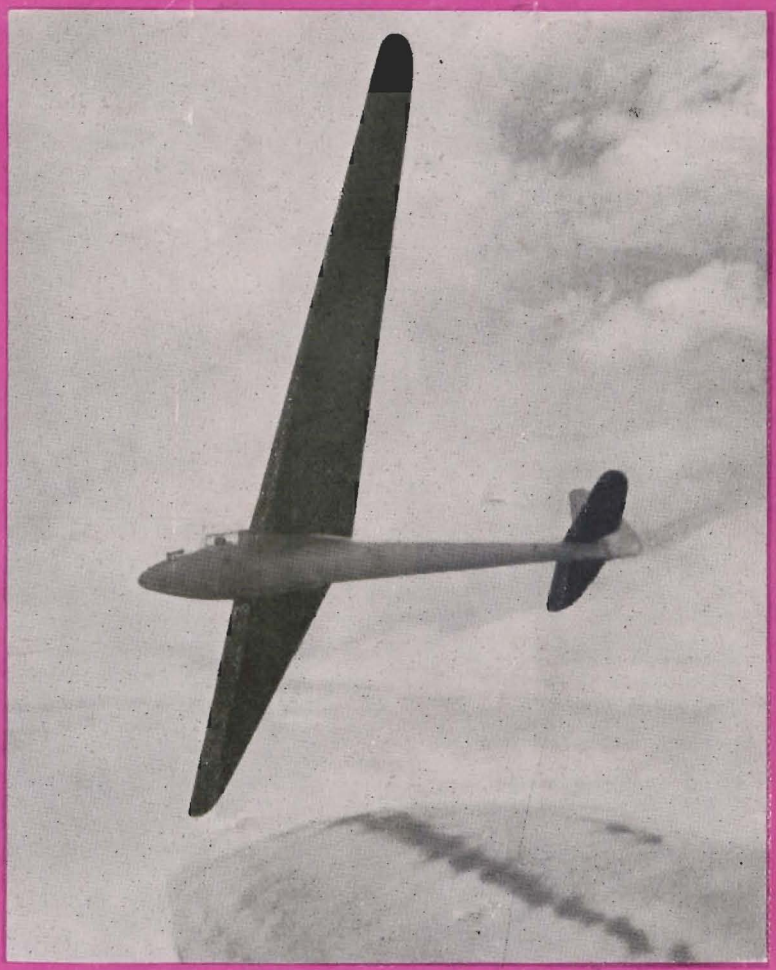
Sailplane and Glider

The First Journal devoted to Soaring and Gliding



FEBRUARY 1950

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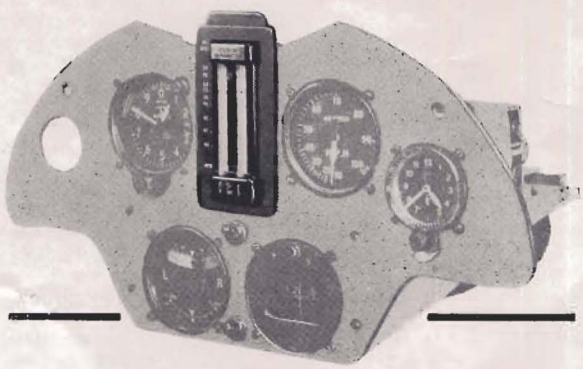
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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

FEBRUARY 1950 ★ Vol XVIII No 2

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COVER PHOTO:

"Weihe," flown by F./L. P. Mallett, peeling off after formating on a "Kranich" (F./L. P. Anson). Photo S./L. C. Herold, Contax II, 1/250, F11, Super xx, 2x Filter.

EDITORIAL

Letter to the Editor

Monsieur le Rédacteur en Chef,

Ayant eu l'occasion de lire l'éditorial du Numéro de Novembre 1949 de votre Revue, je me permets de vous apporter les précisions suivantes sur la question des records de vol à voile ou autres battus au cours de la guerre 1939-1945.

Pendant cette periode, trois records de vol à voile avaient été homologués dans la première catégorie (pilote seul à bord) :

Durée (France) 38 h. 21 mn. 24 s., 18-19-20 juin 1942 pilote Eric Nessler.

Durée (Allemagne) 45 h. 28 mn. 51 s., 19-20-21 Nov. 1942 pilote : Erich Vergens.

Durée (Allemagne) 55 h. 52 mn. 12 s., 22-23-24 Sept. 1943 pilote : Ernst Jachtmann.

Par contre, la F.A.I. n'a jamais reçu de demande d'homologation pour la performance d'altitude effectuée par le pilote Klochners dont il est fait mention dans votre article.

C'est à la suite d'une décision prise par le Comité Directeur de la F.A.I. au cours de sa réunion du 27 Septembre 1945 et sur proposition de la délégation britannique, que les trois records cités plus haut ont été retirés de la liste officielle de la F.A.I.

L'information donnée dans votre éditorial n'est donc exacte qu'en ce qui concerne les records russes de 1940, époque à laquelle la Russie n'était pas—officiellement—en guerre.

Restant à votre disposition pour tous renseignements complémentaires que vous pourriez désirer, je vous prie d'agréer, Monsieur le Rédacteur en Chef, l'expression de mes sentiments distingués.

Le Secrétaire général,
J. BLERIOT.

M. le Rédacteur en Chef
de "Sailplane and Glider"
139 Strand, London, W.C.2.

Fédération Aéronautique Internationale F.A.I.
Siège Social a Paris, 6, Rue Galilée, (XVIE)

We are glad to publish the above letter which corrects the impression we gave in our November issue that there had been no homologation during the war by the F.A.I. of gliding records. It now appears that there were, but two German and one French record were withdrawn *on the proposition of the British Delegation* on the grounds we stated—that it was hardly the thing to make records when the nations were otherwise at each other's throats. M. Bleriot s letter makes no mention of the Russian record being withdrawn, or there being a proposition about it, except to state that in 1940 Russia was not officially at war. To which we had previously replied by suggesting that the Poles should be asked whether Russia was at war in 1940.

Now that relations are so strained with Russia, is there any need to allow the Russian record to stand ? Or isn't it time we started to realise that records have nothing to do with politics or foreign policy, and realised that what is after all a scientific achievement is international and above politics.

If the Russians and other skysailers from behind the Iron Curtain go to the International Competitions this year in Sweden, or in 1952 to Finland, does anyone doubt that the competitors, if they are allowed to behave naturally, without directives, will be human and friendly. We have no doubt that they will be welcomed for themselves alone, irrespective of what Govèrnment rules them, and we sincerely hope that no International incident will mar what promises to be the most interesting International Gliding Competition ever held.

As we go to Press we hear of a record flight of 36,800 feet in S. California by Harland Ross and George Deibert in a 2-place T.G.3. In a recent letter, Robert Symons, Gold "C" with Two Diamonds, remarked that when John Robinson did his 33,800 ft. flight in the same Sierra Wave (a project whose exploration is financed under contract with the U.S. Government) which was on Jan. 1st, he "didn't think it was such a good day !"

Our next issue will contain accounts of John Robinson's flight and also the Danish two-seater record of 27,500 ft. on the same day.

We are continually being told that *Sailplane* cannot be obtained from the local newsagent. The answer is to place an order for it and tell the agent that our publishers are the ROLLS HOUSE PUBLISHING CO, LTD,

SOARING IN FRANCE

A Wave Flight at Saint Auban

By GUY BORGÉ

THE possibilities of wave currents remain almost unknown to date, and one is very ignorant about their actual working, in spite of numerous theoretical studies. One needs experience of these currents, and this requires good sailplanes and equipment (including heavy oxygen and heating apparatus), and also pilots able scientifically to observe their flights and to write aerological reports about their observations.

A friend of mine, who wishes to remain anonymous, made a nice climb at Saint Auban, and during all his flight he noted times of observation, and the effect of vertical currents in relation to altitude, to airspeed, to heading and to ground position. It was then easy to plot these indications on horizontal and vertical maps showing the wave formation on this day. Such a report has a great scientific value, and I hope other pilots will take inspiration from it for the same work. With many reports, one could study these mysterious wave currents very thoroughly.

Report of a wave flight accomplished at Saint Auban sur Durance (Basses Alpes) on the 14th November, 1947.

Pilot : X.

Plane : " Nord 2000 nr 6."

Time (local) of departure : 9 hours 30.

Launching time (aero-tow) : 9 hours 40.

Landing hour : 14 hours 56.

Duration of free flight : 5 hours 16 minutes.

Wind : at ground level south about 5 miles/hour.

Wind : at upper levels north west (130 degrees), about 35/40 m.p.h.

Sky : 9/10 overcast by a few rolls of cumulus in the lee of Lure Mountain and some light lenticular clouds very high.

Altitude of airfield : 1,650 feet (all altitudes are given above the airfield).

Launching altitude : 3,440 feet.

Maximum altitude reached above the airfield : 21,320 feet.

Maximum altitude above sea-level : 22,970 feet.

Gain of height : 17,880 feet.

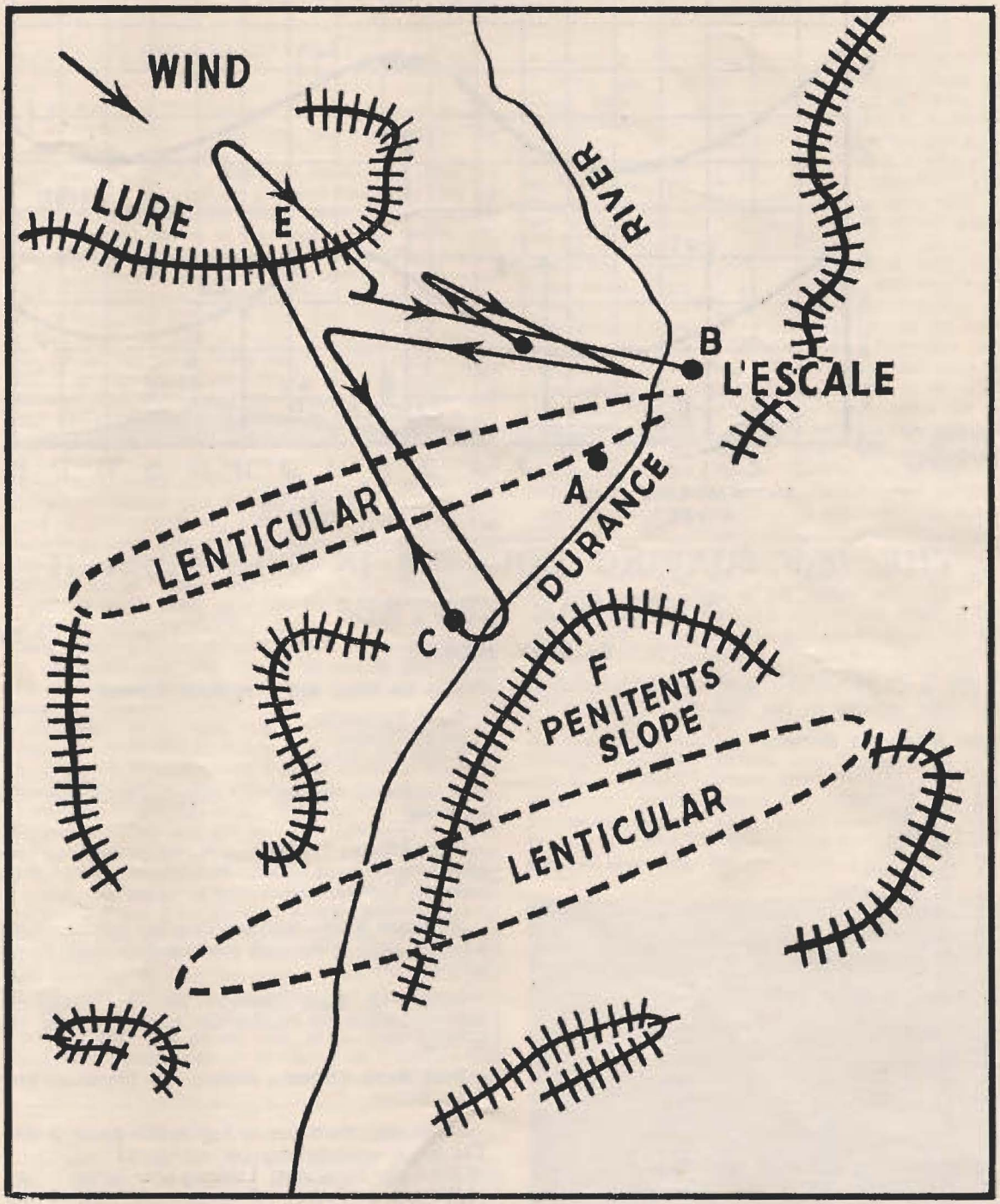
At 9.30 a.m., the pilot took off aero-towed against a light south wind. From 300 feet, wind becomes northerly with strong force, the variometer needle varying quickly between —2 and +10 feet/second. At 2,620 ft. above Saint Jean Rock, it comes to +7, then to +10 and +13. Release at 3,440 feet. Free from any linkage, the sailplane climbs against the wind, heading 310 degrees, at +3, +7 feet/second ; airspeed 37 m.p.h., much turbulence. At 5,250 ft., suddenly air becomes perfectly calm, wave currents have just been entered. Airspeed 34 m.p.h., variometer +5, position always above Saint Jean Rock. Climb proceeds on, with the following figures :

Hour	Altitude (feet)	Variometer	Position	Remarks
9.48	5,900	+6	St. Jean Rock	
9.50	6,550	+7		A few cloudy vapours at this level
9.52	6,900	+8		
9.58	9,850	+5		speed 37 m.p.h.
10.05	10,500	0/+2		
10.10	11,200	+2		
10.18	11,500			
10.30	13,150	+7		oxygen test
10.33	13,800	+5		
	14,100			light turbulence
10.35	14,750	+5		
10.45	16,400	+3		oxygen use from this level
10.54	17,400			
11.30	16,400	0/—3 /+2		
12.04	18,500		above L'Escale	

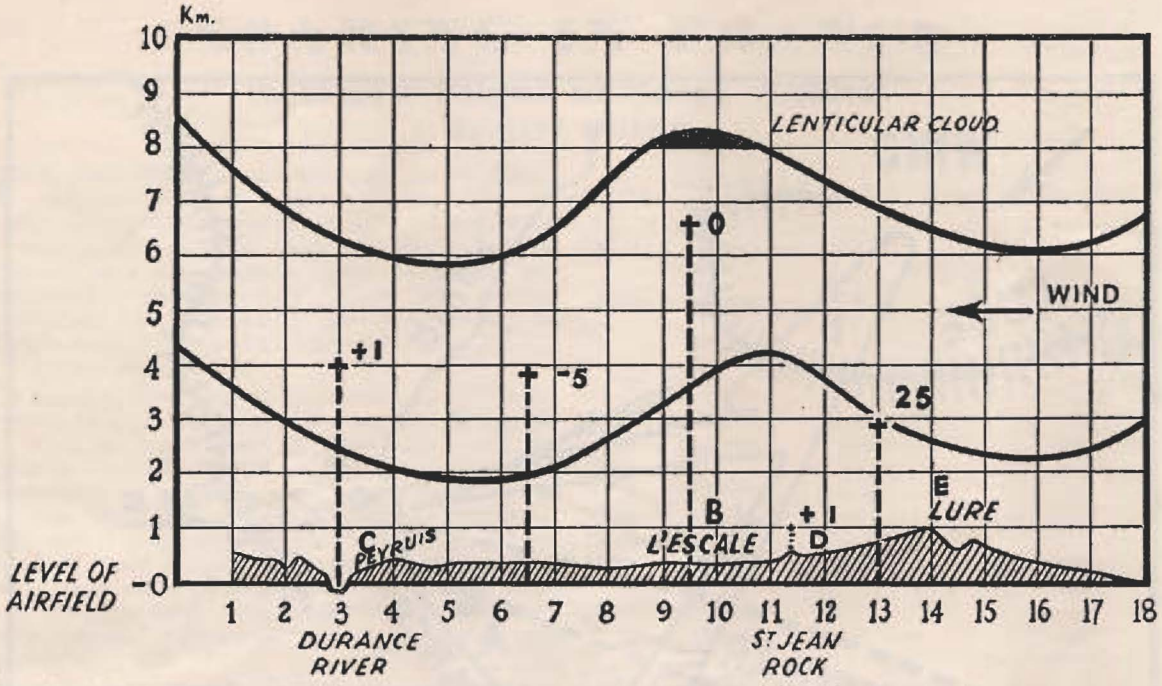
. Lift seems exhausted and the maximum altitude reached ; elsewhere there are downward currents. Sky is clear, except for a few cumulus very low. Lenticular clouds exist to south east, other ones far to north and beyond Ventoux Mount. Our pilot moves towards Lure Mountain, without meeting significant down currents, and just above the slope he flies towards Peyruis. Here up currents exist, and at 13,150 feet the variometer indicates +1. Wind blows from west-north-west at 30 m.p.h. But a lenticular cloud has just formed before Lure Mountain ; he glides towards it, crossing a 16 ft./second down field. He finds lift, but the ephemeral cloud is disintegrating, and he comes back, seeing above the airfield a new lenticular cloud ; climb comes again :

Hour	Altitude (feet)	Variometer	Position	Remarks
13.05	9,200	+8		In the lee of Lure Mountain
14.02	19,700	+2		
14.11	20,500	0		
14.19	21,000	+2		
14.24	21,320	0		
14.30	21,320	0		Ceiling of the wave

(*continued on page* 29)



SCALE: 1/200,000



THE 1950 SOARING COURSES IN THE FRENCH NATIONAL CENTRES

By GUY BORGÉ

THE S.A.L.S. has just sent me the dates of the 1950 courses in the National Centres :

Saint Auban sur Durance

1—25 February.
1—31 March.
3—29 April.
1—31 May.
3—29 July.
1—26 August.
4—30 September.
2—28 October.
6—30 November.
4—23 December.

La Montagne Noire

3—29 April
2—27 May.
5—30 June.
3—29 July.
1—26 August.
4—30 September.

Challes les Eaux and Pont Saint Vincent

1—31 March.
3—29 April.
2—27 May.
5—30 June.
3—29 July.
1—26 August.

Challes les Eaux and Pont Saint Vincent

4—30 September.
2—28 October.
6—30 November.

The ways of access to these centres are the following :

Saint Auban—The Veynes-Marseilles Railway Line (direct trains from Lyons, Grenoble, or Paris, Lyons, Valence, Veynes with change at Veynes).

Montagne Noire—Railway Line to Castelnaudary ; a Centre lorry starts each morning from there to the airfield.

Challes les Eaux—Railway Line to Chambéry, and trolleybus to Challes les Eaux (stop at the airfield).

Pont Saint Vincent—Railway or Tramway Line from Nancy.

Meals cost 300 francs a day and bedding is free. The flying subscriptions are unchanged :

2,100	francs	for	at least	1	soaring	hour	during	2	days	
4,200	,,	,,	,,	,,	2	,,	,,	,,	3	,,
6,300	,,	,,	,,	,,	3	,,	,,	,,	5	,,
10,500	,,	,,	,,	,,	5	,,	,,	,,	8	,,
21,000	,,	,,	,,	,,	10	,,	,,	,,	15	,,

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CHANGING RUNWAYS

BONZO BOOBS IT AGAIN

"HERE you are Bonzo. Have a launch in the "Olympia" and land her over where the Two-seaters' gone."

"Ready? Ready. Take up slack. *All Outtt.*"

Stick right forward to get and keep her tail up off the runway, so little wind, 'bout 8, now trundle on the wheel, we're a very long time, we're off, wire slacking and flapping, now it's pulling so ease her back, bit slow 42 (*m.p.h.*) it's enough tho, further back, that's better, steeper still, can't see the peri, 300, 400, green nearly at the top, 43, car'll stop, it has, pull the release, over the top, pull again, 600, 2 green, click stop-watch, let's turn right, still 2 green, circle left, steady 2 green, over the Bellman and house and trees beyond it, nice and near the aerodrome if we muff it, hurrah 650, head in office, 2 green, round and round, car's gone back, we're out of the way, no one else's up, shall hear a powercraft coming, oh goodie! 750, we're not drifting! round and round, 3 green, and round, head in office, 5 green, 1500, 1800, well out of the next launches' way, getting near cloud—narrowish street with small cunimb as far as can see both ways, but talk about "not seeing the clouds for the cloud"—get up to it, 2000, pity the barograph wasn't fit to go in, might get "C" height, ought to, we're there, turn into wind and beetle across under it to windward side, yell "Two thousand feet" thro the window as cross top end of runway. (*Nobody heard, of course*).

Hurrah! in the sun, can see Blagdon to E and look all across sunlit valley S to the Mendips with cloud street beyond them, and W down to Weston-super-Mare where the clouds seem to come from. Let's turn right and along the edge of this street, 3 green, and try and get up over them and so away to the E along the top. Sing "Just direct your feet to the sunny side of the street," good thing no one can hear. Get wrist watch out of breast pocket and put it on, one-ish, luckily asked someone the time and set it just before starting (*never looked at it again*)—holding stick between knees and hunting and flapping all over the place. Wish I'd got a pad to write on, will never remember half what happens, let alone sequence, perhaps be up hours, could get away if only get above this, must make 3000 at least tho, cunimb about in distances. Wish I had my old white cap, I *would* go and leave it at home. 3 green, 5 red crossing end of that cloud-valley, 3 green again, lovely dark flat-bottom ahead and *below*, let's dive under and beyond it, now let's try circling into fringe and out again a la Hiscox. Grand, can see sun thro mist all the time, out again, in again, out again, 2300, 2350, Blast! where are we? Oh yes, here we are. Where's Blagdon? O.K. Don't seem to be getting anywhere near the top, where's this cunimb we were playing with? dunno, it's all one long line again. Let's go W along side of the lot, up and down, 3 green, 5 red, 1700, must have come down a bit when got lost then, let's take a photo, got Ikonta out, thro the window, pity there's not a starboard one as well cos can see Avonmouth and Bristol occasionally: take one thro perspex as well anyway. Must be near end of street, over where Weston road goes right in a village (*Congresbury*), 1200, better go back, can't see airfield, heck it's hot, no hat, find handkerchief, tie knots, lost a bit, 1000, 3 green, better go steady and make a bit, lovely batting along the side like this in the sun—blimey, look! port wingtip's right in cloud and half wing as well and I'm in full sun! Oh, there's Blagdon and the airfield, 1500, round we go and back again, up we go, 3-5 green. Let's pop up that valley and down again, kerchief keeps blowing off, close window, I *was* straight and level and the string was straight' from pitot head, must be thermal blowing up as nose goes into it. Impossible! It's too hot, open window, well I'm blowed it's off again and we're 41 and straight and level, must be! Blast, I've lost the kerchief now, shut the window, too bally hot, open it, must find another. Hullo, sunglasses, that's better, must find another tho, sunstroke if go on like this. That's got one, that's better. Now *that's* blown off: Hullo, they're both behind on the chute. Put one on again. Wish I could trim her, but stick's far too stiff and she flies on the trimmer, and *that's* far too blooming stiff too when I try to move it.

SOARING IN FRANCE—*Continued from page 26.*

Sailplane is above L'Escale, heading 310 degrees. The base of a integrating lenticular cloud is 3,300 feet higher, or about 25,000 feet above the airfield; there are also other lenticulars in south-east.

Ceiling is reached, but the oxygen bottle is empty and the pilot very cold. Thanks to air brakes, he descends in 26 minutes the 21,000 ft. and he lands at 14 hours 56.



Looking East (through perspex).



Later while Michael does 22 minutes.

Give that up and let stick go to see what she does, just hunts slowly up and down getting steeper. Have to fly her then.

Nip into that valley, turn and out again. String drops straight down occasionally, going into red? haven't seen it t'other way tho. Feel those bursts of lift in my tummy, be sick if I don't look out, better get a plastic bag out of the family map-case, hope it doesn't leak cos haven't got a jam jar like on the Mynd 5 hours, however could push it thro the window before it's full and take out another, lucky I haven't had dinner, hell I feel lousy. Curious " disturbed " feeling between ribs and button B.

Anyway, here we are; let's go W again along the edge. Trees, valley and woods and gullies below look lovely. Wish I could get *up*, tho. Here's another cloud valley, 5 red, let's go for that lovely little black flat-bottom there and we'll go straight in, wish I could see the turn-&-bank switch, tho couldn't use it if had it going, could practice in open tho. Don't think it's there at all. (*It was. A dam great black knob hidden against the bright light by the revolving best-gliding-speed-for-sink-indicator*). In we go, 1900, bags of room to get out if we muff it, 41, nice and steady, mist all round, string straight, 41, string straight, thick mist, keep her straight, 45—50—60, heck! ease back gently, oooh gee my stummick, 80—90—100, too blinkin fast, brakes out, ever so gently back, stick's pretty solid, still only 100 tho. I'm sure I'm straight and level, what a very long time this cloud's lasting, blimey! there's the fields straight ahead, right up on their edge *and turning* very slowly. *Straighten* her up you Mutt, ease her back ever so gently, oooooh . . . 60, that's better, brakes in, zoom it off to 40, level. You silly twitt!! Oh well, back along the edge, E, glory! Blagdon, here we are then. So that was what's " breaking into a cold sweat."

Hullo, there's the aerodrome, nothing up, thought Michael would have been up in the " Grunau " long ago—Oh no, she's at Roundway—well, someone in something, anyway. Two cars stuck in the middle of the S runway, breakdown or summat. Fancy being up here. Obviously the thing to do is to turn up just at dinner time when they've nearly all gone in, be the next " Olympia " pilot because of a short list, and never done a stroke of work for it, no D.I's or anything, just straight out of car; good thing changed from gum boots into light shoes in last moment's scramble; anyway, it's square up all the times never got a flight all day. Cars still there. Getting low, back to old spot over Bellman, 800, 3 green, round and round, 1000, back to windward again, and beetle up and down again and try again to get over, 1300, 5 red, out of it so round we go and back again, still cars on runway, back again to end, just about over airdrome. Hullo! gulls coming in from NE, lots of them, look jolly nice in the sun all mixed up between clouds, must have seen me and come to join in; they're circling now, flaps right down, only just above us, let's try and get up to them; they're circling the other way, jolly sight smaller circle than ours, and some of them are flying backwards too; let's change to right circle, now *where* are they? Miles higher and still going the opposite way, some going into cloud fringe too, like to see if any go right in. Now we've lost them . . . and the green. Chump! (*It would seem that the gulls were circling left not centred over the sailplane but with a small arc overlapping where we passed below them going the opposite way*).

Why can't I get over this? no good going into cloud again, why haven't I done some Link? why can't I see the switch, the batteries are probably flat anyway (*Both were quite o.k.*): better let Michael come up, he'll do better than this. Cloud's thinning, isn't it fun popping in and out the valleys in 5 red and 3 green and going along under the small cunimbs. Getting much brighter. Let's go and see if the cars are working yet, one in middle still, but it looks like a blue " Olympia " going in to land, Rex's? (*No, Keith's*). Can't make it out, car still in middle (*Course it was, the wire's nearly half the length of that runway! They were out of petrol awhile, but anyway only got* 400 *and couldn't connect*). 800, back over Bellman, 2 green, round and round, 3 green, 1300, cloud base! back to windward, along W again, better go back and let someone up who can fly. Michael's turn anyway. Over Bellman 600—500, silly mutt you've missed it this time, better go back and land, 400, O.K., go back for straight approach from 300 on brakes, nice position, " Tutor's " down on the best line, go just right out of it, *now* turn right, brakes out, mutt!—you're still only 42, put the nose down more, that's better 55-ish, now watch approach, ease brakes to make sure we get in, all clear ahead, brakes full out, she's like a brick now isn't she! too near line of " Tutor," ease to right, now hold off, you're too high, look out! you'll crack in, ease forward, hold again, too high again, *thump*—only from eleven and three-quarter inches tho, I hope, and it *was* on the wheel. Trundle to stop. Stop watch. What fun! 1 hour 10½, no 11.35, say 1 hour 11½ minutes. *Why* didn't I get away? (!!) Anyway, first thermal hour, first time over 17 minutes in thermal. And we've changed runways and landed quite near the spot. Hope Michael's kept a dinner for me. Fold that bag up and put it away in case there's a next time; funny, wasn't ill after all! Here come the retrievers.

" Well done, Bonzo! We're changing runways back again. Let's walk her this time."

SILVER "C" IN 16 DAYS

A LITTLE BIT OF GLIDING IN SWITZERLAND

BEING a keen Yachtsman and having read two books on Gliding and Soaring, I had a very natural desire to try the art of flight without power, and I therefore took the opportunity while being in Switzerland, to go and learn to glide.

One fine afternoon, on the 5th August, 1947, I arrived at Belpmoos, near Berne, to see what could be done. Mr. Kueng of the Sportfliegerschule received me very kindly and gave me the necessary information in order to obtain a Learner's Licence. I marched down to the field the same afternoon, to see Mr. Luthi, who was conducting Course No. 1. Mr. Luthi accepted me at once, and gave me five starts in a two-seater "S.21." My gliding career had begun.

The next morning, I went to see the Air Council and Major Ledermann with the greatest courtesy and charm, arranged for all my papers to be completed immediately, after which I trundled back to the Aerodrome and continued with my training. That afternoon another five starts with the "S.21" with Mr. Luthi were made, and the following morning again two starts in the "S.21" made me feel that I was a considerably advanced pupil. At lunch I had a chat to Hans Wurth, the chief instructor of No. 2 Course, who did their training in a "Kranich," and I asked whether he could not give me a flight in the "Kranich," and to show me how ridge and thermal flight worked. The "S.21," being only winch launched, I was very excited to get my first aero-tow in the "Kranich," and we set off and were towed about 1,500 feet by a "Tiger Moth." In my excitement of seeing the Belpberg below me, I pulled the release by mistake, and I was very worried whether we would be able to get back to the Aerodrome, as this seemed a long distance away. Hans was, however, very unperturbed and said "Well, we'd better get back to the Berg and go and see whether we can find some thermic," and so back we turned to the slope of the Belpberg, and after finding a little additional height on the slope, we wandered off to a nearby wheatfield and promptly found our thermal.

Hans flew the "Kranich" so tight that I thought that my right eye was looking into my left ear, and we soon got up to 3,000 feet. From then on we played around for some time, and as I was no longer feeling too good, I suggested that we return to the Aerodrome. We landed there an hour after our start, just in the nick of time, before I was going to be sick.

I had another start in the "S.21" the same afternoon and the next morning, back into the "Kranich" and I found that even though my flying was very ropy, I managed to fly it in some sort of fashion. This time, the trip was for an hour and a half, but in the afternoon I went back on to the "S.21," to practice more landings. Next morning, a few starts in the "S.21" with Luthi, and the great moment for my first solo had arrived. I was given a "Grunau Baby" and found it much easier to fly than the "S.21," and therefore felt that my landings were almost the most brilliant which had ever been performed. On the sixth day I first had two more winch starts and after this, aero-tows in the "Baby." Unfortunately, there was no wind or any thermic, or I would have attempted to make my "C." However, the following morning brought a little wind and I flew for twenty minutes on a ridge at the Langeberg and completed my "C."

I had arranged with Hans to go on a cross country in the "Kranich" as soon as conditions would permit, and as some clouds rolled up in the afternoon, we set off in the "Kranich," being towed to some 2,000 feet. We released there, and wandered off under a nearby cloud. Here we promptly found thermal, and up we went to cloud base somewhere near 7,000 feet, and decided to depart for Lausanne. We soon passed over Berne and trimmed the "Kranich" to fly around 120 km. and cruised this way for about twenty minutes under a small cloud street, with hardly any loss in height.

We passed Payenne to our right, but all good things come to an end, and we were soon down to some 1,200 feet. We slowed the "Kranich" down to 70 km., nosing around to find some lift. It was now about 17.30 and the air had become very still. We were about to turn back to try and reach Payenne Airfield when crossing a little wood, the variometer began to show zero and once more we circled and slowly our rate of climb increased (a wonderful feeling after anxious moments of losing height), and we were soon back to 6,000 feet. From there it was simple, and so we set our course once more and rapidly beetled off to Lausanne, where we arrived twenty minutes later, with 1,500 feet in hand. After flying over the town, we prepared to land and clocked in at 18.14, a very rapid flight indeed, having left Belpmoos just under two hours earlier.

This was a new Swiss two-seater record for distance, and needless to say, we were as pleased as punch. The Receptionist at the Hotel was very amused to find us without luggage and to hear that we had arrived by Glider and after guzzling a large dinner and a good night's rest, we were towed back next morning to Belpmoos, behind a "Tiger." In the afternoon, I had two more flights, in a "Baby," this time there was a little ridge wind and I flew each time for nearly an hour.

The next day I was given a "Spalinger 18" and an 'Olympia Meise" to fly, and as it was a good day, I spent nearly four hours sailing around the neighbourhood. Things having gone so well, Hans suggested "you'd better make your official 'C'", for which the following tests are necessary :

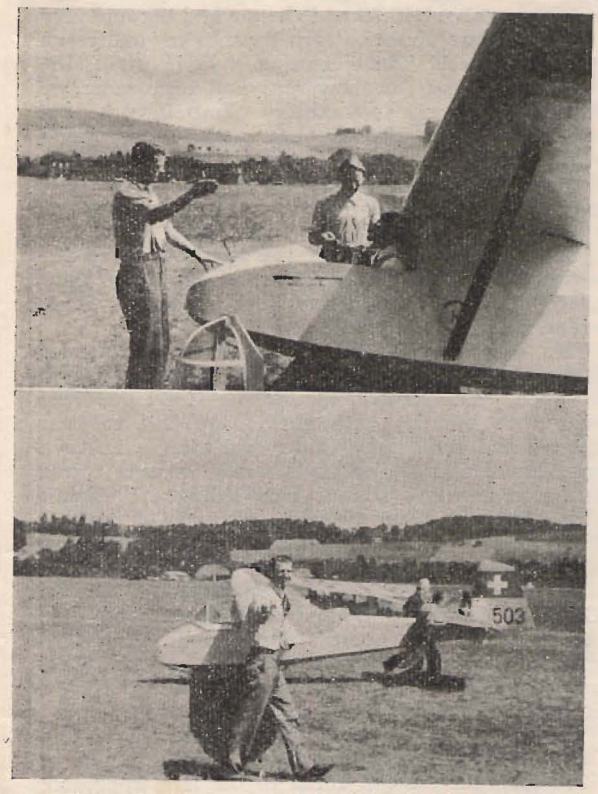
> Aero-tow to 750 feet above Aerodrome and a figure eight to be completed in tow. Release at 750 feet, three steep turns to the left, approach, sideslip to the left and land within a marked area of 50 x 100 metres.

Same procedure to be followed, but this time, three steep turns to the right, a right sideslip and landing again in the same area.

The afternoon was spent on the other part of the test, which was to dismantle a Sailplane and fit on trailer, take from trailer and re-assemble within a given space of time, with the assistance of two helpers, who are only to act on instructions. In addition to this, an exam on simple aero dynamics and an exam on simple met. All this went without a hitch and I was now considered a licenced Sailplane pilot.

The Aerodrome was to be closed during the next three days, as the annual event of Hornussen was to take place. A wonderful national Swiss sport in which people strike with a long mallet at a small iron disc, set up on a sort of special tee. The disc whistles off with great velocity and has then to be stopped by the opposing team as soon as possible. The distance which this disc travels is counted for scoring. Husky Swiss throw wooden boards in the air to intercept the little disc in flight, and as you can imagine this game seems to be a considerably more dangerous sport than flying Sailplanes.

As it was obvious that we could not fly with the steel discs whistling all over the Aerodrome, I suggested that we tow some 'planes away to the next Airport, as it was a long week-end and the Hornussen was to go on for three days. So we took one " Spalinger " and two " Olympia Meises " to Grenchen (about twenty-five miles from Belpmoos, as the crow flies). We arrived at Grenchen which is situated on the foot of the Jura Mountains, one of the greatest ridges in the world. The height of the Jura varies up to 3,000 feet and its length is approximately 100 miles. With favourable wind conditions it is possible to travel along its whole length, the only snag being varions gaps which exist in this mountain range. Things having gone so well, I thought I might try and get my Silver " C."



1 Luthi saying " Now do a Right Circuit " with Hans looking on.
2 Off to the Official Test.

My Silver " C " Flights

Having been aero-towed to Grenchen in the morning in calm weather, I thought I might be lucky and find a thermal and try for my altitude test—3,000 feet above point of release. I first had a short aero-tow and landing to accustom myself to the surrounding country, and then I had a further aero-tow and released at about 1,000 feet in thermal. At first I managed to fly with the variometer reading zero. Then slowly the needle began to rise and, to my joy, it kept going for just over 4,000 feet from the point of release. It was a clear blue sky, and after finding one or two more light thermals I found that I could get back to this altitude, to the identical level and no higher, and concluded that this must be the inversion layer. I got back to the Aerodrome after an hour and a quarter, and so had my Silver " C " height.

Next morning I was towed off at half past ten, with strict instructions to fly locally for five hours and then come in and land. A good breeze was blowing almost at right angles to the Jura, and I very soon released at 600 feet and sailed up the mountain side. Crossing up and down the Jura I found thermic and went up to approximately 6,000 feet. Far below me I watched a party at a chalet, singing folk songs and dancing, and it was a picture I shall never forget.

After flying here for about an hour it all seemed too easy for words and I thought ' why not try and fly along the Jura for fifteen miles, drop some identification mark and return, and you will have had time and distance in one.' So I set off merrily against a strong head wind, and all went well until I came to the first gap in the Jura. My height seemed quite adequate to cross the gap and I continued on. As soon as I had got well into the middle of the gap, I found to my consternation, that the variometer showed —2, —4, —8, —12 metres, and the " Meise " went down like an express lift. I had gone too far to turn back to the ridge I had come from, and so there was nothing to do but to press on and hope to get across the gap. I duly arrived with only some 500 feet in hand, and it was a great relief to climb once more.

After sailing carefully up and down the ridge, I slowly crept up to the top, the ridge here being perpendicular and almost a knife-edge. I found that I had only been carried to within 30 feet above this range, and I could not gain any more height. In beating forwards and backwards, a particularly strong gust threw me over to the lee side of the ridge and this, of course, did the trick. The downs were very strong and I just managed to turn the " Meise " around in this little valley, which had the shape of a bathtub. I was within 20 to 30 feet above

trees, no way out and the trees—enormous pines—were sparsely set. But the sink was once more around 10 metres and I thought that the bitter end had come.

I kept on talking nicely to the " bird " to give it encouragement, and as I was looking around for some soft looking trees to try and settle down between, I saw a gorge on my right. I dived for every inch of air I could get and turned off steeply on to my right wing through the gorge. I do not think there would have been enough room to fly her on an even keel through this little gap into the next valley.

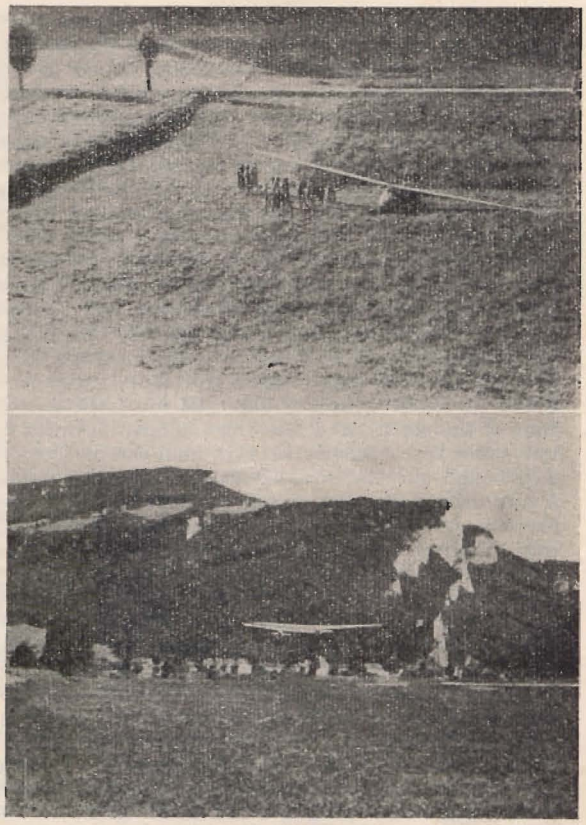
It is extraordinary how quickly one recovers from being timid, and I was conceited enough to think that the day was saved. I crossed the second valley on to a slope which would have had ups, but I found to my sorrow some high tension wires were uncomfortably close. There was nothing more to do but turn away, flying towards the village situated on the slope, and I had to make up my mind whether I should cross over it, fly on and try to get back through a gap in the main Jura range. Somehow, reason prevailed, and as it was risky to get over the village I decided to come down and land in a little field. I landed in a small field a few yards from a house, which I saw, had telephone lines running to it, and after having settled down, I walked across to the house and rang the Aerodrome, giving them the name and the description of the place where I was to be found.

I made enquiries whether there was a larger field on which one could be towed by aeroplane, but the local population had never seen a Glider before, and could therefore not give me any answers to my question, so I inspected the nearby field and decided that we could try and tow out.

After taking the wings off the " Meise " (the whole of the population helping to carry the 'plane to this field), the " Piper " arrived, and soon afterwards, when we had re-assembled the " Meise," we towed off back to Grenchen.

Instead of having covered myself with glory, I was in utter disgrace, and I felt very badly about it all. I only had two days of my holiday left, and it would therefore be difficult to do both duration and distance. The next day I wanted to try once more for the five hours, but the weather looked foul, not a cloud in the sky, haze, and no wind at all. I towed off at half past eleven and was back in half an hour, not a bump to be found. I towed off again forty minutes later, and found that I could just fly at zero, within a few feet above the trees on the very steep Jura mountain slopes, so I set off timidly working for height and occasionally I found anything up to 50 cm. rise.

In my wanderings along the slope I found a nice gully, full of rocks, with a little increased lift, and so I circled carefully close to the rocks, and found that I could gain a little height. Then back to the slope just skimming over the trees once more and after the slope, return to gully, and the same procedure was followed time and again. Arriving back at the gully in one of my trips I found a little extra lift and to my joy I worked my way up to some 3,000 feet. But here the thermal faded out and



3. Sometimes there is little space to land in Switzerland.

4. Pulling out of the Balsthal.

flying slowly at minimum rate of sink, I was soon back over my trees, most of whom I knew now by Christian names. This manoeuvre went on for four hours and I saw a number of other Sailplanes appearing and disappearing back to the Aerodrome, so at least I had one consolation, no one else seemed to be able to stay up.

Shortly after 4 o'clock, a great disaster happened. The sun had gone too low to shine on to my slope and no more up was to be found. I therefore decided to fly across the town to another slope which still had sunlight on it. But on my arrival there, I found no lift either. I saw some smoke rising out of the valley behind the slope and thought that perhaps a little thermic was to be found there, but once more, I had this dreadful experience of the previous day, just sinking rapidly at a great rate. I just had enough time to get into a small field and after sending a message by a young man on a bicycle to the nearest village to telephone the Aerodrome, I sat there quietly waiting, thinking over all my sins.

The following morning brought again hazy and stable weather, and did not look too bright to make either a distance or duration flight. I had arranged with my instructor, Hans Wurth, that should I be able to stay up, he would come and join me in order to fly my distance.

I was towed off shortly after 11, but was down again after an hour of struggling near the Airport. Just as I got back to the Aerodrome I saw in the distance a small storm approaching, and so I towed off once more, soon found some upcurrent and released at about 1,000 feet. For a moment I thought I had released too early, but on my way back towards the Aerodrome I found a little lift and circling tightly I found to my joy that I was soon up to 4,000 feet. I now had time to relax a little, and I saw Hans being towed off the Aerodrome. I watched him with great pleasure, and while doing this it suddenly became very misty around me, and I found that the storm had overtaken me. I also found down currents, and as I had no previous experience in storm front flying, I thought I had better turn in the direction which would take me back to the front of the storm, and into the sunlight, in order to find some lift. Simple as this manoeuvre sounds, and though one had read about it in books, I found it very difficult to sort myself out and find the right direction in which to go, but eventually I emerged from the front only at about 1,000 feet, and of course I saw no sign of Hans.

I began looking in a great hurry to find more lift. By now I had almost approached the town of Bienne, and it was too far to go back to the Airport. In trying to look for a suitable field to land, I found once more thermic, and circled up to some 3,000 feet, then hurried on in order not to be caught up again by the storm. This manoeuvre was repeated several times, and though it is easy to find one's whereabouts in Switzerland owing to so many landmarks, towns and villages, I had to my great sorrow lost Hans.

I travelled on this way in small ups and downs, and soon the town of Olten drew in sight, and looking around I at last discovered Hans miles up, and flying still further away from the front than where I was, so I struggled once more looking for thermic, and with it altitude, and eventually I found a beauty and circling tightly I got up to 5,000 feet.

Hans had obviously observed me, and I found him flying towards me, overtaking me, and going still further ahead, and here is where we found our best thermal of the day. We both started spiralling to end up at nearly 10,000 feet above point of release. Having found Hans I was as happy as a dog with six tails, and having all this altitude I was happier still.

I knew that the distance covered was over 50 km.'s and therefore the Silver " C " distance " in the bag." Of course with all this height on hand I thought we might be able to get to the Lake of Constance, and so we set off towards it. We had started our high speed glide, seeing in the distance, to our right, Lucerne surrounded by the lakes, and we soon approached Zurich a good 7,000 feet below us. Crossing the lake and going towards Uster, a single cloud was in the sky ahead of us, and we hurried towards it, only to find it falling apart upon reaching it. This, of course, dampened the enthusiasm and prospect of getting to the Lake of Constance considerably as it was getting late and the air becoming very calm. I myself no longer knew exactly where we were, but having Hans at my side in the " Moswey " was a happy feeling. The only trouble was that I couldn't follow Hans as the " Moswey " seemed to be a good 20 miles an hour faster than the " Meise " at high speed, and in order for Hans to stay with me, he had to use his air brakes frequently.

Our signal to follow each other was to waggle our wings, and I now saw Hans waggling his wings madly and turning off to port. The reason for this manoeuvre was not clear to me at this stage, but later I found that this was the moment of his decision to go into Frauenfeld. We were still flying at about 4,000 feet, but after great altitude one feels that one is almost on the ground, and I pulled up the " Meise " to her best gliding angle, and so wandering along we soon came to a little hill full of trees, and not being able to see behind it, I decided to turn and land in an orchard just in the nick of time. To my great sorrow I saw Hans disappearing over the trees, and about twenty minutes later a " Piper Cub " appeared overhead, its occupants waving to me, so I knew that I had been found, and waited quietly to be retrieved.

What I did not know was that the Airport was just at the other side of the trees, that of Frauenfeld. It was wonderful flight, approximately 60 miles from Grenchen, as the crow flies, though we must have covered well over 100 miles. After some time Hans arrived with a friend complete with Jeep and Trailer, and we took the " Meise " on to the Airport, about three miles from where I had landed.

I was very pleased that I was able to do my distance the last day of my holiday, but felt very sorry that I missed my five hours.

We therefore made a plan, and that was to go for the next weekend to Samedan, the sailplane pilots' mecca. We left Zurich early Saturday morning by Jeep for Samedan, and arrived late in the afternoon. The weather was very bad, misty and rainy, and there was just enough time for me to have a winch launch in order to see the Airport from above. After this flight we put the " S.18 " away again, and went back to our Hotel owned by Freddie Wissel, a first class sailplane pilot with about 400 hours soaring. He very kindly consented to lend me his "Spalinger S.18" for my next day's five hour flight, and all that was missing now was reasonable weather.

As it was the end of August, the weather is no longer certain in these parts, and some times snow is encountered at this time of the year.

The next morning came, and the weather looked gloomy, no wind and an overcast sky, and having no wind, the usual routine at Samedan of winch launching and working one's way up on the mountain side was out, and we therefore decided to get a tow-plane across from Davos in order to be launched, and to see whether thermic flight could be done. The tow-plane only arrived at about lunch-time, and I was launched at half past one, and was back again under the hour. I decided to have another launch, and this time I only got away shortly before 3. This of course was very late, knowing sunset to be at half past seven, and if at all possible to fly for five hours, it would mean a landing in the dark. Hans had, in the meantime, been towed off flying another " S.18," but I could not see him and therefore knew that if good enough one should be able to stay

up. The tow behind the " Stinson " went very well, and I released after a few minutes tow near a rocky ridge, where I found lift, and sure enough I soon spiralled up to cloud base, which was approximately 14,000 feet above sea level, or 7,000 feet above Aerodrome. This may seem very high, but one must not forget that one has, from the Aerodrome to the top of the Bernina, an additional 6/8,000 feet of mountain, which does not leave much room for flight below cloud base.

The weather had broken up a little by now, and there were patches of sunlight, but still no wind, and I timidly sailed for my first hour along rock faces which were sunbathed, and where I found enough lift to keep going. It was the most extraordinary sensation to sail along cliffs with hundreds of feet below you and above you, and one really gets the most weird impression of height.

Hans had by this time joined me and encouraged me to fly across ridges, down the next valley, up the next ridge, but I just could not bring myself to fly across a mountain top a few feet to spare, and not knowing whether one could get across or not. After a further hour, my eyes had become sufficiently accustomed to see whether I could get across the mountain or not, and I soon began the famous tour of the Bernina which needs no further description as it is well known to all who have read sailplane magazines.

Just after 5, a little wind appeared, and soon I saw a dozen or more sailplanes flying far below me up and down the famous Muottas Muragl. As time went on lift decreased, and so eventually we joined them, fighting for every inch of altitude. The wind died again, and soon one by one the sailplanes landed back at the Aerodrome. Evening thermic had set in by now, also a new experience for me, and it was like flying on velvet slowly and gently up and down the Valley of Samedan, over to St. Moritz, the lake and back again.

I now had just under an hour to go, and I wondered whether it would be possible to stay up. Dusk was falling and Hans' wings waggled vigorously pointing down to the Airport, telling me to come in before darkness fell. I, however, had no intention of going down now, so close to my goal, and saw Hans eventually landing, and I suppose, wondering why I did not come down. He did, however, not know that I had another start subsequent to his seeing me off for the first time, and I landed shortly after 8, quite in the dark, though fortunately the hangar door was left open, giving me a beam of light, and therefore a safe patch to land.

Of course I was tickled pink to have made the necessary qualifying flights for the Silver " C," after flying for a fortnight and a weekend. I would like to say that my success was only possible through Mr. Luthi teaching me to land a Glider accurately and Hans Wurth showing me the secrets of soaring flight.

Everybody was most friendly and helpful in Switzerland, and various Gliding centres, and in particular the Airport Chefs. I don't think that my five hour duration could have been done without the assistance of Hans, who showed me the way at many critical moments.

My previous flying experience was negligible, in all about 20 hours power flying, on light aircraft. In fact I am not sure whether this is really a help.

I think that as flying progresses it may be possible to establish, especially in Switzerland, gliding centres complete with guide, so that a person is able to guide one over upwind areas which are well known and are at present being plotted on special maps. Then it should be possible, in favourable conditions, to go and fly from one centre to another and see the Alps with their magnificent beauty, soaring over them in silence like a bird.

H. LASCH.

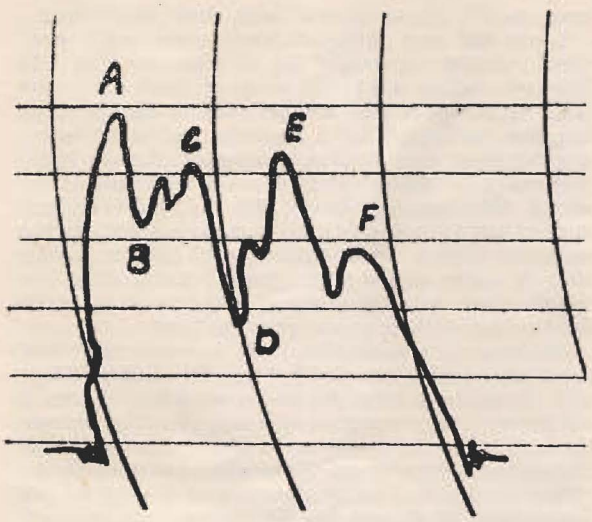
BRIDGES BURNT *for u/t Sailplane Pilots only*

AS we all know there are two distinct breeds of human beings, i.e. Sailplane Pilots and " others." Certainly the thing which completes our evolution is the first cross-country. I agree that many of " the others " do not consider our eccentric ways and constant gibberish about " green balls " and the like should be termed " evolution." But *we* know.

The following is a record of my elevation to this Beta Plus breed—a mental state—and as you wouldn't be reading *Sailplane and Glider* if you were not in the same category, I hope you will forgive the " line " and understand the necessity of remaining as anonymous as possible.

We all agreed it looked a poor day ; not a cloud in the sky and a light NW wind bringing the usual industrial haze over, so we decided the best plan was to convert some young pilots to the " Grunau." They had been waiting anxiously for many weeks while the more experienced had disported themselves acquiring Silver " C " legs. It was, in fact, one of those days of small strong thermals which can be so exasperating : fly straight and you get colossal bumps of " 10 up," but try and circle in one ! Either the rate of turn must be so high that all efficiency is lost or else, through lack of skill, attention, or sheer ability to cope with the lurching machine, one is spewed out into the downdraught with the usual loss of precious height.

By 14.55 hours all the conversions were complete and it was my turn for " just a ride round," but it only goes to show—it will be a pity when we have learned all about lift. The C. of G. gave me a 1,000 feet as the barogram shows, and almost immediately I struck a beauty which, once I was centred, took me smoothly to the icy regions of 7,000 feet (in my shirt-sleeves—how many times have we been told ?) Perhaps the lift faded (Point A on baro) but I fancy I was so cold that I no longer cared, but anyway here I was, over the Thames about Grays, with the 'drome apparently just under the " Grunau's " nose (actually about 8 miles away). The next few minutes of mental conflict must be experienced to be appreciated. I suppose I actually flew a mile or so back to the 'drome—in zero sink—battling, on the one hand, with the problem of retrieving cars and crews or ignominy through abhortive " undershoot " (as we scathingly label anything under 50 km.)



and on the other hand, the glorious uncertainty of turning my back and revelling in the " arson job on the bridges." However, I finally felt in the map pocket and sure enough, there was the answer—a map. At this time I had no idea what sheet it was, but bolstered up by this discovery (I can't think why) and by the fact that the barograph on test was ticking away merrily, I took the fateful step and did a very gentle rate one turn on to 180 degrees and with sufficient " wind up " to forget the cold I crossed the river and soon recognized the Medway over on the port side.

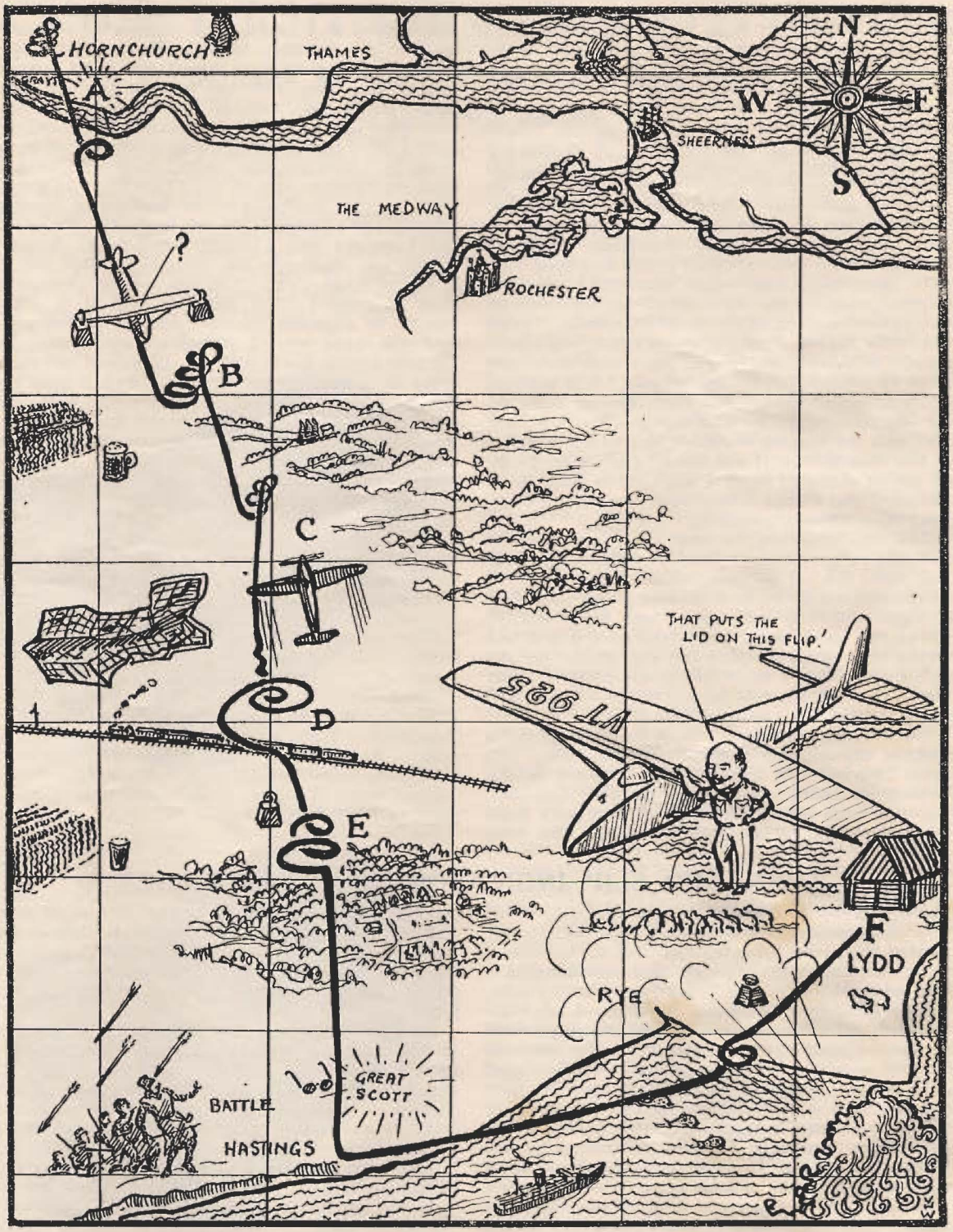
The decision now made, I felt tremendously happy, and was just complimenting myself on being a first-class navigator by recognizing Rochester in the distance, when the altimeter attracted my attention by flicking back about 1,000 feet and a glance at the variometer quickly made me aware of my utterly miserable state. My teeth were chattering, knees knocking and I was in 10 *down*, shivering and dejected. (This would take some living down.) I yawed to starboard and looked back. Now I'd really " had it " ; a " Weihe " would be needed to get me back across the river. It was here I just had to pull my shirt sleeves down in an effort to get my arms a little warmer as the machine was practically out of control, so after a series of dives and stalls with the stick between my numb knees I eventually straightened out just under 5,000 feet (which I suddenly thought wasn't a bad height after all.) The green ball now came off its seat again (point B) so I turned back on to course in a fairly large area of no sink and began to wonder what all the panic had been about. Below to port the Medway had now shrunk to a narrow winding ribbon and ahead the (to me) unknown county of Kent. Now for a pleasant shock. My senses had not fully recovered, apparently, from the pangs of conscience I had been suffering (going away on a cloudless day) and I failed to notice any bump or change of " note " but unless the variometer was fooling I was climbing at 5 f.p.s. Against my usually reliable instincts I banked her over into a desultory RH, tapping away at the vario and quite expecting the red to pop up but my pessimism was now completely cured ; the altimeter slowly started to creep in the right direction and continued to do so up to 6,000 feet. Here we were back to zero so as I was supposed to be going cross-country I again turned on to 180 degrees and pressed on, but not for very long. As you can see on the barogram I flew slap into another—this was joy indeed—which I worked up to the same height (point C) and now the fun began.

The first distraction was a Spitfire which came at me head on. At first I thought it was to be just a friendly game, but as he didn't peel off until I was sure it was all over, I changed my opinion, and in the ensuing struggle in his slipstream a moment later, my temperature rose considerably. I still think it was accidental because he came back soon after at a more reasonable distance and gave me a wave as he passed.

As soon as the instruments had settled down again I began to wonder where I was. A look around soon convinced me of my navigational prowess. The familiar Thames was far behind with the easily recognizable Medway ; nothing here but a network of roads ; not a railway or a 'drome in sight. (West Malling must have been out of my line of vision as I was sitting very low in the " Grunau " with no cushion). They say a navigator may be a little uncertain of his position but I was LOST. Ah, the map ! Yes, sheet 12, but some cunning type had folded it like a parcel so that all that was visible was a neatly inked-in track line from Hornchurch to Colchester—obviously some intended cross-country. The next ten minutes were spent attempting to refold, to cover my huge " circle of uncertainty," during which time I must have crossed the only decent pinpoint in this part of Kent (the dead straight railway between Redhill and Ashford.) Again, trying to fold a map, keep a compass course and fly has to be tried in the cramped and draughty quarters of a " Grunau," below zero, to be appreciated. However, I did finally manage to sort out the map so I now surveyed the terrain below, which only convinced me that I was indeed very lost. This troubled me considerably and I was peering at some high wooded ground ahead when I realised that it was much warmer, and little wonder, for a glance at the forgotten altimeter showed I was below 3,000 feet.

Something had to be done. I was in steady down and no cloud to guide me to possible lift and, more important, no discernible landing ground within reach. Considering I was in sink my spirits were high, it was nice and warm for a change, and I felt I must be near the 50 km. mark. So I gave myself a lecture (aloud) on pulling things out of bags and what Wills would do in such circumstances. In front was a little village and I felt sure it would have a cricket field big enough for me, so, hoping, I pressed on. The thought of famous sailplane pilots and their successful cross-countries must have given me confidence, for when I spotted, away over to starboard, a large brown patch with a clump of trees in the middle I turned away from the friendly village to investigate this possible thermal producer. I approached with everything strung to breaking point. Just short of it I felt a bump, so over we went into

(*Continued on page* 38)


HORNCHURCH
THAMES
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SHEERNESS
THE MEDWAY
ROCHESTER
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B
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LYDD
RYE
THAT PUTS THE LID ON THIS FLIP.'
W 925
GREAT SCOTT
BATTLE
HASTINGS

BRIDGES BURNT—(*Continued from page* 36).

a pukka rate 4, but all that happened was that the red went from 3 to 8 so I quickly straightened out and went closer—it was do or die now !—the sink slowly increased, which was hopeful, but you never can tell ! We were well off course now and certainly well over the wood, when bang ! the roughest thermal ever (point D), 20 up one instant and the red ball clawing its way out of the top the next. I had a battle royal using, at times, full control movements to keep the kite right way up and to try and centre. With one eye on the horizon and the other on vario and bubble we started to climb again and not before time (those trees had seemed " awful near "). This didn't last long. At 4,000 feet everything went smooth. I searched frantically around for my thermal, but no ; I think the answer was probably crossed controls. (This can easily happen during a rough ride.) Big circles found the down draught and tight ones only zero so off we went on to 180 degrees again. The compass had just settled down when the altimeter attracted my attention again by jumping up about 400 feet. This was the biggest chunk of luck ever. I gaped at the variometer ; it was showing a steady 15 up so, almost afraid to move, I did a gentle rate one to starboard and at this rate of turn climbed smoothly away to 6,000 feet (point E).

This was joy indeed. I sang and didn't mind the cold. On to course again, and a study of the map and deck, but no go—way ahead I now observed what appeared to be an inversion, cloud stretching to right and left, flat topped and below me. I put up the speed to get nearer and have a look and at the same time removed my sun glasses for the first time. Now I could see much better. Great Scott ! I could scarcely believe my eyes—it wasn't cloud, but the coast and the SEA.

This was a real surprise. Back to the map and a study of the coastline from Manston to Selsey Bill (what a navigator !). Eventually I recognized Beachy Head to starboard so I flattened the old " Grunau " out to a more sedate pace and as there were three emergency landing grounds shown on the map between me and Lyme I turned along the coast in this direction. I flew leisurely along over the beach and worked, in a half-hearted manner, what was to be the last thermal, between Hastings and Rye (point F). Just to show myself how good I was I crossed Rye Bay with the land to port—a great thrill—but I was soon in trouble again. Things were quiet and I began to suspect the A.S.I. and did quite a bit of juggling with the stick before it occurred to me to " blow my ears " which, of course, brought back the familiar note of the " Grunau." It wasn't until I was looking for the emergency landing grounds (which had, of course, long been fenced in) that I realized what a blunder I had made. Romney Marsh was obviously not thermal country and if I was to make Lyme from my present position it must be crossed. The sink was now at 3, which was to be expected, so the necessity of finding a field was upon me. I picked a large rectangular one just outside Lydd with the main road alongside, but now I remembered the wind and I hadn't a clue, so it had to be the long way of the field. At 600 feet we were on what I hoped was the down-wind leg when, to my extreme consternation, I saw that the green patch across my landing strip was, in fact, an anti-tank ditch ! Also that the sheep were practically shoulder to shoulder.

What happened next is still a little vague. I remember slipping in over the telegraph wires to the tiny field on the opposite side of the road, cross wind. The sheep (not so many in this one) parted, and I was down and at rest 20 yards from a very sturdy barn which I can still see growing bigger and BIGGER.

Hope you may profit from some of my mistakes. Dope for the experts :—

Date : 14th August, 1949.
Machine : " Grunau II " (no spoilers).
Time : Off 14.55 hours.
Landing : 17.05 hours.
Met. Anti-Cyclone, centred off S.W. England.
Wind to 5,000 feet W to NW 10 knots.
Lapse rate : 5 degrees F to 5,000 feet with stable layer to 8,000 feet.
Little high cirrus.

H.B.S.

TURN AND SLIP INDICATORS FOR SAILPLANES

AN interesting sidelight on the way in which sailplane design and research helps the development of high speed flying is reflected in the announcement that the Pullin Turn and Slip indicators have been adopted for the Royal Air Force.

Both Jets and Sailplanes need an electrically operated instrument instead of venturi. Both need an instrument of great sensitivity : the sailplane because slow speeds need magnified calibration, and jets because even the slightest divergence from straight flight at very high speeds must be indicated.

Two years ago a member of the British Glider Association Technical Committee undertook calibration tests with R. B. Pullin & Co. to determine the most suitable system of graduation for sailplane use. The results are incorporated in the Pullin Sailplane Turn and Slip instruments which carry the B.G.A. approval. The turn indicator indicates a much greater change of direction per minute than the power plane instrument for any given rate of turn. A Rate 1 turn, for instance, equals 450 degrees per minute, and a sailplane pilot need only maintain his Rate 1 for 24 seconds to reverse his course, compared with the power pilot's Rate 1 of 180 degrees per minute.

Sailplane calibration has been partly responsible for the modification of Pullin slip indicators to give greater sensitivity, and has resulted in the ball and tube inclinometer being changed from a ±20 degrees to a ± 10 degrees, and, in the pendulum type, in an important change in damping dashpot design to give greater sensitivity.

The Pullin sailplane model costs £17. 10s., and can be driven by a 12 volt dry battery, and its recommended maintenance inspection period is 1,000 hours.

Lord Kemsley's " Olympia," and the dual-control Slingsby " Sedburghs " which are being supplied for Air Training, are equipped with these instruments.

A GOAL FLIGHT FROM CAMPHILL TO YORK

54 miles, in "Gull IV," on 21st August, 1949

By LAWRENCE WRIGHT

HAD not flown at Camphill before, so planned for two days practice before the Competitions : was not keen to be flung into the battle on a completely unfamiliar hill. Weather defeated this plan, so this was my first launch at the site. Very hazy : after nine days I have still to see the view from the top. Wind SSW, too light probably for hill-soaring. In such weather, seemed wise to choose a goal (a) not very distant, (b) easily located. So chose York aerodrome which adjoins the city. Hot under the perspex : had to raise hood twice for air before take off.



Winched to 700 ft. above site (1,900 ft. A.S.L.) at 14.22 hours. Reached angle of the two slopes at 600 ft. Prompt but vague thermal thence. Very slow climb. Joined by Dudley Hiscox and Robertson, both in " Olympias," and stayed in company about 40 minutes. Could not circle as tight as I wished because their circles were so big : Dudley later made the same complaint to me ! but we were useful to one another, shifting centre according to who went up. (Two preferable to three for this, though). Too hot : flying with one hand out of window to blow air in. Visibility very poor ; never any horizon : lost sight of Camphill from about 2,000 ft. Drifting to NE less than 10 m.p.h. Had agreed not to go away below 3,000 ft., but there was no crucial point at which one said " here goes " ; such horrid country below (Wuthering Heights) that I did not set out across it, but let it drift slowly past whilst hanging on to a group of half-hearted clouds. Cloudbase at 3,400 ft. : lift slight and patchy. Turn-and-bank switched on whenever near 3,000 ft., where half to three-quarters blind. Above the reservoirs about 10 miles NE of the site, left the " Olympias " (who stayed another half hour working two more clouds before pressing on) and flew on 040 degrees, finding such a quick succession of close clouds with similar vague lift, that for nearly an hour my height did not vary by more than 200 ft. Came off the horrid moors into equally horrid industrial sprawl, with visibility worse. Saw Sheffield as a flat grey shape like a lake. Was concerned about navigation : circle of vision varied from 5 miles to nil : apart from poor view of fleeting pinpoints, and repetitive features, difficult to read a map when circling, lacking the usual horizon visible out of the corner of the eye. Some doubt about Barnsley ; thereafter no first-class fix for a long time. Water showed up best : ought to have memorised river and canal patterns in advance.

Lift still plentiful, though weak and patchy, so judged conditions offered better distance than goal flight to York, began working north with idea of reaching coast, but had several times to turn east towards better clouds, so average track would still be about 040 degrees.

A wider gap brought me down for 15 minutes, to 1,300 ft. : could not quite believe that this was really 2,500 ft. above the ground and almost started looking for landing field. A last weak thermal back to 2,800 ft. (average about 1½ ft./sec.) and on the way up, at about 2,000 ft., went suddenly and unexpectedly blind in a patch of lifted industrial smoke, exactly the colour of the haze background.

Then suddenly a complete change of sky : only a few rags of cloud ahead, though still as hazy : air

quite dead : had obviously had it. A long straight glide on 040 degrees across open country, searching vainly for a fix, all hope of York gone. A doubtful fix at Selby. Fifteen minutes of red ball : down to about 500 ft. on the altimeter. Then located a pinpoint on a road, railway and wood which I could not believe because it was only four miles from York. A town emerged dimly, but without a Minster, and with a bright green airfield on the wrong side. Below ground level, I ploughed on : the Minster materialised and the " airfield " proved to be a race course ; my goal was on the other side of the city. As always I was unnecessarily worried about making it. Made it easily. Found the usual little thermal downwind of the main runway, which is put there to lure glider pilots away from goals. Climbed slowly in it and drifted slowly away, having an imaginary argument with Charles (our team captain) : " Why the hell didn't you go another ten miles and get another point ? " He would spot the thermal on the barograph, so no use lying. Then reason prevailed, and I took the bird in the hand and landed. Which was right, because a Surrey " Weihe " came along later, found a similar debilitated thermal, drifted on with it almost amongst the trees, and got only another five miles.

Landed two hours 7 minutes from take off. Had enjoyed the last ten minutes only. Fifteen minutes later Robertson (one of our trio) landed out of a flat sky.

Useful to consider why Wills did better. He anticipated that lift would be restricted to the high ground, worked north along the hills until almost west of his goal, then made a straight glide to total about 70 miles. I don't remember the Met. man mentioning this point. Next time, perhaps, " actuals " from several places downwind of the site ? Retrieving Rowley next day, we saw just the same sudden break in the conditions as we left the hills : anybody could have phoned this information back. Unfair to early starters ? Yes, but more flying for the others, and the order of start is a lottery anyway.

ULTRA LIGHT AIRCRAFT ASSOCIATION

BULLETIN. VOL. 3. No 8.

A DESIGN FOR AN EASY-TO-BUILD AIRCRAFT THE BRITTEN-NORMAN " BN-IF "

Contributed by Mr. F. R. J. Britten

THE primary need of the Association at present is for a suitable aircraft—and it is wanted immediately. Unfortunately all the new factory-built machines are very expensive and are of complicated construction. It is essential to our success that we find a design that is really suitable for groups to build and simple for them to operate. There must be no complicated fittings or taper-pin assemblies, no box spars or difficult woodwork and no large jigs that take a week to construct.

Transforming all this in terms of an airframe with the robustness and safe flying qualities that we require puts the designer in something of a straight-jacket. It means no low-set wings (box spars), no taper pin root fittings, no fancy planforms or changes of wing section. In fact it requires an entirely new approach to the design problem, and the result may not be the clean elegant affair that we expect in a modern aircraft.

The following description is of a machine that will fill these requirements and has been evolved from a lengthy investigation into possible layouts with each design schemed so as to lay bare all its faults and advantages as far as the constructor is concerned.

A parasol wing layout was selected to divide the wing and fuselage completely for constructional purposes, leaving the joining up to be done with flat-plate fittings and tubes. This arrangement also gives good lateral stability and 360 degrees vision when the pilot is set behind the trailing edge—whatever the aircraft's attitude. It permits, also, easy changes in wing configuration, i.e., the aircraft might be equipped with cut down wings for ground training. Finally it will be possible with the present design to build a two-seater, involving merely a difference of carpentry. Practically all the fittings would be interchangeable with the single-seater. A relatively high wing loading was chosen to permit smaller and simpler wing construction, despite the flaps, and to allow the aircraft to be flown in gusty weather.

An orthodox box fuselage is employed with the simplest possible fittings, controls and a complete absence of frills. It is designed to take an " Aeronca " J.A.P. engine, but almost any small motor can be used and the front of the fuselage is stressed for engines up to 80 h.p.

Throughout the aircraft, construction is of a simplicity that can only be achieved by persevering for it from the start. A brief specification of the performance and dimensions follows :—

The design has been approved by A.R.B. in its broad outlines and the M. of S. have granted material permits for the construction of a prototype. Consequently it is now only a matter of sheer hard work to get it flying. Some of the working drawings have already been prepared and a few of the fittings made but there is still an enormous amount of both design and constructional work to be done. My partner in the design has now joined the R.A.F. but at all costs I feel we must complete this machine—and quickly, for without suitable aircraft the Association cannot continue to exist.

Consequently, I am appealing for volunteers anywhere in the country who can either undertake the construction of components or fittings, or assist in the production of working drawings, to contact me direct or via the Association as soon as possible. The cost of all materials will be met, and when the prototype is constructed and has passed its tests we can make the drawings available to members

of the Association together with jigs and advice on the building of further aircraft.

It is plain that a large membership will never be attracted or the Association expanded into a practical organisation until we can show something to the outside world. We must have aircraft, and failing a better and simpler design, we should get stuck into building this prototype. So volunteers are earnestly called for to help with the work. It is bound to be interesting and will forward the Association's aims and ideals.

Specification

All up weight	630 lb.
Wing Area	80 sq. ft.
Wing Span	23 ft.
Wing Chord	3.5 ft.
Section	NACA 23018
Aspect Ratio	6.58
Wing loading	7.87 lb./sq. ft.
Power loading	17.5 lb./h.p.
Fuel capacity	6 gals.

Estimated Performance

(36 b.h.p. " Aeronca " J.A.P. engine)

Landing speed (flaps)	40 m.p.h.
Stalling speed (no flaps)	47 m.p.h.
Cruising speed	72 m.p.h.
Rate of climb	500 ft./min.
Take off run (still air)	100 yds.
Take off to clear 50 ft.	147 yds.
Range (still air)	180 miles
Endurance	2½ hours

RESEARCH SUPPLEMENT

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

Douglas Fir (Oregon Pine) as substitute for Spruce

Enquiries from members living abroad have caused us to investigate the possibility of substituting other timbers for Sitka Spruce. In two previous issues of the *Bulletin*, notes relating to the use of Douglas Fir (Oregon Pine) instead of spruce have already been published. It may be repeated that this substitution is covered by D.T.D. Specification No. 469, and that it is approved by the Air Registration Board.

Through the good offices of the Technical Information Bureau of the Ministry of Supply we obtained access to an important report by the Forest Products Research Laboratory of the " Department of Scientific and Industrial Research," Princes Risborough, Bucks, which deals with the strength properties of Douglas Fir for aeronautical construction and which is based upon 5,000 mechanical strength tests. Hence, the results may be taken as conclusive, and our members can be advised to rely on the strength figures quoted below. The full title of the report is " Timber for Aeroplane Construction—Strength Properties of Douglas Fir," by J. Latham, E. H. Neward, and C. B. Pettifor, M.A.P. Scient. & Techn. Memo No. 7/44—FP. 14; RIS. 12, dated March 1944.

Spruce has a mean density of 28 lb./cu. ft., Douglas Fir should be not less than 29.5 lb./cu. ft. and up to well over 32 lb./cu. ft. As a substitute for Spruce, Douglas Fir can be taken to be about 23 per cent more heavy.

The mean tensile strength of Douglas Fir is about 3 per cent less than that of Spruce, but this difference in mean strength may well be neglected. Members subjected to tensile stress should, therefore, retain the same cross-section with either timber.

In the mean end-grain compression strength (one of the critical characteristics of wooden components) and in modulus of rupture, Douglas Fir is about 20 per cent better than Spruce. For the end-grain compression strength of Spruce, a design figure of 5,000 lb./sq. in. is commonly employed in stressing, while the mean end-grain compression strength is 5,500 lb./sq. in. Douglas Fir, at a density of 34 lb./cu. ft., proved a mean end-grain compression strength of 6,580 lb./sq. in.; hence a design strength of 6,030 lb./sq. in. can safely be assumed for wood of this fibre density (at lower specific weights of Douglas Fir, the design strength should not be chosen higher than 5,310 lb./sq. in., however).

The modulus of rupture (for Spruce, mean value, 9,230 lb./sq. in., and design value 8,000 lb./sq. in. respectively) attains, again for a mean density of 34 lb./cu. ft., a mean value of 10,500 lb./sq. in. and a design value of 9,410 lb./sq. in. (18 per cent superiority to Spruce). The modulus of elasticity of Douglas Fir of mean density of 34 lb./cu. ft. is 11 per cent higher than that of Spruce.

It is to be noted that Douglas Fir of lower density than 29.5 lb./cu. ft. is *distinctly inferior* and should not be used as substitute for Spruce. In particular the tensile strength is apt to be substantially lower (by 31 per cent referred to mean strength) and also the modulus of elasticity (by 11 per cent and more inferior). Such timber should not therefore be used for structural components. A recent accident sustained to a wooden " Proctor " aircraft seems to bear this out. When Douglas Fir is used, be it as a substitute for Spruce or for new designs based on this kind of timber, timber of 34 to 35 lb./cu. ft. mean density should be exclusively employed. Apart from this, the usual strength tests should be made from each plank from which the wood is being used for vital structural members.

When substituting Douglas Fir for Spruce, it should, however, be noted that a comparison on the basis of the respective wood strength values alone by no means guarantees adequate strength of the re-designed component.

In the ultra light aircraft category, many components utilise glue. Hence adequate strength must be obtained in glued joints. With very light structures, this is often critical. The gluing strength of a joint depends upon the area of the joint concerned, and when the redesign of a member (say, because of the substantially higher end-grain compression of Douglas Fir) leads to a decrease in the gluing area (in a compressed spar flange, for instance), the structural strength of the member may not be sufficient. Thus it is necessary to ensure that, when a decrease of cross-section of parts occurs, glue areas are not substantially decreased. This is a very important point, and it is always better to consult the designer before attempting a substitution of timber.

Even with the most correct substitution of timber under appropriate redesign, it will be nearly always unavoidable to increase the weight, for various reasons. This, too, holds for Douglas Fir instead of Spruce. Mr. Archibald C. T. Isaac (of Denver, Transvaal) points out that the grain of Douglas Fir is appreciably coarser, and that it is, for instance, not possible to reduce ¼" × ¼" rib members (in Spruce) in accordance with greater strength. The weight increase should, however, form no major obstacle in the construction of satisfactory ultra light aeroplanes. The extensive and (on the continent) exclusive, use of Polish Pine for airframes of all kinds over very many years has proved that there is no appreciable weight difference in comparison with Spruce airframes. It is, however, the conversion itself, no matter from what timber, which unavoidably causes some weight penalty. But the latter can well be kept within reasonable limits.

The Position of Ultra-Light Aviation in France

From a French friend of our popular flying movement we received the following report which will be of special interest :—

There is relatively great activity in the ultra light aircraft field in France, but an organised popular-flying movement such as that represented by the U.L.A.A. in Britain, has not yet been formed. The small flying clubs and amateur constructors are, in general, working independently of one another. Cheap sets of drawings for amateur ultra-light aeroplanes are frequently advertised. The weekly aviation paper *Les Ailes* which devotes much publicity to ultra-light aeroplanes and their operation has always been representative and informative about popular flying in France; it also launched the Pou-Ciel movement 15 years ago.

In the official "Direction Industrielle and Technique de L'Aeronautique" a department termed "Service de L'Aviation Légère et Sportive" is concerned with the governmental administration and sponsoring of ultra-light aviation. This department ("SALS") establishes minimum requirements for such aircraft, issues suggestions, and also assists financially in the construction of prototypes. "SALS" recently ordered three different prototypes of ultra-light two-seaters with 45 h.p. engines from private constructors (M.C.A. please note !).

Far less satisfactory is the position in the field of aero-engines for ultra-lights. Most of the French ultra-light aeroplanes which were constructed during the past years, had to make use of obsolete French engines of 1935/37 vintage, particularly Train (20/25 b.h.p. and 40/50 b.h.p.), Poinsard (20/28 b.h.p. and 30/35 b.h.p.), Aubier-Dunne (27 b.h.p.) etc. Even the very old 45/59 b.h.p. nine-cylinder radial Salmson (of about 1924) is occasionally installed.

Descriptions of present ultra-light aircraft usually quote that the engine which is installed, is a provisional choice only and will be replaced by a more powerful one at a later date. Moreover, two-seaters are often developed from a single-seater design, and this again necessitates a more powerful engine.

There is at present no reliable modern aero-engine of 50 to 70 h.p. in France ! This explains the frequent use of foreign engines in French ultra-lights. Such engines are the 65 b.h.p. Continental, Czech Praga and Walter types, the 50 b.h.p. Zuendapp (with which Rene Leduc recently acquired a world record for ultra lights), and the engine of the German "Volkswagen" motor-car. The latter engines are imported from Germany and modified for aeronautical purposes by the MAGIF firm in Bagneux/Seine (138, Rue des Blains); it is, however, very heavy, and the propeller speed of 3,300 r.p.m. is considered too high.

During the French Salon of 1949, the following ultra-light aircraft engines were exhibited :—

Salmson, 45/59 b.h.p., 9-cyl. radial, weighing 3.06 lb./h.p.
Mathis, 40 b.h.p., 2-cyl. opposed, weighing 2.96 lb./h.p.
Mathis, 75 b.h.p., 4-cyl. opposed, weighing 2.75 lb./h.p.
Minie, 80 b.h.p., 4-cyl. opposed, weighing 2.36 lb./h.p.
Lutetia, 42 b.h.p., 2-stroke 4-cyl. V, weighing 1.9 lb./h.p.
Lutetia, 70 b.h.p., 2-stroke 6-cyl. radial, weighing 1.9 lb./h.p.

It is unknown if the Mathis engines and the Minie engine have since secured a Certificate of Airworthiness. Of the Lutetia it is doubtful if one of the engines has ever flown though they were exhibited as far back as 1946.

THE RECOLLECTIONS OF A "FLYING FLEA" ENTHUSIAST

Contributed by Flight Lieut. G. Banner, D.F.C.

Conclusion—Flying the "Flea"

Last month I dealt with the pre-war formation of a Club to build a "Flying Flea." I briefly covered the building of the machine and the acquiring of a field from which to operate. This month I will continue the story of the attempted flying and finally the bitter end, with a small appreciation of the lessons learned.

On a hot day in the summer of 1938, several members were spending a fortnight's holiday under canvas with the intention of becoming trained pilots in that time. As the machine was completed, the half dozen builders became more or less in charge of operations. That is, I, for example did the daily inspection on the engine and signed the log book in the appropriate space. My main qualifications for this job was a fair knowledge of marine engineering and the fact that I now possessed a single cylinder two-stroke motor cycle of the lowest capacity or horse power. None of us had any licences but we made the "Flying Flea's" engine run without a hitch and we were quite prepared to trust our lives and other people's lives to the machine we had made. Whether this faith was justified or not is, of course, debatable, but the main thing is that it worked.

(*To be continued*)

INTERNATIONAL GLIDING NEWS

Spain. It is hoped that early in the year tests will be made of a new type of centre of gravity launch. In the event of its proving satisfactory it is probable that it will be adopted as the official system for winch launching, which will be of great assistance to those clubs that have no tug-plane.

As yet we have not the exact figures for gliding throughout the past year, but to give our readers some idea of what has been going on we can announce that there have been 1,099 pupils of whom 549 have achieved their A, 339 their B, and 374 their C. Flying has been carried on for a total of 2,798 hours. Silver Cs have been awarded to Fermin Arranz Gonzalez of the Gerro del Teléfrafo school; Jaime Tauler Gelabert and Sebastian Almagro Castellanos, both of Somosierra school; and Andres Carreno Centenero of Monflorites Huesca.

Germany. According to information received by Avión, the Spanish flying paper, the East part of Germany controlled by the Russians has ordered the building of gliders and the instruction of glider pilots. (In the agreement between the four occupying powers we note that both construction and flying of gliders was to be prohibited.)

We also hear that the Vice-Premier of the Soviet controlled state has ordered the formation of gliding clubs.

Argentina. With summer coming on and the gliding season well under way, there has been a great increase in flying throughout the country. The following are some of the most notable recent flights :

Distance : Adriano Mantelli 400 kms., time in flight 5 hrs. 25 mins.

Time and distance : Jose Ortner, 4 hrs. and 153 kms.

Time : Jose Cuadrado, 5 hrs. 25 mins.
Ricardo Gutierrez, 3 hrs. 39 mins.
Ricardo Bazet, 3 hrs. 35 mins.
Nestor Montenchiarrini, 3 hrs. 25 mins.
Ernesto Colombo, 3 hrs. 28 mins.
Leonardo Porto, 2 hrs. 45 mins., 2 hrs. 14 mins., and 2 hrs. 18 mins.
Ernesto Wilde, 2 hrs. 10 mins.
Luis Vaya, 2 hrs. 9 mins.
Romulo Marton, 2 hrs. 1 min.
Claudio Dori, 2 hrs.
M. E. Hoerhammer, 7 hrs. 34 mins.
J. B. Chourrout, 5 hrs. 3 mins.
Oscar Bona, 3 hrs. 27 mins.
Juan Murchio, 3 hrs. 4 mins.
Nedda Kehll, 1 hr. 42 mins.

Gliding Club Gonzalez Chaves : Francisco Reinoso 2 hrs. 40 mins., gaining 1,500 metres altitude.

Gliding Club Bolivar : Jorge Seina, 4 hrs. 5 mins.; Andres Choren, 2 hrs. 45 mins.

United States. The annual conference of the Institute of Aeronautical Sciences was held on the 1st January, and it was decided that a proportion of their activities should be dedicated to gliding. This corresponds with the general interest in gliding that is arising all over the world, just as it did in the period between the wars. (Among those most famous then were the " Rhon Rossiten Gesellsefalf " and the " Deutsche Fortsetzung fur segelflug " of Germany : the " Aera " of France. the " Comisión de Vuelo a Vela " of Poland and the Swiss " Experto en Jefe del Vuelo sin Motor ".

Professor Farrar of the University of Venderlitt(?) has constructed a sailplane with laminarflow wing in which the pilot flies reclining. The span is 8.2 metres and the gliding angle—in the wind tunnel—was 1 in 36. It is hoped to make a test flight this year.

France. At the end of the year there were the following sailplane pilots in France : B, 6,272; C, 3,680; Silver C, 820; Gold C, 46.

In the gliding centre of Saint-Auban-sur-Durance since its opening in November last there have been several interesting figures : three flights to more than 3,000 metres and one to 4,800, using a " Nord 200," and six flights to more than 4,500 metres, and others of 5,200 to 5,300 metres in the same month.

Switzerland. Thanks to the good offices of General Spooty there has been established between Switzerland and the United States an agreement by which five Swiss pilots will stay in the U.S.A. studying the organization of American flying schools, while five American pilots will be able to study gliding at the Swiss gliding centres.

An important series of the sailplane " Moswey III " has unfortunately had to be suspended owing to financial difficulties, materials being exceedingly expensive in Switzerland.

NEWS FROM THE CLUBS

BRISTOL GLIDING CLUB

January 1950

After many disappointing expeditions to our newly acquired hill site at Roundway, near Devizes, we are pleased to record some successful soaring there. A camp held during the Christmas holidays resulted in flights of up to half an hour in light winds and showed what was possible. However on Sunday, 15th January, we had a real good soaring wind and the two machines there did over 13 hours between them. G. E. Miller did his 5 hours in the " Grunau," and this being the first at the site was free of charge. Several other members did half hour flights in the " Grunau " and the syndicate owned Olympia " Bluebird " did flights of up to three hours. Lift was found all along the slope, the best being at the south end, where the trees used to be. On one flight a height of 1,000 feet was reached with the help of cloud lift, average height being about 600 feet.

Thanks to some hard work put in by working parties, the Club house has been made rather more habitable, glass has been put into some of the windows and some furniture brought over from Lulsgate. 30 tons of clinker has been

spread on the muddy track which serves as an approach road.

Meanwhile at Lulsgate training flying continues whenever conditions are suitable. Auto-towing with the Ford V8 and retrieving the wire with our James three-wheeler we manage to keep up an average launch rate of 12-13 launches an hour, thus cramming 50 launches or more into the short winter afternoons. Some high winds lately have resulted in auto-tow launches up to 1,650 feet in the two-seater, thus allowing tuition in spins and aerobatics.

Our Winter maintenance programme has also been making steady progress, as many as 25 members being found hard at work on duff Sunday afternoons.

The " Olympia " has been given a thorough overhaul and inspection, and a number of minor mods. have been incorporated. This alone has consumed over 150 man hours. Our original winch is being fitted with a new drum and automatic laying gear, while another James, presented to the Club by one of our benefactors, is being refurbished. Still to be tackled before next season are the " Tutor " and " Two-seater " overhauls and the construction of a trailer.

An analysis of last year's flying records shows that we did 4,661 launches, 296 flying hours and 362 cross-country miles. We got 62 " A " certificates, 21 " B's " and 12 " C's ". One Silver " C " was completed and a further 8 legs gained. These figures include a successful series of summer courses which we hope to repeat this year.

R.A.F. GLIDING AND SOARING ASSOCIATION

(A. 28114/49/R.A.F.S.B.—1.12.49.)

1. At a meeting held at the Air Ministry, Adastral House, Kingsway, London, W.C.2, on Monday, 14th November, 1949, it was decided to form the R.A.F. Gliding and Soaring Association on the same lines as other sports associations and unions in the Service.

2. Air Marshal T. M. Williams, C.B., O.B.E., M.C., D.F.C., has kindly consented to be the first president of the association.

3. The undermentioned officers were elected :—

Chairman—
Group Captain G. J. G. Paul, D.F.C.

Honorary Secretary—
Squadron Leader D. Martin Butcher, O.B.E., Air Ministry (O.F.I), Room 312, Bush House (South-East Wing), Strand, London, W.C.2.

Chief Flying Instructor—
Flight Lieutenant R. C. Forbes, Royal Air Force, Detling, Kent.

SCOTTISH GLIDING UNION

Notes

As the feeling of spring grows in the air, the pulse of the club quickens. The hibernating members are casting aside their winter melancholy, or their favourite girl friend, and every week-end sees more of the almost forgotten but dimly remembered faces appearing every week-end at Balado. The urge to fly is a much more conscious thing now than in recent months, so that discouragement has to be severe to be effective. Bishophill, for example, whose overbearing scarp so often mocks our efforts, was lately revisited in the hope, born no doubt of a spring fever, that conditions would be favourable. A shrieking, tearing gale greeted the hardy ones, and as one of them put it, " we had to crawl on hands and knees to inspect the site and regretfully decide that soaring would be impossible." At the same time however, on the airfield some members were doing circuits in boisterous weather, with spectacular results for all concerned. One of our hardy perennials launched into the teeth of a vicious squall, was seen to lose an estimated 200 feet in one fell swoop as he flew blindly on in a " Cadet " with no windscreen, no instruments and with the friendly piece of string almost invisible in the blinding sleet.

Notoriety, and its bed fellow, publicity, is not easily acquired ; sometimes it has to be most diligently acquired ; sometimes it comes all too easily, as when our one crash of the last year appeared on the front page of a leading national daily. Or as now, when we have become involved in police proceedings by the simple act of a boy of 17, who suspected of stealing money, quoted the S.G.U. as his excuse. As we heard the story from the police, he wanted the money to go on a Continental tour with the club which was supposed to start on one particular Saturday in January. Since the weather on that day precluded any possibility of flying to the Continent, the members concerned went to Balado to glide. He himself did some flying but only managed to reach Aberdeen. The deprecatory use of the word " only " is magnificent ; Aberdeen to the S.G.U. is like China was to Marco Polo—an achievement to be greeted with the beating of drums and the clashing of cymbals.

Mike Smedley, battered, bruised, but remarkably alive, came back to the club just a month after his accident. His presence paid remarkable tribute to his own ability to bounce, and to the routine skill of the surgeons who sorted out seven fractures of the jaw, disengaged a bone from pressing on his optic nerve, which was causing double vision, and restored his nose to its well known, if rather depressing, normal. He was full of optimism, and overflowing with enthusiasm. As he said, he knew nothing of the accident, or for the previous twenty-four hours, and his morale—to use a hackneyed word—is consequently unimpaired. Indeed for a long time, he refused to believe those who tried to tell him that he had been involved in a gliding accident of considerable proportions. Another personality, one time Lt. Stevens, now demobbed from the Navy has left the club to return to his English home ; we give fair warning to the Surrey club !

A.M.

68 GLIDING UNIT, ST. ATHAN

December saw the fruits of a new system of training, which originated when a " Falcon III " two-seater was allocated to St. Athan. Eliminating the old method which involved progression directly from wing balancing to ground slides and finally to high hops, we first of all gave the trainees—in our case A.T.C. cadets—one or two experience flights in the " Falcon " and then turned them over to a ground slide line. After a few ground slides they were put back in the " two-seater " for

three or four instructional flights and thence back to the original line to be coaxed into the air solo.

This system of training proved its worth not only in cutting down the number of training flights but also in raising the quality of flying. The first course on the new system consisted of cadets from 499 A.T.C. Squadron, Port Talbot. But for some duff weather encountered we feel sure that all cadets would have passed through easily. As it was, we passed out all cadets who tried the test with full marks.

During the month the unit accepted delivery of a Slingsby "Ledbergh" and as a result we are expecting our returns to be even higher during the forthcoming months. Our equipment was also swelled by the delivery of two new 15 cwt. Bedford vans. This is the first time that we have had brand new equipment for many years and will eventually cut down the time wasted on maintenance.

Unfortunately for us however, one of our keenest instructors—Mr. Colin Taylor—has had to leave us. He did a tremendous amount of work at the unit and was largely responsible for all the M.T. being kept in good order.

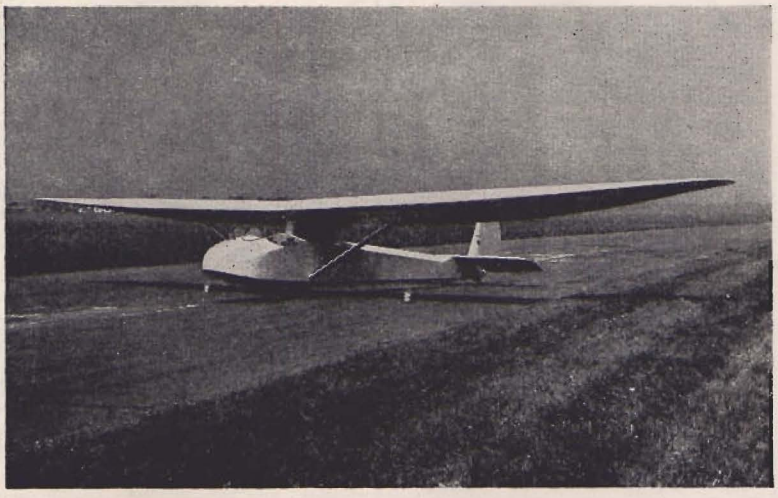
December also saw the instructors having their annual powered flying experience in spinning and stalling at No. 3 Reserve Flying School, Cardiff. The instructors reversed roles for a while and as pupils were really "put through the works." These flips prove invaluable in extending their general flying knowledge.

THE YORKSHIRE GLIDING CLUB Notes of Activities Sept. to Dec., 1949

Flying. There is little indeed to record under this heading. Conditions have been unsuitable or inadvisable on most week-ends, and members have been inclined to conserve their resources for better times. There has been a representative gathering most week-ends, if only to demouse and recheese the mousetraps! (They really do go for this blue stuff). On Sept. 10th R.E. members turned up, but weather was suitable for circuits only, although De Redder in the "Petrel" was able to cruise around in the whole area in front of the hill, several miles west of site, holding about 600 feet, gaining but little and losing nothing anywhere. This would appear to be a stationary air mass—the surface wind was generally nil. Nothing more was done until December 26th when O'Grady had a good day with the "T.21" giving dual to various members: Barker flew the "Kite 2." On December 27th there was one launch (Barker in "Kite 2"), other flying being inadvisable due to masses of cloud forming on the hill; finally rain fell.

General. The "S.G. 38" primary is with us, but so far no demand for ab initio training. This howling tribe of British Youth which some allege to be bursting its bonds for a bash on a "Bungie" does not besiege our territory. Maybe the road up the Bank is steeper than pre-war? Perhaps something will be seen when the better weather and longer days are here. In our last notes the opening of the bar was mentioned as a passing event; one or two people seemed to have suspected that the club has turned its efforts in that direction. May we say that it is not necessary to close the bar to get the members

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in the air, or vice versa? Extremism is one of those things most of us try to avoid. We have no soaks, no trick pilots—and—no V.I.P's ! ! We hope to have a few ab initios next year—nice moderate minded ones for preference, willing to pay their share, even if it means sacrificing the luxury of paying tax on a packet of twenty, or an eyeful of J. Arthur Rankery to do so. May we offer our Good Wishes for 1950 to all?

G.A.H.

AIRWAYS AERO CLUB

Soaring Group (Hurn)

On the Eve of Christmas, a low blanket of grey stratus hung over Somerford menacing anything more ambitious than glorified high hops. In contrast, however, a spirit of revelry akin to Christmas was much in evidence among the club members. They were of course, intoxicated by the sight of the Group's " Tiger Moth," which after a complete rebuild lasting several months, finally emerged from backstage at Hurn ready to play its respective part.

Three aero-tows were made by the C.F.I. in the " Kite II " on this day, but operations were discontinued when the tug continually disappeared into the murk at 800 feet.

During the remaining days of Christmas a general improvement in weather conditions enabled some of the more advanced members to experience their first aero-tows. Although lift was never encountered on these occasions the enthusiasm certainly ran high. In all 17 aero-tows and 4 circuits were carried out over a period of five days, and we can honestly say—there was never a dull moment.

G.A.J.

CAMBRIDGE UNIVERSITY GLIDING CLUB

Activity during the last three months has consisted mainly of " Cadet " and " Prefect " flying at Bourn. We are usually able to arrange flying there on four or five days a week, and many pupils who started ab initio in October have now reached the " Cadet " circuit stage.

At Marshalls, the " Olympia " and " Kranich " were both able to make short thermal flights on a few days in October. The " Kranich " was flying on most week-ends, mainly for giving dual checks to pupils graduating from one training stage to the next. Several members converted on to the " Olympia " last term and have been getting some practice on it before flying it at the Long Mynd. Figures are not available, but it seems certain that there were more aero-tows last term than in any corresponding period since the Club was formed.

The Kemsley Prize has caused considerable discussion, though so far little action. On several occasions large cumuli have been seen around Cambridge, but they have either been too far away or the wind has been too strong for aero-towing. Jimmy Grantham has been the only pilot to attempt a cross-country, but he had to land a few miles away at Waterbeach.

Our mechanical experts have been busy overhauling our pre-Great War Rolls Royce Silver Ghost. This is a valuable addition to our transport and those concerned are to be congratulated on a fine effort. Considering its great age it was in remarkably good condition (it had never been used for gliding purposes before.) A white coat has been obtained for the driver, as it was felt that a chauffeur in gliding club rig would appear rather incongruous.

We hope to modify this vehicle for use as a winch, thereby greatly increasing the amount of flying at Marshalls, which is so often restricted by lack of aero-tows or by excessive wind.

DERBYSHIRE AND LANCASHIRE CLUB NOTES

Saturday, Dec. 17. Snow and sleet. No flying, but a hell of a good Christmas Party and Concert in the evening. Special praise is due to Fred Harris for organising the Concert, and to his assistants, Brian Jefferson, Harry Midwood and others, including the now infamous " Gliding Widows." Distinguished visitors included Mr. and Mrs. Vernon Blunt and Doc. Slater; who also, of course, was a performer.

Sunday, Dec. 18. The morning after. Perhaps fortunately, not a flying morning. However, some work was in progress before lunch, and the hangar re-arranged to receive two winches for winter storage by tea time.

Monday, Dec. 26. *Boxing Day.* Wind W. 15 m.p.h. It is becoming almost legendary that we have some flying between Christmas and the New Year; at least we have in 5 out of the last 6 years; and one " Olympia " and the " T-21 " managed to uphold the tradition to-day—if only just.

Tuesday, Dec. 27. Wind W. 20 to 25 m.p.h. As if to confirm yesterday's gesture, and taking advantage of the Clerk of the Weather's ignorance of our Tuesday holiday, we did over 12 hours hill soaring with " Olympias," " Viking," " Eon Baby " and " 2-Seaters."

Sunday, Jan. 1. Wind W. 20 m.p.h., but cloud at about 100 ft. until lunch time, when it began to break up. The first machine off after lunch, the " T-31 " 2-Seater, shot up like a cork from the top of the winch wire, which galvanised everyone into feverish activity. Actually the wave was quite gentle; the wind was not strong enough for anything really exciting; but 9 aircraft were put up during the afternoon for a total of almost 5 hours, George Blomfield making the best height in his " Kite 1 " with 2,200 ft. gain.

Saturday, Jan. 7. Wind S.W. 20 m.p.h. but dying. " Viking " and " T-21 " soaring in the morning; circuits and " 2-Seater " training in the afternoon. The " long-winter-evening " social season was opened by a very interesting lecture on " Winching and What-Not," by C. A. Kaye. He dealt very ably with most aspects of winching—Historical, Technical, Practical and Theoretical, while question time, as always, provided the humorous and impractical aspects to complete the picture.

Sunday, Jan. 8. Wind SSW. 10 m.p.h. Training " 2-Seater " and " Cadet " only. Two more very nice first solos, by Freshville and

McIntosh; followed by "A" and "B" certificates for both of them.

Saturday, Jan. 14. Wind WNW. 25 m.p.h. backing. Waves visible in all directions, but rough hill-soaring at abnormally low height for the wind strength was all that was possible in the morning. In the afternoon, however, the pendulum swung our way (maybe because the wind direction was backing steadily all day) and everything was able to "connect" with ease. Max. height, George Thompson in "Viking" with 3,500 ft. gain. Total time, 10 hours. This week's social fixture was a "Children's" party, organised by some of the above mentioned Widows, at which everyone was supposed to be under 7 years of age. Before the evening was over most of those appearing in adult clothes, including the Chairman, were forcibly persuaded to comply with the regulations in the time-honoured manner.

Sunday, Jan. 15. Wind W., about 30 to 35 m.p.h. Good hill-soaring with, believe it or not, occasional thermal assistance. Everything possible flew, except the "Cadet," for which the wind was a bit too much. Max. height, Gerry Smith in an "Olympia" with 2,300 ft. in cloud. Total time, 27 hours.

SOARING ASSOCIATION OF CANADA

December 1949

"Loudon" Sailplane

Quietly, without fanfare, one of the most important pages in the history of Canadian gliding was written on 5th November last at Oshawa Airport.

The "Loudon" sailplane took to the air!

Smoothly, effortlessly, it soared on that dull November day; eagerly its wings lifted in almost motionless air, buoyant and swift in free flight!

Solely the product of Canadians, the "Loudon" sailplane will without doubt have a profoundly stimulating effect on the future of gliding in the Dominion.

But editorial comment cannot do justice to the event; let us hear from the pilots themselves. The S.A.C. is indebted to members of the Toronto Gliding Club, owners of the new craft for their prompt and intelligent reports, and to Mr. Waclaw Czerwinski for his generous co-operation.

Les Racey, whose skill and patience built the "Loudon" from the beginning was aero-towed by Don Holman and released at 2,000 feet.

"In free flight," he reports, "I did a routine pattern of left and right turns at various speeds. Tried stalling several times to see what happened. The wings remained horizontal and there wasn't any tendency to fall off. The ailerons are quite effective at the stall point and when the craft is completely stalled it merely drops its nose slowly until flying speed is picked up."

"Spoilers operated nicely and it was found that you could dive moderately with spoilers open, and not gain too much speed for landing."

"I did tight spirals to left and right at low and high speeds; from these I discovered the craft to have all the qualities of a good, stable sailplane."

The next flight was made by Jack Ames, President of the Toronto Gliding Club:

"The weather was cold, with 9/10 cloud and a gentle wind out of the north. The glider is a 'Varsity Blue, with white fabric and nose cap, flaring to a narrow stream-line on the side fuselage."

"After Mr. Czerwinski had completed his check hop, Les Racey took it up while the rest of us stood enviously on the ground. She flew beautifully with only minor flight snags and seems to have the predicted performance. Les and I completed the first 5 flights and signed it out for experimental flying . . ."

Don Holman, the third pilot to make an extended flight reports:

"Everyone is delighted with it. We have, of course a lot of testing to do and a lot to learn about it. It is very light and responsive to all controls, extremely pleasant to fly. The cockpit is roomy and comfortable, with excellent range of vision. It trims nose down, but the elevator is so light the out-of-trim is hardly noticeable unless you release the stick."

"Spoilers are effective and generally speaking it is as easy and as pleasant a machine to fly as I have ever touched."

Frank Brame, the next pilot, declaims enthusiastically:

"The glider gives an honest 2.2 f.p.s. sink at approximately 38 to 40 m.p.h. It stalls very gently, at less than 35 m.p.h. Aileron control is typical of Czerwinski design—beautiful! The elevator control is adequate, but the rudder control seems a little weak for those who like voilent side-slips. However, this contributes to the non-spinning characteristics of the ship and really is not of importance when one has effective spoilers."

"The sink-rates up to 50 m.p.h. are very near the theoretical values; observations at airspeeds above 50 m.p.h. have not been completed as yet."

"I can verify that the "Loudon" is a lovely ship. On my third flight on that very dull Saturday I managed to stay aloft in a very weak 'wave' for 45 minutes. The lift in the 'green' area was producing a 1.5 to 2.2 f.p.s. rate of climb in the "Loudon" at heights from 1,500 to 2,000 feet. I am certain the "Loudon" is the first ship of the T.G.C. to demonstrate its good soaring characteristics under such weak conditions."

Professor T. R. Loudon, Head of Aeronautical Engineering, University of Toronto, after whom the craft is named, has advised the Editor that since the type record and necessary drawings are not yet in shape, plans are not at the moment available. But . . . . "when we have all the above information put together we shall be only too glad to sell a complete set of drawings at a reasonable price."

It is the considered opinion of the S.A.C. executive that gliding enthusiasts who plan to build should await availability of the "Loudon" drawings.

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"B" .. 17
"C" .. 14
Silver "C" 2
Gold "C" —

"B" CERTIFICATES

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
5483	George Malcolm Cowper	R.A.F. Cranwell	28.11.49
10387	Colin Frederick Rogers	London G.C.	29. 9.49
11162	David Robert Victor Molloy	Halton Apprentices	24. 9.49
11165	Suranjan Das	Empire Test Pilots	9. 6.49
11166	Roshan Lall Suri	Empire Test Pilots	9. 6.49
11172	Colin Diarmid Campbell Dunford-Wood	Army Flying Club	30. 7.49
11174	Gordon Ian Smith	London G.C.	5. 5.49
11175	John McConachie Rollo	66 Group R.A.F.	17. 4.49
11182	John Reginald Jefferies	London G.C.	18. 8.49
11186	Henry William Lamond	Luneburg G.C.	2. 4.49
11187	Ronald Ernest Monk	Gutersloh G.C.	21. 8.49
11188	Douglas Nicholls	22 G.S.	9. 8.49
11198	James Fitzpatrick Slidders	Portsmouth Naval G.C.	4.12.49
11199	Dennis James Sansom	Gannet G.C.	8.10.49
11203	Laurence James Thomas O'Sullivan	R.A.F. Cranwell	10. 7.49
11208	Lionel Alfred Geary	Luneburg G.C.	21. 8.49
11209	Ronald Vivian Ecclestone	Empire Test Pilots	15. 6.49

"C" CERTIFICATES

6976	Peter Richard Fritz	London G.C.	4.12.49
8376	Norman William Peel	Bristol G.C.	2.10.49
9287	John William Alfred Smith	Midland G.C.	30. 8.49
10387	Colin Frederick Rogers	London G.C.	9.10.49
10944	John Roger Leech	London G.C.	15.12.49
11165	Suranjan Das	Empire Test Pilots	12. 6.49
11166	Roshan Lall Suri	Empire Test Pilots	27. 6.49
11174	Gordon Ian Smith	London G.C.	5. 5.49
11175	John McConachie Rollo	66 Group R.A.F.	1. 5.49
11182	John Reginald Jefferies	London G.C.	4.12.49
11186	Henry William Lamond	Luneburg G.C.	1. 5.49
11187	Ronald Ernest Monk	Gutersloh G.C.	23.10.49
11203	Laurence James Thomas O'Sullivan	R.A.F. Cranwell	1. 8.49
11209	Ronald Vivian Ecclestone	Empire Test Pilots	17. 8.49

SILVER "C" CERTIFICATES

No.	*Name.*	*Certificate No.*	*Date gained*
248	H. W. Lamond	11186	18.10.49
249	S. R. Dodd	4980	18.12.49

CLUB NEWS—*continued*

ARMY FLYING CLUB

Mr. R. Swinn writes:—"We are doing fine at the moment and are concentrating on *ab-initio* pupils until the hill site is settled. Our great trouble is keeping down the number of members until we are in a position to handle the large number of service applicants—we have reached saturation point here for instruction—and the hill site will be most welcome."

(The appointment of Mr. R. Swinn as C.F.I. of the Army Flying Club marks a stage in a meteoric gliding career. Last Spring, Mr. Swinn, who had constructed a powered version of a "Scud III" beforehand, appeared at Dunstable and took an *ab-initio* gliding course. He quickly got his Silver C and, up to date, has done 125 hours soaring. Nine months from *ab-initio* to C.F.I. is going some. There is world wide interest in his "Scud III" (which he wrongly flew without having a Permit to Fly) as is evidenced by letters which arrive at Sailplane Office for further details.—*Ed.*).

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