—5/10 m.p.h.
Site : Lulsgate Airfield. Duration : 5 hrs. 10 mins.
From : 13.05 hours. Sailplane : " Olympia."
To : 18.15 hours. Pilot : T. Rex Young.

AS a member of one of the few Clubs operating from a large airfield, I share with many the opinion that for *ab initio* training, a flat airfield scores heavily against all the known hill-soaring sites.

A large airfield is also ideal for initial practice in thermal circling, since its long launching-runs permit very high winch-launches, and with a wide expanse of perfect landing-area below, pilots can embark on early explorations with confidence and peace of mind. Silver—" C " height climbs in thermals are also available when conditions are appropriate, and initiations into the thrills of aerotow are permanently on tap for cross-country aspirants.

Thus an airfield site can serve not only for early training, but also for all advanced flying up to Silver—" C " category, if the Five Hours' Duration flight can be completed in thermals instead of while flying in the rising air over a slope.

It was to try out the chances of a " Thermal Five Hours " that I was launched from Lulsgate in " Bluebird " on Sunday, the 29th August, in a S.W. wind of 5/10 m.p.h. The flight plan was to remain within a three-mile radius of the airfield ; to climb up to cloud-base whenever possible (but not to enter cloud) ; and to continue using all available lift found within the six-mile circle, until either the thermals or my own endurance petered out. (In the event, I nearly ran out of endurance, but was rarely short of thermals).

The cast-off from aerotow was at 1,700 feet, two miles south-west of the aerodrome, and in the first thermal we climbed to 2,900 feet in lift of 3 f.p.s., and were just in the lowest wisps of cloud-base when over the centre of the airfield. Increasing the air-speed and rate of turn until zero lift was indicated on the variometer, we circled just beneath this cloud, and drifted to the north-east edge of our six-mile circle, whereupon we nosed down from cloud-base and flew back towards another cloud that was approaching from south of the side.

The area below this cloud was reached with 1,800 feet still in hand, and after a brief search the variometer again indicated climb. Lift was fairly smooth and again at about 3 f.p.s., and we re-circled up to cloud-base in a further leisurely drift over the airfield.

Following a tip given by Dudley Hiscox in " SAILPLANE " *last year, I often check my rate of circling by counting the seconds (One-and-two-and-three, etc.) until the entering landmark comes round again, and I started the method, on this climb, with the idea of using it to get centred in the lift. On a 24-second circle, I first got 8-seconds count on the green ball, and 16-seconds on red. When green came up again, we straightened out for a few seconds and then re-entered the turn, which resulted in 14-seconds on green and 10-seconds on red. Repeating this process once more, gave us green all round, and we then continued the climb in 24-second circles up to cloud-base.*

Thus the system looked promising, and I resolved to use it, with exploratory variations, in any subseqnent thermals that were found. It worked well beyond expectation. We again " centred " green in three circles on the third climb ; on the next, the first circle gave only 4-seconds green against 20-seconds red, so with the knowledge that we were only on the bare edge of the lift-area, we changed from a left-hand to a right-hand circle on re-entering the green-ball area, and promptly got green all round.

In subsequent climbs, whenever a green-ball indication was first maintained for a greater part of the circle, we merely tightened our turn a little during the brief indication of red, and this usually gave us green all round on the next count.

While the described circling technique is of course common practice, this method of counting, thus clearly segmenting each circle, seemed to improve technique by giving a clear mental picture of the position of the area of lift, and as the flight turned out to be of long enough duration to give it a thorough test, I am now confident that it is well worthwhile in practice. (*Many thanks, Dudley* !)

As the flight progressed, cloud-base rose to about 3,300 feet, giving a slightly larger margin for each climb, but the rate of lift remained at a modest 3/5 f.p.s. throughout, and the clouds were small in size, having no great vertical depth, and no great turbulence beneath them. It was easy to remain just below their base by moderately increasing the airspeed and the rate of turn, or alternatively flying from one end of the base to the other, until they started to peter out, or were passing beyond the three-mile radius of the airfield.

Having made good progress with the " count " method of circling, it was decided to endeavour to increase proficiency in selecting the right cloud for the next climb ; some were dissolving, some were growing, and a wrong choice might spoil the flight. A period of trial and error showed that the growing clouds invariably looked a little more wispy and slate-grey at their bases, than those that were on the wane. We therefore flew towards one of the

slate-grey, wispy, variety when leaving one cloud for another, even if it was not directly upwind of the airfield.

To select each fresh cloud I descended about 200 feet below the base of the cloud we were leaving, as this gave a far better view of the neighbouring clouds than when right up under the base. Cloud cover remained constant at about 4/10ths during most of the flight.

Results after some while seemed to show a gain of experience in making the right choice, although I picked one " wrong-un " that considerably annoyed the red ball, which rose in protest for some minutes, and let " Bluebird " down to 1,200 feet before we could find another upcurrent and resume our local cruising. (When low down on two other occasions, soaring gulls were used as thermal indicators No trouble at all !—I wish we could use trained gulls !)

As a third expedient, with the further progress of the flight, we aimed to lose only the minimum possible height when flying from one source of lift to another, and I therefore used my Best Speed Indicator (*See* " SAILPLANE " *March*, 1947, *G. O. Smith*; *and August*, 1947, *J. C. Neilan*), flying on the 10 m.p.h. Headwind scale towards up-wind clouds, increasing the airspeed as indicated in all areas of downcurrent, and finding in practice that we got to the next lift-area in no time at all and with an encouragingly small loss of altitude. (*Thank you, Gerry Smith and John Neilan, for the B.S. I.*).

After 2¼ hours in the air, the first feelings of fatigue became evident, but were successfully overcome with a delicious cigarette, and—at the third hour—some equally delicious biscuits. At 4 hours, a little audible swearing, and not a little seat-wriggling, only partially eased a painful bout of ache and cramp. At 4½ hours, six o'clock and the cessation of thermals was not far off and it was more of a struggle, but the thought of " only half an hour to go " kept us going, and the last thermal—actually the eighteenth of the flight—took us on to the five hour mark.

Ten minutes later we had landed after a flight which was made thoughout within easy landing-range of the airfield; which had given the pilot a wealth of lessons and enjoyment; and which, I hope, will lead the way to some more " Five Hour " durations by Club members from the Lulsgate site.

GLIDING AT DETLING

AS an instructor in/t of No. 161 Gliding School I travelled from Brighton on September 11th to attend the Gliding Course at Detling, the purpose of which was to generally advance the gliding ability of the instructors and to introduce them to the two-seater method of training on Slingsby's " T21B."

The site is a war-time R.A.F. drome, now out of service, about a mile long by ¼ mile wide and situated four miles or so to the N.E. of Maidstone. A ridge, 400 feet high, runs for many miles in a N.W./S.E. direction between the latter town and the airfield.

The hangar, a large corrugated iron building with sliding doors, contained an impressive range of equipment which had been loaned for the week by various A.T.C. Gliding Schools in the district. Gliders included four " Mk. I Cadets," two " Mk. 2 Tutors," two " Grunaus," a " T21B," owned by Sq./Ldr. Furlong (officer in charge of the Course), and a " Kranich " two-seater which had been brought along by three members of the Farnborough R.A.E. Technical College Gliding Club.

There were about twenty of us taking the Course and we soon set to work to make serviceable the three winches and retrieving cars ready for an early start the following morning.

Sunday produced a cloudy day with a 25 m.p.h. wind blowing from the S.W. and, most important of all, directly over the ridge. For about 50 per cent of those present, including myself, this meant one thing—the possibility of a " C." After a ten to twelve minute trip in the " T21B " in order to learn the technique of ridge soaring, pilots made their way out one by one in the " Grunau." A 48 minute flight by Mr. Scott of 161 School was an excellent start and this was followed by my flight. I left at 500 feet and flew the ¾ mile back to the field in a hailstorm, landing at the starting point soaking wet but thoroughly satisfied with my 35 minute trip. The continuing rain removed the possibility of any more gliding that evening and accordingly everything was hurriedly packed away.

The wind on Monday, although still very strong, was blowing from N.N.W. across the narrowest part of the field. Two-seater trips were the order of the day as it was too rough for the " Grunau," and the " T21B " and the " Kranich " made an impressive sight as they swept across the main road with spoilers on to land just inside the drome.

From Monday onwards the wind blew mainly from the S.W. but mostly with insufficient strength to provide lift over the ridge. Accordingly a great deal of flying was done in the " T21B " practising circles, sideslips, and generally improving all round, although Tuesday provided good thermal conditions in which a further " C " was obtained and the " Kranich " went for an hour's trip over Maidstone at 2,800 feet.

Owing to low cloud on Wednesday only one or two test flights were possible but in the last two days of the week many of us made good improvement in side-slipping and spot-landing the " Mk. 2 " and " Grunau."

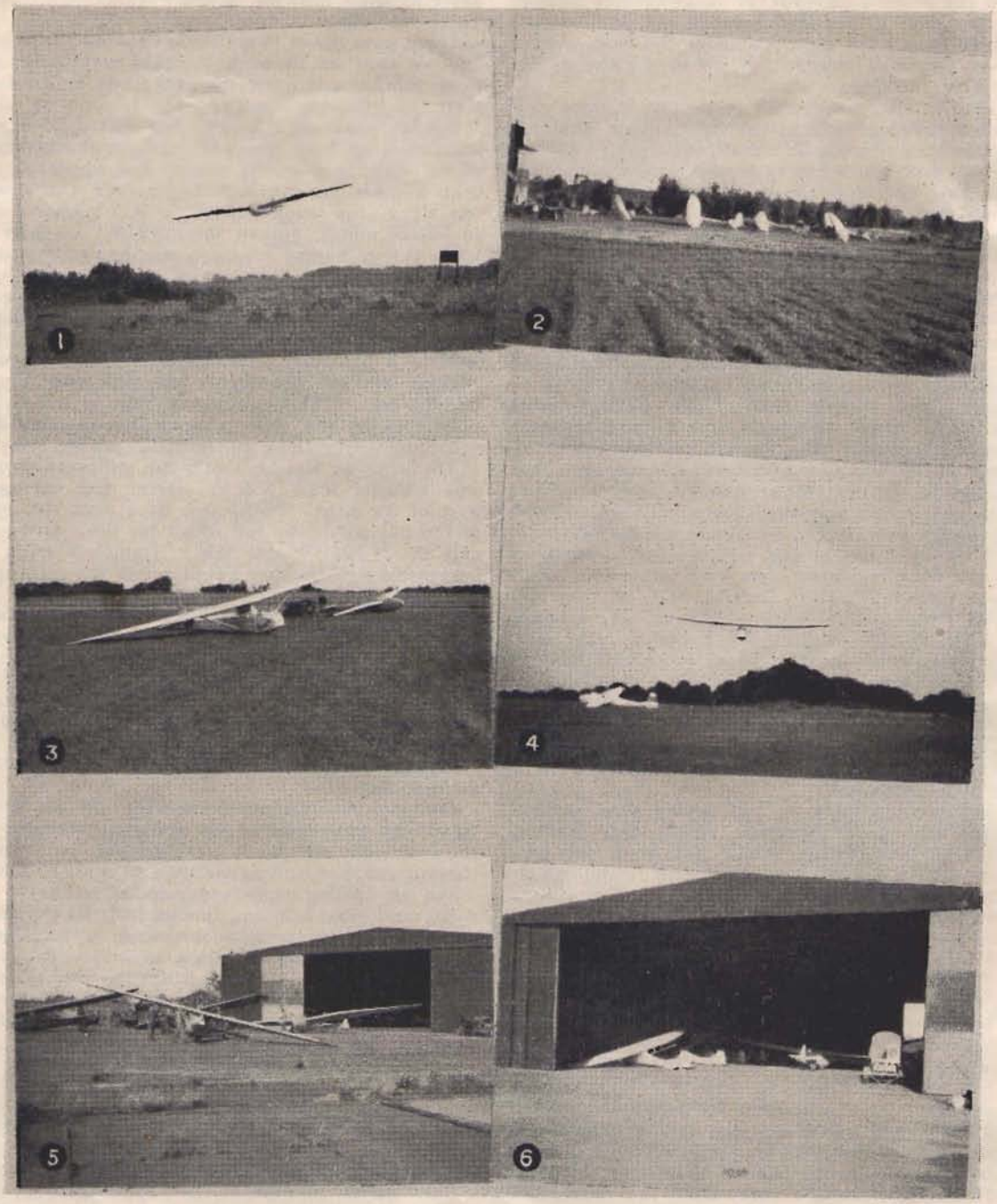
We left Detling on Saturday full of praise for the flying and easy handling qualities of the " T21B," gratitude for the tremendous amount of hard work put in by Sq./Ldrs. Furlong and Sylvester, and feeling thoroughly satisfied with the whole Course in which much was learned, several " C's " obtained and many friendships made. P. A. G. COCKRELL.

" NEW LOOK " AT SAMEDAN—*contd. from page 15*

stratosphere, or darting in a straight line in the Piz-Curver or the Weissfluhjoch, rivalling in speed the Swedes, the Finns, the Spaniards, Swiss, French and an Egyptian. A feminine master I tell you—" Her " pilots, in spite of their appearance of professors of Cambridge and Eton obeyed every lift of her finger, every glance of her eye, for mark you there was no question for them of flirting with anyone else but the clouds. CLAUDE SCHUBIGER.

(Translated with Acknowledgments to " Servir)

A.T.C. GLIDING AT DETLING



1. *"Kranich" Landing.*
2. *School Machines.*
3. *"TG—21"; "Kranich".*
4. *"TG—21" Landing.*

5 and 6. Hangars.

"NEW LOOK" AT SAMEDAN

IS the aerodrome at Samedan, the highest in the world after La Paz, Bolivia, going to dethrone Auteuil and Longchamps in the eyes of the great conturiers, their mannequins and their elegant clientele ? They might hope so, since at the International contests recently held there even the female pilots wore the " new-look." This isn't imagination either as I saw them myself—these heroines of the " belly-launch " (" manche a balai ") draping a leg over the fine drawn lines of high performance sailplanes—Oh, how many—" Weihe," " Kranich," " Olympia," and many others.

There was, however, an interesting variety of dress on view at Samedan. The pilots—above all the Swiss—wore mostly ankle fastening flying suits—except the French, who wore, instead of the traditional leather coat, a curious shirt, combining the safety harness and a pullover. But their wives !—and their fiancees ! ! They pushed the pursuit of elegance to the point where they matched their dresses with those of the sailplanes, to wings painted red, or blue, or green. Mme. Schachenmann recently returned from the U.S.A. with her " Maxie cheri " who bought there a superb " Bonanza "—a grand touring aeroplane with retractable undercarriage—willingly changed her dress three times a day. In the morning she was in shorts to brush the dust from the conjugal plane, in the afternoon she helped the manoeuvres of " Taking Off " very much at ease in an elegant and fetching two piece ; a blue blouse striped with white, half length trousers of the same colour ; and in the evening when the sun went down behind the Bernina massif, it was in the New Look, naturally, that she welcomed, on landing, the heroes of the day, whom one might say came from the clouds to put their celestial homage at her feet.

One woman, and only one, did a job of work among the elegant actresses and spectators of the events at Samedan—aerial counterpart of the Olympia Games in London. She came from across the Channel—to be precise—her name Mrs. Douglas. Whether the " Maloja " blew or the sun operated the " thermals " or the slopes of the Muottas Muraigl, you saw her inevitably in shorts. That was because, no doubt, she took her duties so seriously—" noblesse oblige "—was she not Captain of the British Team ? At her command seven pilots leapt into the sky, practising flight in the invisible frontiers of the

(*Continued on page* 13)

"Immuablement en shorts."

Mme. Schachenmann . . . in an elegant and fetching two-piece.

ULTRA LIGHT AIRCRAFT ASSOCIATION

THERE are still many people in this country who believe that it is quite reasonable to expect the Government to pay for their flying. They argue that every pilot is of value to the country in time of war and that, because of this, it is the duty of the Government to help to pay for their training by means of subsidies. This is a very poor argument and certainly brings no credit to those who continue to advance it. Let us be quite honest about it, though, and admit right away that those of us who like flying for its own sake would be only too happy if somebody—the Government or anybody else—would step in and pay for us to fly. That is one thing. But it is quite another to disguise our longing to get airborne as something patriotic, to advance the threadbare argument about private pilots being of value in war-time. To do this is to invite the Government to condemn all private fliers as a lot of scroungers who haven't enough real enthusiasm to go out and get what they want for themselves.

If we argue that because every private pilot is of potential value to the R.A.F. in war-time and should, therefore, have his flying provided free, or at least very cheaply, by payment of subsidies to clubs, then the private motorist could with equal force argue that he would be of value to the Army as an M.T. driver and should therefore be provided with cheaper motoring. Equally the yachtsman could argue that he would be of value to the Royal Navy and that, because of this, some of the expenses of his sport should be borne by the Government. Or one can go to even more absurd lengths and say that the hiker should receive financial assistance because he would require very little training as a foot-slogger in the Army; the swimmer because he might prove useful as a frog-man and members of a shooting club because they are good marksmen. Yet apart from the private pilot, none of these people clamour for financial assistance from the Government. They are satisfied instead to be allowed to indulge their interests as and when they please within the bounds of propriety and the fact that the prowess they have developed in their spare time can be turned to good account in time of war is merely incidental. This prowess is a sort of bonus which the Government receives for giving us freedom to organise our sports as we please.

Why, then, should the flying enthusiast be different? Why should he, alone out of the exponents of a hundred different sports and pastimes, believe that his is the one sport which merits special treatment? There is no reason at all. Yet one still finds would-be pilots bemoaning lack of Government financial assistance. Surely the answer is that for those who want to fly from patriotic motives, or to sail or march or shoot, there are the various Reserves and Territorial forces. But for those who want to fly as a sport the truth of the matter is that there is no earthly reason why the Government should pay for our pleasure. But we do have it in our power to make flying really cheap without Government help if we really get down to it. Unfortunately there are still too many so called enthusiasts who, as soon as they find that they are expected to do a little work in order to make their flying as cheap as possible, lose all their enthusiasm. If we are to get anywhere, we must stop regarding ourselves as a potential reserve of pilots for absorption by the R.A.F. in time of war and realise instead that private flying, particularly in ultra light aircraft, is primarily a sport pure and simple. By doing this, and accepting the fact that, as in any sport, the success or failure of our movement depends entirely upon the amount of genuine effort we ourselves put into it, then we shall in the end get what we want.

GROUP NEWS

Community Flying Club, Woodley Aerodrome, Reading. Application for affiliation to U.L.A.A., as reported last month, has now been accepted and this Club has been allocated Group No. 11. We hear from Mr. C. B. Allen their Hon. Secretary, that the Club's first "A" Licence flying tests have been successfully completed—about one year from inception. Enquiries regarding membership may be addressed to Mr. C. B. Allen, 66, Redlands Road, Reading, Berks.

South Hants Ultra Light Air Club, Christchurch, Hants. This group staged a flying display on 19th September. We would like to congratulate them on being the first of our affiliated Groups to stage their own display. Due to pressure on space the report will appear in next month's *Bulletin*.

PROJECTED GROUP

Mr. York-Bramble, one of our Individual Members would be glad to hear from Members in his area with a view to discussing the formation of a Group. All members interested should contact Mr. A. E. C. York-Bramble, Fountains Park, Netley Abbey, Hants. (Telephone—Netley Abbey 34).

DESIGN SUPPLEMENT

Contributed by G/C. E. L. Mole. Chairman, Design Sub-Committee.

Mayes U.L.A. Engine Design.

1. Mr. H. R. Mayes, formerly chief designer of the Monaco Engine Co., has become keenly interested in the possibilities of ultra-light aircraft. He has shown us a G.A. drawing of a design he is working on which ties up closely with our engine design requirements published in Bulletin No. 15. This engine has a number of desirable features and would be eminently suitable for our purposes if the price can be kept below £150, but to achieve this it is probable that some of the refinements would have to be dropped. Mr. Mayes is now searching for a manufacturer to take up his project.

2. The engine is a push-rod operated O.H.V. flat four cylinder design of two litres capacity, developing 50 B.H.P. at 2,600 R.P.M. Although particularly neat and compact, adequate cooling and accessability has been carefully studied. The twin ignition system is operated by a single "duplex" magneto. Pressure lubrication is used with a wet sump of two gallons' capacity. There is provision for a number of optional accessories including a

generator, electric starter, air cleaner and an exhaust silencer with cabin heater. Mr. Mayes offers as an alternative to the electric starter, a hand starter operated either from the side of the engine or from the cockpit—a most desirable feature.

3. This is the fourth U.L.A. engine design now in hand, but we have so far been unable to find a firm willing to undertake production of them without an immediate market prospect. Unfortunately the costs of developing and producing an engine are heavy, despite the fact that the A.R.B. have agreed to the use of commercial materials and production practice, and to a type test of much reduced severity for the new U.L.A. category C. of A. applicable to aircraft with a stalling speed below 40 m.p.h. We are, therefore, exploring the possibility of arranging a development contract for one of these designs (to be selected by tender) either from the government authorities or from some far-sighted public spirited patron. The whole future of the U.L.A. movement and cheap flying depends upon the early provision of a suitable engine, and we are convinced that once such an engine is available in production the U.L.A. movement will grow rapidly and a useful market will develop for it both at home and overseas.

Rocket Propeller Suggestion

4. We have received an interesting letter from Mr. W. J. Watkins, of Harpenden, in which he suggests the use of a rocket driven propeller as a light and simple means of launching a sailplane up to soaring height. This is a similar idea to the jet propeller described in last month's Bulletin, but using the rocket principle to give jet thrust at the propeller tips and so rotate the propeller. Mr. Watkins illustrated his suggestion with a number of sketches of different schemes, covering both solid charge and bi-fuel rocket propellants, and he proposed retraction, feathering or even ejection of the propeller after use when soaring height had been attained.

5. In the case of the solid charge scheme, he showed the rocket cartridge attached to the hub of the propeller and rotating with it. The products of combustion pass from the cartridge into a spherical chamber within the propeller boss, and thence down pipelines inset within the blades to discharge from nozzles at the tips. This would be a mechanically simple scheme, giving ease of re-loading by means of spare cartridges. The disadvantage of the solid charge however, is difficulty in controlling the rate of burning over a long period, with the consequent risk of explosion. Also, the extreme high temperature of the gasses would considerably erode the pipelines and nozzles (even if air-cooled) and they would have to be frequently renewed.

6. The bi-fuel scheme would overcome the erosion problem, as the liquid fuels would be led down the pipelines within the propeller blades and burnt in combustion chambers at the tips. This scheme, however, involves the complexity of a pumping and metering system, and the use of a dangerous oxidant fuel, e.g. nitric acid or liquid oxygen.

7. We have discussed Mr. Watkins' suggestions with rocket and propeller experts, who considered that the idea would give a much greater static thrust to an aircraft for a given rate of charge burning than would direct rocket thrust. As an illustration, an example has been calculated of a rocket propeller 3½ feet in diameter, rotating at 2,500 R.P.M. with a total jet thrust of 25 lb. at its tips, it would give 150 lb. static thrust for a charge consumption of approximately ¼ lb. per second. This would enable an average sailplane to climb steeply at an angle of about 1 in 3, and reach a height of nearly 2,000 feet in 2 minutes for a charge consumption of about 30 lb.

8. Although the solid charge scheme is considered to be mechanically practical, there are a number of severe design and stressing problems to be overcome. Moreover, at the present price of cordite the cost per launch to 2,000 feet would be about £5, and some cheaper propellant would have to be developed. It is thought doubtful if sufficient demand for auxiliary powered sailplanes will ever exist to justify the heavy experimental costs involved.

Power Eggs for Auxiliary Powered Sailplanes.

9. Mr. Watkins also suggested in his letter a development of Mr. Ince's idea of a detachable power egg for use with sailplanes (as described in Bulletin No. 12). He thought that there would be an increasing demand for a power unit similar to an outboard motor-boat engine but installed the opposite way up. The engine would be housed within the fuselage behind the pilot, and would drive by shaft a pusher propeller mounted at the top of a vertical strut emerging upwards through the centre-section. The whole unit, complete with fuel tank and cooling fan (if necessary) would be arranged to pivot near its C.G., so that the vertical propeller strut could be swung down backwards and retracted into the fuselage when not in use. Mr. Watkins enclosed sketches of various suggested lay-outs, including two-seater sailplanes with two standard units installed—the propeller struts emerging either upwards in a wide Vee, or horizontally outwards behind the trailing edge of the wing.

(*This has been done before—often.*—ED.)

RESEARCH SUPPLEMENT

Contributed by A. R. Weyl, A.F.R.Ae.S. Chairman, Research Sub-Committee.

Problems of U.L.A.A. "Solo Trainer" Design.

The Executive Committee has given much thought to the design of a simple special aircraft which would satisfy the following requirements:

(*a*) to be suitable for construction by Groups who are not so fortunate as to possess skilled aeronautical craftsmen among their active members;

(*b*) to be suitable for learning to fly from scratch, by self-training in a flyable aircraft under appropriate supervision;

(*c*) to be a normal, practical aircraft which could also be appreciated by members who have already received training as pilots, and which would lend itself to transition instruction to any standard ultra-light aeroplane;

(*d*) to be inexpensive to build, operate, overhaul and repair.

The condition under (*a*), (*b*) and (*d*) might be satisfied by one of the modern models of the Pou-du-Ciel. It is, however, thought that training on an unorthodox type of aircraft with non-standard controls and unusual flying qualities would be a disadvantage to the younger generation of our flying members. Training received on such an aircraft might impede their future progress as pilots. Moreover, the conversion from the solo-training to any standard ultra-light aircraft would require re-training.

A *Cheap* solo-trainer such as we need, is scarcely a proposition for an aircraft firm. Even the sale of kits of parts, and the possible export of a type which has not hitherto been represented on the world market, offer insufficient attraction for industrial firms to embark upon the development of a U.L.A. solo-trainer. Hence there is little hope that we shall find a firm which is prepared to help us. Moreover, we feel that we must guard against the possibility of a monopoly in which our groups and members will have no say. It would be against our interests if the provision of building licences and drawings would become subject to business interests and thus a burden on our beginner groups, which can ill afford any extra expense.

Hence, we feel the need to promote the design of a solo-trainer aeroplane of our own, to develop it until it is a good proposition, to secure "approval" for it both for amateur construction and solo-training, to prepare standard drawings, jigs and building instructions, and to encourage the construction of the type by our beginner groups. There is nothing new in the sponsoring of a standard trainer design by a flying association: a notable precedent is, for instance, the "Zoegling" or "Dagling" primary training gliders which are still in use all over the world. These gliders may be built by anyone, firms or private persons alike, and complete standard drawings are available everywhere.

The first thing on which an understanding must be reached concerns the principles of design which our solo-trainer aircraft ought to satisfy. We have enumerated below the various problems to guide the designer, on the basis of suggestions which have been made (and approved in principle) for solo-training under the supervision of an instructor. We hope to get official approval for such inexpensive instruction for our groups.

The principles outlined below are intended as a guide for trainer design in respect of its suitability for instructional purposes, in respect of safety precautions, and in respect of its suitability for amateur construction, simplicity and economy.

The safety requirements deserve, of course, to overrule all other conditions. Nothing would harm the aims of our Association more than crashes resulting in injuries to a pupil or to a third party. A few accidents of this kind would lose us all the facilities which, it is hoped, the Authorities will grant us for solo-training; in addition, ultra-light aviation might again become subject to severe restrictions.

The solo-trainer aeroplane we have in mind, is a *single-seater*. The design of a two-seater would not be practical with the economical low horse-power engine we have at our disposal. Sturdiness of design and ease of construction with limited facilities, unfortunately, militate against a low airframe weight. Moreover, dual control would render the construction unnecessarily complicated, and a side-by-side seat arrangement would markedly deteriorate the field of view for the pupil. Finally, there is an aversion against the granting of Certificates of Airworthiness for *two*-seaters built by amateurs; we cannot expect that this inclination will be overcome in the case of groups which begin with the solo-trainer as their first flying effort.

The principal problems which we are taking into consideration for our solo-trainer aeroplane design, are as follows:—

A—General Design Problems.

(1) Robustness and Sturdiness.

(2) Materials cheap and easily available; if possible, standard sizes, proprietary parts and commercial materials.

(3) Simplicity (as few parts and components as possible).

(4) Inexpensive construction (as few jigs and fixtures as possible); accessibility for inspection and overhaul; repairs easy to effect.

(5) Horse power of the engine not exceeding 50 h.p. (at present, the 36 h.p. Aeronca-J.A.P. engine must suffice for all conditions of solo-training).

(6) Reasonable overall dimensions, neither requiring much building nor housing space.

(7) Training operations should be possible on meadows and other natural ground.

(8) Fuel feed by gravity.

(9) Provision of a simple self-starter.

(10) Gateable throttle which cannot be inadvertently opened by the pupil.

(11) Other methods to restrict the possibility of taking off during taxying exercises.

(12) Full approval, with type Certificate of Airworthiness, by the A.R.B.

B—Problems of Flying Qualities.

(1) Normal (stick or spectacle, cum pedals) three-control operation.

(2) Flying qualities unaffected by differences in the weight of the pilot (no changes in trim or stability).

(3) Self-training operations should be possible in the presence of light winds and gusts (little sensitivity to gusts).

(4) Excess horse power to give a reasonable angle of climb near the ground.

(5) Safe stalling qualities (little or no tendency to spin; gradual stall; stall warning; little tendency to nose-dive after the loss of speed).

(6) Reasonably low stalling speed.

(7) Little acceleration (increase of flying speed) in a dive and a low terminal nose-dive speed.

(8) Control sensitivity to remain constant at all conditions of flight (equal control displacements always producing equal control effects).

(9) A reasonable degree of positive static stability combined with good manoeuvrability (if possible, suitability for aerobatic flying).

(10) The safe flying qualities should not be attained any by restriction of controllability (no restricted elevator control, for instance).

(11) Perfect field of vision (open seat). No inducement for the pilot to keep his " head in the office."

(12) Top speed, cruising speed and a large speed range are unimportant.

C—Problems of Accident Prevention.

(1) Stiffening of the cockpit against collapse.

(2) Protection of the pilot's seat.

(3) Protection for the pilot's head in the case of overturning.

(4) Protection against injuries by splinters.

(5) Padding and shock absorption under crash impact (no projections in front of the pilot which may cause injuries under impact).

(6) No heavy masses aft of the pilot.

(7) Prevention of crash fires.

(8) Prevention of airscrew swinging.

It is futile to hope that all the above problems will be satisfactorily solved at our first attempt. Only experience with solo-training will teach us to perfect the design.

Certain solutions are already in our mind. For instance a pusher lay-out would not be satisfactory in respect of crash protection, nor as to simplicity, nor as to insensitivity against differences in pilot's weight, etc. We also consider that the bi-plane is ruled out on account of inherent deficiencies in other respects. A tapered wing, too, would have little chance in our choice.

We invite our members to discuss the points which have been raised here. Such a discussion would help to amplify and/or modify the design problems which are confronting us, it also may lead to the adoption of better principles than those which have already been worked out by engineering members of the Executive Committee.

INSPECTION SUPPLEMENT

Contributed by Capt. K. M. Sturton. Chairman, Inspection Sub-Committee.

Inspection. " Notes for Inspectors " have now been issued to our Voluntary Inspectors and groups. The Notes outline the methods which are to be adopted by groups for the inspection of ultra light aircraft, both during construction and maintenance.

The agreements between the Air Registration Board and the Association are based partly upon the provision of an adequate inspection organisation. In fact, the A.R.B. has in principle approved the U.L.A.A. as an " Approved Inspection Organisation, thereby obviating the necessity for the employment of licenced personnel to carry out the inspection of the aircraft during construction, and at periodic intervals.

It will be seen that the U.L.A.A. scheme is based upon the appointment of one or more inspectors in each group who will be solely responsible for the inspection of the aircraft in that group. These inspectors will be supervised by regional inspectors employed by the Association, guidance being given as necessary by the headquarters of the Association.

It cannot be too strongly emphasised that construction, maintenance and inspection must be upon a proper footing within the groups. There must be proper conditions for the construction of the aircraft, and the maintenance and repairs thereto. Whilst a fully equipped workshop is not necessarily required, it must be borne in mind that the other extreme i.e. the " cowshed " type of accommodation will not be tolerated, either by the Association or the A.R.B. who will visit each group periodically where construction and maintenance is in progress. Accommodation must be clean, wetproof, light and sufficiently warm for the type of construction to be adopted. It must also be equipped with the essential tools, jigs, etc., appropriate to the work in hand. Obviously less equipment will be necessary if building is from " kits of parts," than if from " ab initio."

Personnel is another important point. It is visualised that many group enthusiasts will want to " lend a hand " in the construction—whether skilled workmen or the reverse ! Therefore the appointment of a keen and experienced inspector by each group is essential. The man appointed need not necessarily hold ground engineer's licences, but obviously this is preferable. He must however be a good mechanic, having had considerable aircraft experience (preferably in works) and most of all some inspection experience. Groups are required to nominate inspectors, and forward to headquarters as soon as possible their names, together with their experience as indicated above. Approval of each individual inspector will be given by Association H.Q.

It is hoped that all groups will respond fully to the inspection requirements, for the good name of the Association, and also in order to obviate complaints from the A.R.B. and the possible withdrawal of their approval.

Members interested in Group formation can obtain copies of " Notes for Inspectors " on application to the Hon. Secretary.

OPERATIONS SUPPLEMENT

Contributed by F/O. I. G. Imray. Chairman, Operations Sub-Committee.

Ultra Light Aircraft Rallies. The Operations Sub-Committee has very good reason to believe that next Summer will show a very great increase in the number of ultra light aircraft in the air. It is to be hoped therefore that during next Summer a number of our operational Clubs and Groups up and down the country will be organising their own Rallies. The Operations Sub-Committee of the Association will be only too willing to give every possible assistance to Group Secretaries and Committees in their endeavours to organise such Rallies. It is suggested therefore that consideration should be given NOW to such matters and this Sub-Committee notified. By keeping us " in the picture " it will be possible to avoid the clashing of dates, and good notice can be given to all Association members through the medium of the Bulletin.

As has been stated in the write up on the Christchurch Rally a great deal of apathy appears to exist amongst our members who are fortunate enough to be operating machines at the moment, whilst on the other hand real keenness is shown by those who hope to get airborne before long, and who are very anxious to meet and talk to these fortunates. A good attendance at these Rallies can obtain useful publicity for the movement; publicity attracts members; members strengthen the movement and help to get more aircraft into the air to attend more Rallies—an ascending spiral with tremendous possibilities.

NEWS FROM THE CLUBS

LONDON GLIDING CLUB

September: The last course of 1948 was held this month and proved as successful as the previous ones, producing 6 "A," 7 "B," and 8 "C" certificates. As promised in last month's notes, we can now give a full report on the "National Gliding School" which the Club has been running at Dunstable during this summer, in its usual public-spirited manner (the full extent of our altruism will not be revealed until our Secretary has had an opportunity to go over the "School" account), four courses were made available to the public from May to September, each of 12 days' duration, for an inclusive, repeat inclusive, charge of £16. 0s. 0d. Board and accommodation on the club premises were included in this figure and there was no crash liability. These courses were attended by 60 pupils, 35 of whom were without any previous experience of flying whatsoever; 6 had some powered flying experience and the rest had some previous gliding training, 8 holding "A," 6 "B," and 1 a "C" certificate upon joining the "school." These 60 pupils took, at Dunstable, some 93 certificates comprising 28 "A," 34 "B," and 31 "C." Most remarkable of all, no less than 15 pupils, all without any previous flying experience, each took all three certificates (A, B, and C) in the course of a single 12-day period. Apart from some luck with the weather (no course was entirely without some W. wind days), we had no outside assistance and the whole show was a 100 per cent L.G.C. affair.

We have every intention of continuing the School during 1949, but it is unfortunate that a recent general increase in insurance rates for gliders will not allow the courses to be run at the exceptionally low charges made during this year. On the other hand we shall be able to offer vastly improved accommodation as the main Club House will once again be in use and the undergrounding of the power lines will greatly improve flying training facilities.

Club flying continued as usual throughout the month and 4 "A" certificates were taken in addition to those awarded to the School pupils. Dr. Dickenson added her name to the still somewhat exclusive list of lady "C" pilots and later added it to the not so exclusive list of pilots who have gone aground on the hill top with detriment to both machine and reputation.

This year the summer months have proved inferior to the Spring for cross-country conditions, and September provided only one short cross country of 38 miles on the "Gull IV." Some members visited Friston and Long Mynd under our recently negotiated club-interchange scheme however and were able to avail themselves of facilities on those sites. It is not generally realised that members of the L.G.C. may now fly at the Southdown, Midland, and Derby and Lancs. club sites on the local aircraft at normal club rates plus a small temporary membership fee. Anyone intending to use this scheme should see that his log book is up to date and endorsed by his instructor and that his membership card is at hand. Naturally, visitors must conform with the local rules and regulations and it goes without saying that the indigenous instructor will, as always, have the last word. This scheme should prove a great boon to members who travel to the provinces on business or pleasure and find themselves far from home at week-ends. We hope to increase its scope in the future.

The transport sub-committee has produced a remarkably sound, if ancient, Austin 12 to assist with the towing and cable retrieving. It was promptly "Dunstableized" in a very efficient manner and should prove more economical on petrol than our Beaverette.

The most spectacular piece of crashery this month involved our nacelled "Dagling" and the 22,000 volts power lines, which resulted in some welding not strictly in accordance with A.R.B. standards, to say nothing of the remarkably low moisture content which prevailed in some of the wood work. The pilot does not appear to have benefitted from this enormous intake of energy, which has not even provided him with a permanent wave. We suspect that, at the time, he had lost contact, spiritually and temporally.

Summary of flying for Sept.:—
Number of launches, 648.
Number of hours flown, 191.
Certificates taken: 10 "A," 7 "B," 8 "C."
Silver "C" Height—1.

SCOTTISH GLIDING UNION

On the last week-end of August, flying was abandoned because of rain. There was a small turn-out of members at Balado on the 3rd of October, with the result that each had an imposing number of launches, and Lex Mackie got his "B" certificate. Flying went on at Balado during the next Sunday, in spite of rain. The week-end 16/17th October was much better, with a particularly good attendance at Balado on the Sunday, and the achievement of four "C" certificates on Bishop Hill. There was a good west wind of 20 to 30 m.p.h., and the four Tutor pilots—Peter Pearce and Don Miller of St. Andrew's University, Ron Flockhart and Duncan Aitchison—had little difficulty in averaging twenty minutes apiece off the Hill. Don's classic remark on this occasion was: "When I saw the moon coming over the hill, I thought it was time to land." We also liked his horrified comment when he was told he should stand the S.G.U. a pint all round. "A pint all round?" he repeated. "But milk's so hard to get!"

THE BRISTOL GLIDING CLUB

Our friends, The Midland Gliding Club, have kindly invited us to repeat last year's experiment of sending one of our sailplanes to Long Mynd for the winter months. This year we have sent the "Olympia," as there are now considerably more members qualified to fly this aircraft than was the case last year when the "Grunau" had a very successful stay at the Mynd.

The Midland Club's invitation is greatly appreciated, as it provides a favourable opportunity for

our members to gain valuable soaring experience from an hill site and also a better chance to make a duration flight of Silver "C" proportions.

An initio training is still the main concern of the Club and a fleet of five aircraft ("Dagling," 2 "Cadets," "Tutor," and the "Grunau") will ensure flying for all.

Every endeavour is being made to obtain a suitable hill soaring site within easy reach of Lulsgate Bottom aerodrome. Keith Turner, together with other enthusiasts are busy investigating various sites.

In connection with the above we are grateful to S/Ldr. Phillips for his generosity in allowing the Club to investigate the soaring potentialities from Hale's Land on the Mendips. This site is near Draycott and S/Ldr. Phillips has already conducted some investigations.

S/Ldr. Phillips aero-towed Keith Turner, flying an "Olympia" to the site and the latter then made a flight of 45 mins. before landing on Hale's Land. The aerial food supply organised by S/Ldr. Phillips was a praiseworthy act which was greatly appreciated by Keith and the Retrieving Party.

Our "Grunau Baby" was damaged recently when the pilot took the wrong turning on a "Fly-home" and collided with a stationary private car. The car escaped with negligible damage but not so the "Grunau." However, Messrs. Western Airways speedily effected the repairs with their usual thoroughness and we are now all set to use the machine to investigate local hill sites.

At the beginning of the year we set ourselves a target of 5,000 launches for the year and we are very pleased to say that this figure was exceeded during September. A total of 244 hours' flying has been compiled.

Five "A" and five "B" certificates were obtained during September from 29.7 hours' flying. This included two flights, each of over four hours' duration at Long Mynd by Michael Hinton and Lionel Pitt.

Jenny Jennings has become the second Member (Rex Young being the first) to have completed the requirements for his Silver "C" certificate. Jenny completed the requirements at Long Mynd on 2/10/48 when he made a five hour duration flight in Rex Young's "Olympia." "Bonzo" Hinton completed the first part of the Silver "C" requirements on the same day with a five hour flight.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB

Club Notes for September

Wednesday, 1st. Wind West 15/20 m.p.h.

The event of the day was the wedding of Leslie and Geoff, now Mr. and Mrs. Russell at Disley. A mob from the Club turned up, everybody surprised to see everybody else in a collar and tie or party frock as the case may be. The groom was in a blue serge pin stripe single breasted lounge suit with shallow revers. The bride looked lovely in a light coloured shiny sort of frock with flowers on and a big floppy hat with a ribbon.

In the evening, at Camphill, Derek Roper and Bert Wardall flew the "Kite" and Charles Faulkner and George Thompson flew the "Olympia."

Totals—4 Launches, 1 hour 35 minutes.

Saturday, 4th.

Four ab initios shared the "Primary" between them.

Total—17 Launches.

Sunday, 5th. Wind West 5 m.p.h.

The wind was light and the lift uncertain. One or two pilots managed to soar the Club "Kite" and "Grunau." Neubroch managed 43 minutes in the "G.B." and Stevenson did 38 minutes in the "Tutor." "Olympias" totalled 6 hours 39 minutes but the rest of the Club machines only managed 2 hours. Two accidents practically identical in their effects happened within an hour. A spectator stepped on the "Kite" elevator and broke the spar and the "two-seater" elevator stuck in the ground whilst being retrieved backwards by hand, the spar being

broken in exactly the same way as the " Kite."

Totals—73 Launches, 11 hours 4 minutes.

Saturday, 11th. Wind W.N.W. 15 m.p.h.

A good mixed day, five ab initios flew the " Primary," six pilots had circuits in the " Cadet." The " Tutor " did two hours, the " Olympias " twelve hours and the " G.B. " three and a half hours. Something for everybody.

Totals—39 Launches, 17 hours 25 minutes.

Sunday, 12th. Wind S.W. 5 m.p.h.

Eleven circuits only in the " Cadet," " Tutor," and " G.B."

Saturday, 18th. Wind West.

Fred Coleman tested conditions in the machine he originally built. The lift was obviously fairly good and he was followed by Derek Roper who reached 4,000 feet in standing wave conditions, well back from the hill. Having no barograph, he landed and took off again, to reach 4,000 feet again to complete his Silver " C." This was a praiseworthy effort and Derek is to be congratulated. He only started to train in earnest at the beginning of the year and has made rapid and steady progress. Thomas was launched next in the red " Olympia " and following in the direction in which the " Kite " disappeared, he ran into even better conditions some miles north of the Club and climbed steadily to over 10,000 feet. Peter Richardson in the " Tutor " also reached 4,000 feet for the first leg of his Silver " C." Louis Slater who had the second flight in the " Olympia " reached 5,100 feet and was unable to find the Club. He came down through cloud until his altimeter showed 400 feet below take off at which height the Ladybower Reservoir appeared 200 feet below. He just managed to scrape in for a landing on the bank of the dam.

Totals—17 Launches, 13 hours 58 minutes.

Sunday, 19th. Wind 30/40 m.p.h.

Lenticular clouds and a strong wind seemed to indicate a standing wave. Gerry Smith was bungied off at 10.30 a.m. to try and find it. He managed to reach 6,200 feet but the wind was so strong that it was almost impossible to explore as far as he would have liked. Heck Booth reached 5,000 for his first leg and Shepard and Taylor in an " Olympia " and G. Thompson in the " Viking " reached 4,000 and other pilots reached 3,000 feet.

Totals—8 Launches, 14 hours 21 minutes.

Saturday, 25th. Wind West 10/15 m.p.h.

Louis Slater had an early launch in his " Olympia " but only managed to scrape in half an hour. Fred Breeze also had the same in the " Kite " but as the lift was deteriorating training was commenced. Phil Dennis came out from behind his cine-camera and had twelve launches in the " Primary."

Totals—35 Launches, 1 hour 35 minutes.

Sunday, 26th.

Training was continued and Phil Dennis, Harry Cook and Val Haszko all obtained " A " certificates. It was a busy day, but only the " Olympias " and the " Viking " managed to soar.

Totals—68 Launches, 5 hours 6 minutes.

Monday, 27th. Wind S.S.W. 25/30 m.p.h.

Jefferson, Lawless and Gerry Smith had about half an hour each in the " Kite."

September produced 275 Launches totalling 67 hours' soaring. Three " A " certificates, three Silver and one Gold " C " height. Most gratifying was the visit of the standing wave on two more days this month. Peculiar weather conditions have prevailed now for two months and a more detailed consideration of these conditions is plainly called for.

A Club dance will be held at the Devonshire Arms, Baslow, on December 4th.

THE YORKSHIRE GLIDING CLUB
Notes of Activities, Sept.-Oct., 1948.

Flying. Poor weather on the 12th of September discouraged attendance, and the only flight during a brief spell of fair visibility was a 30 minute flight in the " Kite 2 " by Bill Sharpe. On the 15th the Newcastle camp began with only 2 flights giving 15 minutes for the day. The weather improved well on the 16th, and the camp was augmented by O'Grady, Coulson, Callaghan and Smart and put in 7 hours 40 minutes for the day. On the 17th Burningham and Bill Sharpe joined in, with Leach who did 5 hours in the prototype " Prefect." 13 hours 15 minutes for the day. Saturday the 18th was dud for soaring but 19 winch circuit practice flights were carried out. On the 19th, there were 16 launches for 12 hours 29 minutes soaring, Reid, an A.T.C. instructor taking his " C " certificate with a flight of one hour. The next day was the 26th September, on which Driver, Lion and Thomson all took " C " certificate tests successfully; altogether 2 hours 40 minutes soaring. Sunday, 3rd of October was a good day; Pratt (A.T.C. instructor, who got his height and distance in Germany last year), completed his Silver " C " with a flight of five hours, and got his height again, only more so, with 5,400 feet in the " Tutor." 11 hours 55 minutes total for the day. There was dud weather on the 16th, with three test winch launches only, but a reasonable day on the 17th with 5 hours 25 minutes soaring and some good two-seater passenger flights with consequent financial advantage! Saturday the 23rd produced another 5½ hours' soaring, with a " C " for Cooper. The 24th was an odd day, with wind from S.W. to W. at 20 knots or so, but what appeared to be a mass of orographic cloud sat on the hill most of the day at about 1,200 feet, and at times its effect seemed to be to spoil the hill lift, for aircraft were at times brought below 200 feet. Later in the day the cloud dispersed, and quite pleasant, though rather patchy, hill soaring conditions up to 1,200 to 1,500 feet were experienced. Total for the day 11 hours and 49 minutes. To summarise, during the period under review there were 71 hours of soaring, with 5 " C " certificates and one Silver " C " completed—height and duration. No details are recorded of two Silver " C " heights on the 16th September, but it is understood that the pilots concerned have their barograph charts, and we may report any interesting details later.

General. There is little in the way of general comment. The Club house work is going on slowly, but things are now arriving, including a gift of some fine panelling for the bar, and the lining of the walls and partitioning

is going ahead very well. The old fireplace which endured many years as an "ancient monument" is now doing duty in its second club house—and—the chimney doesn't smoke any more. (Pre-war visitors may remember what it used to do). It is now possible to rely on a spot of tea, and the grub prospects never looked more promising.

SLINGSBY SAILPLANES LTD., INGS LANE, KIRBYMOORSIDE, YORK.

An extract from a report by Philip Wills, C.B.E (Chief Pilot of the British Gliding Team at Samedan, 1948).

"The Slingsby 'Gull IV' proved itself, absolutely and completely, in the sternest possible conditions in which a new type could be tested. I did over 65 hours' flying in three weeks, and have nothing but praise for her. She is the best 15-metre sailplane I have ever flown.

"The modern tendency is for higher speeds and penetration and quicker controls. This produces better results in long-distance flying and in strong, patchy upcurrents, but tends to make blind-flying more difficult than in more placid designs such as the 'Weihe.' The 'Gull IV,' however, has achieved the first requirement without any serious sacrifice of the second. On the first day, in cumulo-nimbus at 18,000 ft. my A.S.I. iced up. I remained in the very rough upper region of this cloud, on a simple turn and bank indicator, for upwards of 20 minutes, and reached 20,000 ft. on my altimeter before coming out, the speed being kept under control due to the inherent stability of the aircraft. Nothing could more definitely prove the stability and handling qualities of this machine. (This, incidentally, was the flight on which the barograph failed).

"The precision and positiveness of control was of enormous help in the 'slope' soaring, which often took place in violent air within a span of the mountainside. The penetration is really excellent, and speeds of 80 and 90 m.p.h. were often used to escape the large areas of violent downcurrent frequently encountered.

"The comfort of the cockpit was proved by the daily hours I flew—flights of over five hours were frequent—without becoming intolerably cramped, and a 6 ft. 3 in. pilot in a standard cockpit is a severe test. Cockpit comfort is indeed one of the major lessons we have to learn. So often in the past a good design has been spoilt by a draughty, ill-fitting cockpit which roars and whistles in flight, lets in draughts of icy air at awkward angles, and in cumulo-nimbus lets in rain and powdered snow which quickly make impossible the pilot's already difficult task.

"A good cockpit must be (*a*) sealed, (*b*) ventilated at will, (*c*) as large and comfortable as possible, and (*d*) the cover must give good and undistorted vision in clear air and have good opening clear-vision panels for flying in rain. It is quite a difficult problem, and one to which insufficient attention has been paid. The 'Gull IV' is a big advance on anything I have flown. Up to over 100 m.p.h. she was almost dead silent, and no draughts came in either through the cover or (a frequent source) the quick-release tunnels."

ROYAL AERO CLUB GLIDING CERTIFICATES

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"B" .. 60.
"C" .. 48.

SILVER "C" .. 7 (Nos. 166-172 incl.)

"B" CERTIFICATES

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
4548	Michael Thomas Caiger	R.A.E. Technical College G.C.	17. 8.48
5226	Gordon Henry Elsley	Ditto	19. 8.48
5263	John Dixon	188 G.S.	11. 7.48
6135	Derek Robert Hales	84 G.S.	1. 8.48
6288	Robert Phillips	186 G.S.	15. 8.48
6384	Frederick James Tucker	R.A.E. Technical College G.C.	17. 8.48
6482	Lois Dickinson	London G.C.	11. 9.48
6494	Charles Henry Lutman	Newcastle G.C.	5. 9.48
6617	Ivor George Scott	82 G.S.	14. 8.48
6865	Brian Norman Heathfield	122 G.S.	22. 8.48
6931	Jasper Taylor Marsh	41 G.S.	24. 8.47
7354	Denis Leslie Vasey	186 G.S.	19. 9.48
7432	Anthony Thomas Jones	Gloucestershire G.C.	29. 8.48
7453	Bernard Caiger	R.A.E. Technical College G.C.	19. 8.48
7768	Terence Ronald Beasley	Ditto	19. 8.48
7964	Raymond Edward Keith Clayton	148 G.S.	22. 8.48
8025	John Frederick Evans	186 G.S.	21. 8.48
8257	Othman Ibrahim	R.M.A.S. F.C.	28. 8.48
8460	Desmond Ronald Wyatt	London G.C.	22. 7.48
8517	Margaret Joyce Thornley	Surrey G.C.	18. 9.48
8609	Peter Wallace Silke	Bristol G.C.	25. 9.48
8803	James Wood Harrington	Scottish G.U.	27. 8.48
8804	Ronald Greenslade	Air H.Q. B.A.F.O.	7. 7.48
8807	Brenda Mary Cleminson	Surrey G.C.	17. 9.48
8808	Kenneth Harris	130 G.S.	28. 3.48
8809	Jack Alfred Lyddard	Newcastle G.C.	22. 8.48
8810	Maurice Gordon Bendall	Bristol G.C.	28. 8.48
8814	Duncan McGeorge Aitchison	Scottish G.U.	27. 8.48
8821	Wilfred Charles Taylor	Gutersloh G.C.	26. 6.47
8822	Charles Robert Cuthill	Derby & Lancs. G.C.	18. 7.48
8830	Peter Patrick James Fowler	161 G.S.	27. 8.48
8838	Henry John Hyde	151 R.U. G.C.	10. 8.47
8839	John Owen Ratcliffe	London G.C.	10. 8.48
8843	Peter Travis Phillips	Ditto	18. 8.48
8844	Geoffrey John Gomme	Ditto	9. 7.48
8845	Roland Douglas Broyd Todd	161 G.S.	27. 8.48
8846	Ronald Rutherford	Oerlinghausen G.C.	9. 7.48
8856	Jerzy Terajewicz	Midland G.C.	7. 8.48
8865	Henry Irving Wood	Surrey G.C.	26. 8.48
8872	John Alfred Johnson	148 G.S.	30.11.47
8873	Robin Clive Gardiner-Hill	Oerlinghausen G.C.	27. 7.47
8888	Alan Stagg	London G.C.	18. 8.48
8889	Jan Mozolowski	Ditto	22. 8.48
8890	Nigel Gregory	Ditto	20. 8.48
8906	John Butler	Hamburg District G.C.	17. 7.48
8917	Jack Gunby	Oerlinghausen G.C.	3.10.47
8918	David Henry Pearce	42 G.S.	31. 8.47
8929	George Kennedy Donald	Oerlinghausen G.C.	6. 7.48
8940	Michael Peter Casano	Gutersloh G.C.	15. 6.48
8941	Thomas Gilbert Scott	London G.C.	14. 9.48
8942	Gilbert Roy Williams	Ditto	16. 9.48
8943	Timothy Raymond Carr	Ditto	13. 9.48
8956	David John Stewart	Surrey G.C.	18. 9.48
8973	Graham Llewellyn Ferrier	Bristol G.C.	14. 8.48
8974	Robert George Price	Martin Hearn G.C.	6. 8.48
8975	Kenneth Kurt Lion	Newcastle G.C.	15. 8.48
9000	Mirian Gilbert	Imperial College G.C.	26. 9.48
9001	Gwilym John Cotroceni Davies	Bristol G.C.	26. 9.48
9005	Frank Smedley	Gutersloh G.C.	27. 3.38
9007	Colin Charles Dalton	Ditto	24. 4.48

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ROYAL AERO CLUB GLIDING CERTIFICATES *continued.*

"C" CERTIFICATES

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
2193	Reginald James Dolman	89 G.S.	31. 8.48
3273	Harold Frederick Benton	168 G.S.	14. 9.48
3337	Albert Eward Mellors	49 G.S.	29. 8.48
3348	Roy Stanley Scott	168 G.S.	12. 9.48
3377	Peter Anthony Gordon Cockrell	168 G.S.	12. 9.48
3390	John Stephen Kelly Chilcott	Midland G.C.	20. 9.48
4005	Albert Michael Rose	Reinsehlen G.C.	11. 9.48
4442	Donald Blan Minterne	168 G.S.	12. 9.48
4519	John Francis Chilcott	Midland G.C.	20. 9.48
5181	Kenneth Arthur Hammer	Gutersloh G.C.	2. 8.48
5879	Frank Anderson Rogers	Midland G.C.	1. 9.48
6402	Derick George Goddard	89 G.S.	11. 9.48
6482	Lois Dickinson	London G.C.	16. 9.48
6796	Brian Hughes	42 G.S.	1. 9.48
6862	Philip Dawson	Oerlinghausen G.C.	23. 8.48
6957	Frank Reeks	Derby & Lancs. G.C.	19. 8.48
7288	Clifford Walter Dowdall	Surrey G.C.	29. 8.48
7403	Barbara Richards	Derby & Lancs. G.C.	19. 8.48
7619	Eric Baker	Midland G.C.	1. 9.48
8096	Bernard Longstaff	49 G.S.	29. 8.48
8212	John Bruce Bowdler	Midland G.C.	6. 9.48
8254	Laurence Alfred Lewer	42 G.S.	1. 9.48
8276	Henry Watson Sanderson	Midland G.C.	16. 9.48
8277	James Blumer	Ditto	16. 9.48
8349	Geoffrey James Day	Ditto	11. 9.48
8821	Wilfred Charles Taylor	Gutersloh G.C.	4. 7.48
8822	Charles Robert Cuthill	Derby & Lancs. G.C.	15. 8.48
8838	Henry John Hyde	151 R.U. G.C.	21. 9.47
8839	John Owen Ratcliffe	London G.C.	12. 8.48
8843	Peter Travis Phillips	Ditto	19. 8.48
8844	Geoffrey John Gomme	Ditto	12. 7.48
8846	Ronald Rutherford	Oerlinghausen G.C.	21. 8.48
8856	Jerzy Terajewicz	Midland G.C.	8. 8.48
8865	Henry Irving Wood	Surrey G.C.	1. 9.48
8872	John Alfred Johnson	148 G.S.	15. 8.48
8873	Robin Clive Gardiner-Hill	Oerlinghausen G.C.	21. 8.48
8888	Alan Stagg	London G.C.	19. 8.48
8889	Jan Mozolowski	Ditto	26. 8.48
8906	John Butler	Hamburg District G.C.	4. 8.48
8917	Jack Gunby	Oerlinghausen G.C.	4. 4.48
8918	David Henry Pearce	42 G.S.	31. 8.48
8929	George Kennedy Donald	Oerlinghausen G.C.	14. 7.48
8940	Michael Peter Casano	Gutersloh G.C.	8. 9.48
8941	Thomas Gilbert Scott	London G.C.	17. 9.48
8942	Gilbert Roy Williams	Ditto	16. 9.48
8943	Timothy Raymond Carr	Ditto	16. 9.48
9005	Frank Smedley	Gutersloh G.C.	21. 4.48
9007	Colin Charles Dalton	Ditto	25. 7.48

SILVER "C" CERTIFICATES

No.	*Name*	*Certificate No.*	*Date Gained*
166	H. H. Manson	6681	22. 8.48
167	A. Hampden Yates	887	23. 8.48
168	A. H. M. Pocock	1431	20. 8.48
169	D. H. G. Ince	6798	3. 9.48
170	A. Grynblatt	7709	29. 8.48
171	C. A. P. Ellis	339	6. 7.48
172	W. Nadin	1681	6. 9.48

THE MIDLAND GLIDING CLUB LIMITED

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