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MAY 1950

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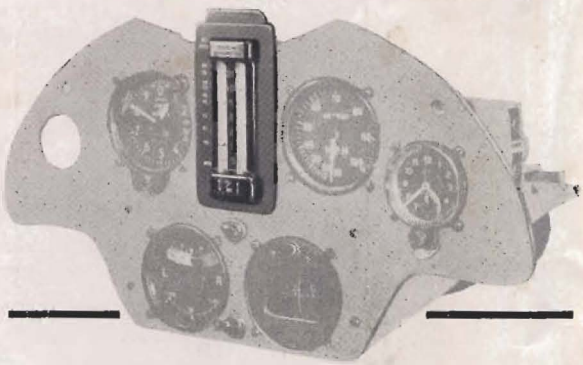
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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

MAY 1950 ★ Vol XVIII No 5

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COVER PHOTO:
Lenticular looking from Bishop (Robert Symons)

CHOOSING THE BRITISH TEAM FOR SWEDEN

AFTER the tragic and melancholy International Competitions in Switzerland in 1948, the general feeling among the Council of the B.G.A. was that they would never enter upon another International series.

Last Autumn however there had been a change of mind, and it was announced that the B.G.A. did not propose to send a team to the International Competitions to be held in Sweden this year, but was conserving its resources for the Olympiad to be held in Finland in 1952. Should anyone wish to enter however, and was willing to pay their own expenses, the B.G.A. would consider sponsoring their entries.

This meant of course, that those sailplane pilots of some standing, e.g. Wills and Welch, who are not without the private means necessary to be able to glide and soar when they wish, and Forbes who is C.F.I. of the R.A.F. Gliding Instructors' School, would be almost automatic choices. When the Rules and conditions of entry to the competitions arrived, it was seen that the maximum number of entrants from any one country is five.

In the meantime, an almost spontaneous movement had begun to send G. H. Stephenson, winner of the Kemsley Winter Cross Country Prize, " Bleriot " of sailflying, who crossed the Channel in 1939 in the famous " Blue Gull," which he owned in partnership with the renowned D. F. Greig, so tragically killed in Italy during the Swiss Contests in 1948. Among the contributors to this fund are the *London Gliding Club*, the *Aeroplane*, *Flight*, *Sir Geoffrey de Havilland*, *Sailplane*, Mr. Buckingham of Elliotts of Newbury, and others who prefer to remain anonymous. In a short time sufficient money was placed at the disposal of the London Club to warrant " Steve's " entry.

But in the meantime the Flying Committee of the B.G.A. had met to decide what their attitude should be if there were several entries of varying degrees of skill. They decided, on the proposal of G/C. Paul, that the qualifications should be the possession of a Gold " C " and a judgment of the form shown in the two post war National Competitions. At first sight it looked to the onlooker as if this were aimed directly at " Steve," whose Silver " C " is pre-war, but who, being the possessor of limited earned resources, is unable to fly except at week-ends, and who for reasons which do him the utmost credit, but which, out of delicacy we will not mention here, did not compete in the two post war Nationals. It also appeared that the aim might be to create a " closed shop " by which the team would be limited to the very few who have had the leisure and the opportunity to fly when Gold " C " conditions prevailed. Nevertheless an application was made by " Steve " backed by the London Club, for inclusion in the British Team. The B.G.A. turned it down, intimating that it must stick by its rule, and that to alter it would appear that things were being made easy for " Steve " as there had been other verbal applications which had been discouraged. Two days later " Steve " broke the out and return record by flying from Redhill to Thruxton, 126 miles. It also became known that the B.G.A. were proposing to pay some at least of the expenses of contestants and to send a National Leader who is to be Mrs. Douglas (as last time).

Representations were made to the B.G.A. to withdraw the rule, which it was felt is arbitrary, and by no means the fairest method of deciding merit, for reasons which are obvious. Ynggvi Norrvi, representative of the Swedish Royal Aero Club, who came to London for the express purpose of answering questions, suggested a way by which time might be utilised, which was to put in an A. N. Other entry before April 30th, the last day for entry, as substitutions can be made up to noon on July 3rd at Orebro. " Steve's " entry was then put in officially again together with the necessary £50 deposit. The B.G.A. then circularised the Clubs inviting entries before May 3rd, and it was intimated to several ' possibles ' without their Gold " C " that its possession would be a factor in the selection. Since then J. W. Grantham has descended in the sea in a Gold " C " attempt. " Steve " was urged to get his Gold " C " before the end of June so as to qualify. That is the situation as we go to Press.

Whatever may have been the intentions of the B.G.A., in our opinion they have been most ineptly guided. Even if they have the power, which is doubtful, to make such an arbitrary rule, it is clearly a lazy method of choosing a team, as well as a most unwise one, for it has raised a great deal of feeling. In our opinion, Gold " C " or no Gold " C," " Steve " is an automatic choice. We will say no more now, but earnestly suggest to the B.G.A. that they reconsider this ruling without delay and withdraw from the unhappy position into which they have put themselves.

NOTE FOR SOARING PILOTS IN S. AND E. AFRICA, AUSTRALIA, AND NEW ZEALAND.

Our Assistant Editor, Mrs. Veronica Platt, is touring East Africa and South Africa in June, and the Antipodes in October and November. She welcomes the opportunity of meeting any of our readers. For dates, times and itinerary please contact the local SHELL organisation.

SOARING IN FRANCE

The "BRÉGUET 900" SAILPLANE

By GUY BORGÉ

THE "Bréguet 900" is a high performance sailplane that comes into the class of the "Moswey" and the "W.L.M.1" by the smallness of its wing span : only 47 feet. This small size offers several advantages : best use of narrow thermals, ability to land in the smallest fields, little space in the hangars, easy rigging, derigging and transport, less expensive construction.

With all these advantages in mind, the "Bréguet 900" was planned in 1948 in the Toulouse Bréguet factory, which had never before built any wooden machine or any sailplane. However M. Louis Bréguet had always been interested in soaring, and he had written in 1924 and 1925 numerous books about it, like "Considérations sur le Vol à Voile," "Considérations Nouvelles sur le Vol à Voile dynamique," . . . .

Without previous experience in that field, his engineers had a hard task, and I remember meeting one of them at La Montagne Noire when he came to see sailplanes and to study their devices. A Bréguet workwoman had also gone to the Montagne Noire joinery to learn to cover the wooden planes with fabric.

The "Bréguet 900" offers such original features perhaps because its designers entered upon its construction with a new outlook and original ideas. They built two prototypes of the "Bréguet 900," the Mark I and the Mark II, the latter modified by experience acquired with the former. The "Bréguet 900" Mark I has the following characteristics ;

Wingspan : 47 feet—Length : 20 feet.
Wing area : 139 square feet—Aspect ratio : 15,85.
Empty weight : 417 lb.—Full weight : 600 lb.
Wing loading : 4,3 lb./square foot.
Security factor : 12 (all acrobatics and cloud flights permitted).
Maximum gliding ratio : 26 at 45 miles/hour.
Minimum vertical speed : 2,56 feet/second.
Sinking speed of 5 feet/second at 62 miles/hour.

The width of the fuselage, rather comfortable for the large size pilots, is 2,1 feet. Other features are :

Airfoil Bréguet L. 14—Relative thickness of 16 per cent at root and 9,8 per cent at tip.

Relative thickness of the airfoil mean chord : 5 per cent at 40 per cent of the root chord and 0 per cent at the tip chord.

Tapered wing with the monospar at 30 per cent of chord and perpendicular to the symmetry axis—Taper ratio of 3,4—dihedral angle of 4 degrees 40.

Angles of wing incidences : 5 degrees at root and 0 degrees at tip.

Slotted ailerons, with differential action from —25 to +15 degrees.

Wing tips ended by special metal bars protecting them and improving air flow in their proximity.

Landing wheel of 110 x 43 feet size braked together with the opening of the air brakes.

No control cables used but only duralium tubes with ball-bearings.

Derigging (in the same way as rigging) is very easy. By a special key the wing conic axles are removed and the wings remain in place through hooks fixed to the wing spars, which are then supported by corresponding fuselage fittings. After that operation, it is easy to take the wings away. The duralumin tube controls are disconnected by unscrewing some palnuts. The tailplane is fixed to the fuselage by a single axle.

The "Bréguet 900" Mark II has the same general dimensions, the same structure, but the following important modifications were carried out ;

Fuselage. It becomes narrower (width of 1,75 feet in place of 2,1 feet) and longer by 1,3 foot increasing the distance from the wing to the tailplane.



Note electrical artificial horizon, position of seat and at left the brakes and flap levers.

Wing. The aileron size and the air-brake area are increased. Fitted with flaps having 40 degrees of displacement.

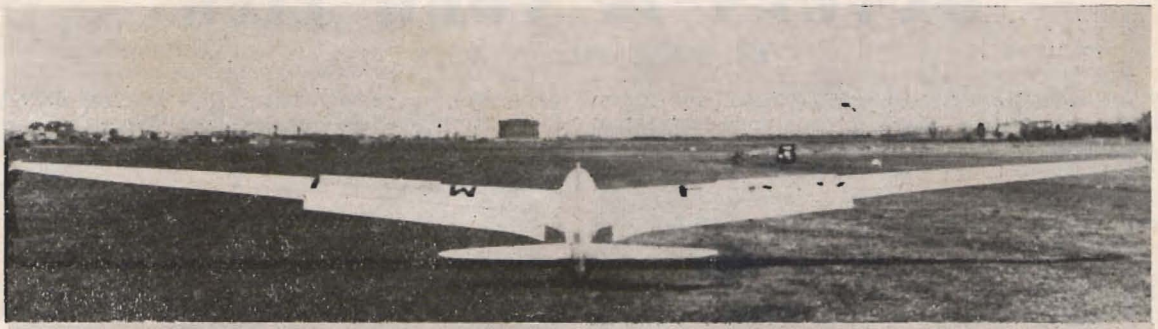
Tailplane. Increase of the horizontal tailplane area by 21 per cent and of the vertical fin by 18 per cent. For derigging, the tailplane folds into two elements along the fuselage (like the Swiss "W.L.M. 1a).

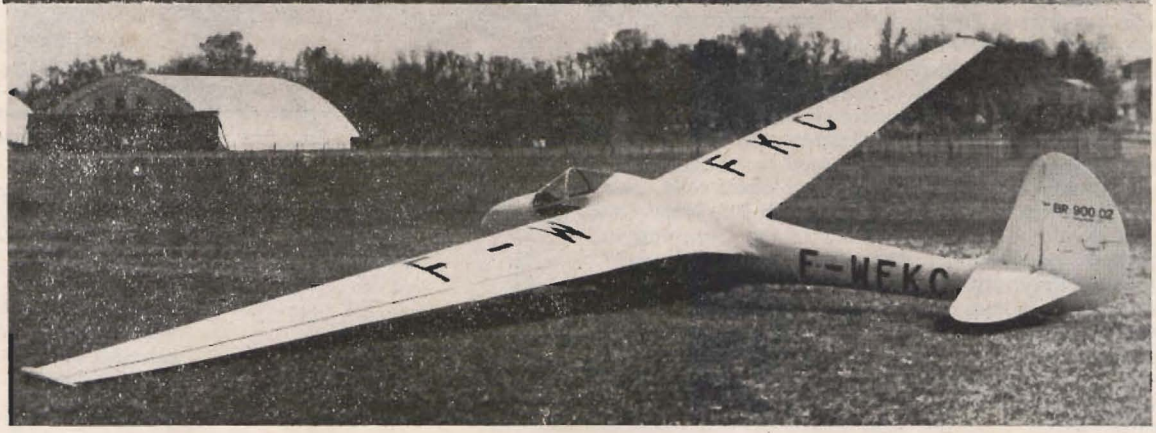
Controls. Cables are used in the fuselage for controls.

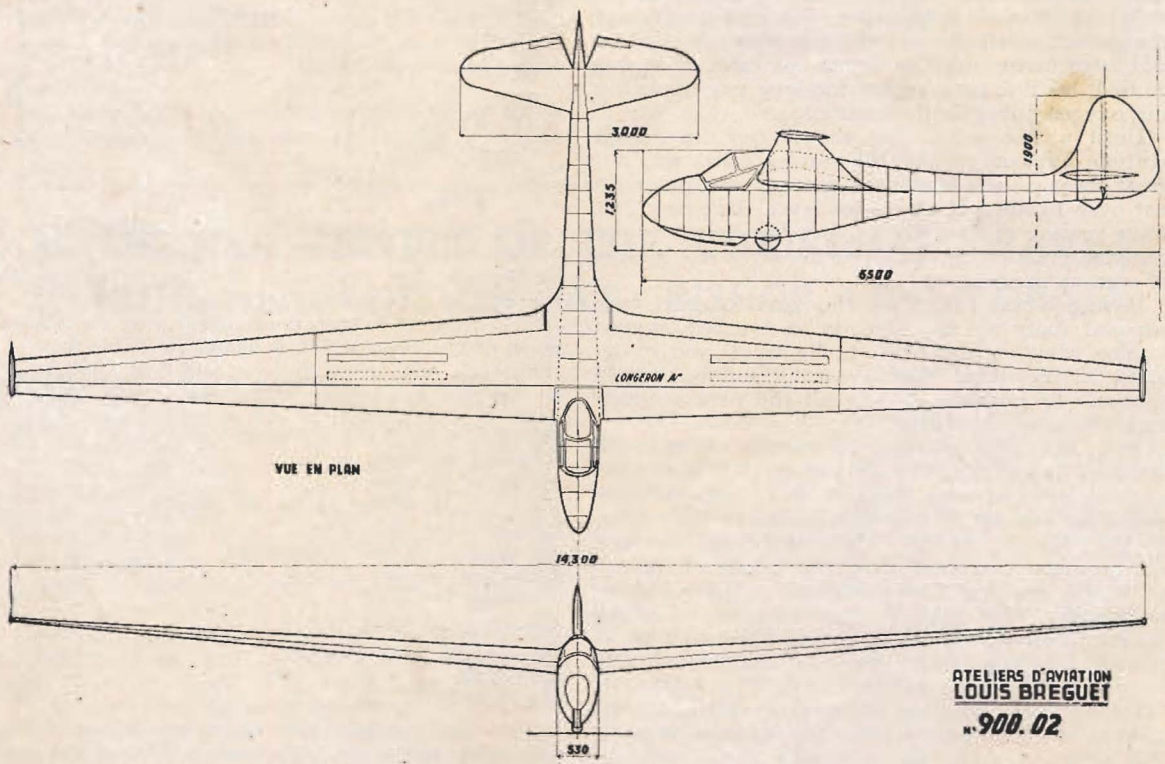
After these modifications, the weight of the Mark II also increased and became :

Empty weight of 440 lb. and total weight of 640 lb.

(*Continued on page* 112)




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F-WFKC


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OXYGEN IS YOUR LIFE

By HARLAND C. ROSS

THE altimeter was reading 22,100 feet, the climb was steady at 1,000 f.p.m., and everything was going fine; but ? ? ? the next time I looked, it read 11,000 and the climb indicator was showing 2,000 f.p.m. down. How did I get down here so quick? Gee, my head has begun to ache already.

What happened to the time between 22,100 feet and the few minutes later when the pilot was at 11,000? I am sure the pilot could not account for it because he was temporarily unconscious from lack of oxygen. Thank God, he was over the Valley instead of over the 13,000 foot mountains a few miles on each side of him.

This true case, which happened here in the Owens Valley, while he was trying to make a distance flight, was told to me by the pilot, who was lucky enough to get away with it.

After witnessing several of these close calls, even by experienced pilots, I decided to condense and make available to the soaring fraternity, some of the findings of the U.S. Army Institute of Pathology. I hope it may impress upon the high altitude soaring pilots, the fallacy of flying without the proper equipment and knowledge of how to operate it properly.

The harmful effect of rarified atmosphere has been known for many years to mountain climbers and aviators, and the first fatalities from hypexia in flight were Sivel and Croce-Spinelli, who died while making a balloon ascension to 28,000 feet in 1875; while their companion, Tissandier, survived the ordeal to tell the story. An oxygen-air mixture had been carried on the flight, but most of it was unused, because they waited too long before placing the oxygen tubes in their mouths.

Until a few years ago, the danger from high altitude hypexia confronting soaring pilots was not great, because the maximum altitude was generally not over 10,000 feet above sea level. But now that wave soaring to over 30,000 feet has become quite common practice, this phase of the flight has become of utmost importance.

During World War Two, thousands of men were exposed daily to the hazards of lowered oxygen tension while on high altitude flights. It was recognized as inevitable that a certain number would succumb to hypexia, despite all the precautionary measures then instituted.

From the large collection of cases in which death occurred at high altitude, only those due unequivocally to hypexia were selected. It is believed aeroembolism was not of any significance in these cases for the following reasons; the ascents were slow and the crewmen exercised little, the taking of oxygen at 10,000 feet and above resulted in partial denitregenation. The subjects were members of heavy bomber aircrews whose ages varied from 19 to 33 years. All, apparently, were in excellent health before the hypexia episodes.

Information regarding the oxygen check interval and the time men were without supplemental oxygen, was obtained from the surviving crew members upon returning to their bases. The data on altitude was taken from the navigator's log. The altitudes at which death occurred is shown in Table 1.

TABLE 1

Thousands of feet	Number of cases
17–20	2
20–22	4
22–24	6
24–26	11
26–28	23
28–30	13
30–31.5	11
Not recorded	5

The number of high altitude flights which the men had completed, including the fatal one, are known in 36 of the 75 cases. See Table 2.

TABLE 2

Number of Missions	Number of cases
1	7
2	5
3	8
4	1
5	2
6	2
7	1
9	2
11	1
12	1
16	1
21	1
22	1
23	1
29	1
31	1
Not recorded	39
Total	75

The records indicate that the demand type of oxygen system was in use in 44 bombers, and the continuous flow system in 6; the type was not recorded in the remaining 25.

The cause of oxygen deprivation were ascertained in 56 of the cases which is shown in Table 3.

TABLE 3

Causes	Number of Cases
Separation of quick disconnect	24
Freezing of mask	12
Removal of mask	7
Lack of knowledge of use of oxygen	7
Combination of causes	5
Damage of oxygen equipment	4
Defective oxygen equipment	2
Pinching of nose	2
Vomiting in mask	1
Insufficient oxygen supply	1
Unknown	13
No record	12

The most common cause of oxygen failure was the separation of the quick disconnect between the mask

hose and the regulator hose, despite the fact that these connections are made to stand a pull of 10 to 20 pounds before separation.

The second most common cause of oxygen deficit was freezing of moisture in the mask. This occurred twelve times, five in the continuous flow type of mask and seven in the demand type. Even though the number of cases in which freezing of the mask occurred were about the same in the two types of oxygen systems, the proportion was much greater in the continuous flow type.

In seven of the fatalities, the oxygen masks were not in place when the individuals were found. In two of these cases, the men removed their masks and attempted to walk from one station to another without oxygen.

Lack of knowledge of the use of oxygen or failure in the practical application of this knowledge was the cause of death in seven cases. The fatality is shown in Table 4.

TABLE 4

Time	Number
Less than 3 minutes	5
3 to 5 minutes	9
6 to 10 minutes..	13
11 to 20 minutes	9
21 to 30 minutes	7
31 to 60 minutes	0
Over 60 minutes	2
Unknown	30
Total	75

The exact duration of the hypexia is known in only 6 cases. Attempts to revive these men with 100 per cent oxygen and artificial respiration were unsuccessful.

The above data shows this is not a thing to be taken lightly, and the best equipment available should be secured for your glider. The installation should be a permanent part of the ship and used all the time when more than 10,000 feet above sea level.

The type of oxygen equipment now most widely used is the so-called " demand " type. Unlike the continuous flow type, in which oxygen came from the regulator at all times, and the flow had to be increased with altitude, the demand type provides oxygen only when you inhale. When you exhale the flow stops. Furthermore the demand type does not need adjustment with altitude; it is automatic.

The demand mask must fit perfectly. It must not leak, since the pressure changes that occur during breathing, control the regulator. To check the fit of your mask, just cover the end of the hose connection with your hand and breathe in. If the mask has no leaks, it will collapse around the side of your face.

To avoid some of the causes of oxygen deprivation, as shown in Table 3, there should be a locking device for the connection between the mask and the regulator hose. Also the clip on the regulator hose should be firmly fastened to the clothing so that the hose will not get pinched.

The complete oxygen system should be checked before each flight for full tanks, leaks, proper masks, collapsed hoses, etc. The pressure gauges and blinker should be installed on the instrument panel in plain sight of the pilot, so that they can be checked at any time for proper function. The mask should be fastened to the helmet, so that the pilot can complete the installation on his face with one hand while flying with the other.

The best scientific minds in the country have devised the best oxygen system in the world for you to use, and if used properly, it will ensure an adequate oxygen supply on flights as high as 40,000 feet. But remember, a piece of equipment is only as good as the man who uses it; so *know your oxygen equipment.*

A FURTHER REPORT OF THE CHRISTMAS 'WAVE' SOARING EXPEDITION AT BISHOP, CALIFORNIA

DURING the first few days of the Christmas vacation, three glider crews had arrived at Bishop. They were: Per Meulengracht and Tom Osborne with their "LK," Fred Walters with his "LK," and Bill Ivans with Roman Benn, crew, with his new " Schweizer 1-23." The weather was nice, in fact too nice; there was not even enough wind to slope soar along the mountains. At the time we were in a high pressure area, which did not start to move out until late Wednesday, the 28th.

Wednesday night showed a few lenticulars overhead in the moonlight, and everybody was hopeful for what Thursday would bring forth. Irv Prue and Lyle Maxey called up long distance from Burbank and I told them about the ' lennies ' overhead; they said that they would start to drive up the 280 miles in the morning in hopes that the conditions would be better Friday.

In the morning, December 29th, 1949, sure enough there were ' lennies,' overhead, and who should drive in but Prue and Maxey. They just couldn't wait and had driven all night.

Per Meulengracht wished me to go with him to check his bubble canopy and its changes, if any, to normal flight characteristics, as well as to show him the ' wave.' We took off double tow, via " BT-13" tug, with Bill Ivans on the other line, and towed to the west right up against the Sierra. As the wind velocities were light (see pibal chart at end of article), the ' wave ' was found within one half mile of the downwind side of the crest of the mountains. Release was made rather high, at about 11,500 feet A.S.L. The turbulence area downwind was very mild and

while in the ' wave ' we indicated a steady four to five hundred feet per minute up. The climb continued until the needle was at the top of the drum on the barograph, at 27,000 feet ; it was no longer worthwhile to keep on climbing, as no record could be made of it, so we left the area and started down. The time now, was only 45 minutes after take-off !

In the afternoon Per went up again ; this time with a countryman of his, Jorgen Krebs (they are both from Denmark) in an endeavour to establish a new two place Danish record, which they did ; again soaring up to approximately 27,500 feet above sea level. This made two records, one above release of about 17,000 feet and the other one of absolute altitude. Later in the afternoon Fred Walters landed from a two place flight with Roman Benn as passenger with an American two place record that exceeded the one Per and I had set in the morning. Fred had got up to 27,500 feet for a new absolute altitude mark, which we believe is also an international mark, and a new American soaring altitude mark of about 18,000 feet. Lyle Maxey, flying the tiny all metal " Prue 160," went up in the afternoon, and returned with an altitude of about 21,000 feet. Bill Ivans in his new " Schweizer 1-23 " landed at dusk. When we helped him out, he had a long face, and when we asked what he had done, he said, " No record, darn it." Upon being questioned he told of flying at 30,500 feet for an hour or so ; at least he made his Gold " C " altitude and his Diamond " C " altitude leg.

This day made a mark in the annals of soaring that will be hard to exceed. Six records in one day ! Two place altitude, both soaring and absolute, made and broken just an hour or so later, and two new Danish altitude records established.

Irv Prue and Lyle Maxey contributed the one real new ' kink ' to ' wave ' soaring. They had attached on to the inside of the canopy with masking tape, small sheets about four or five inches square plexiglass. These with their trapped air spaces, *did not ice up* ! This simple, but very effectual solution to the canopy icing problem was really appreciated by all the other pilots who used it on their succeeding flights.

Friday, December 30th, the wind velocities aloft were so weak that the ' wave ' was not waving very well. Bill Bowmar with his " Rigid Midget " and John Robinson with his " Zanonia " showed up and got their ships set up.

Saturday the winds aloft picked up in velocity as a front started to move in, and the race was on. At the end of the day, John Robinson landed just at dark as usual, when everybody was wondering where he had gone to ; he said he had just got to a little over 32,000 feet. Bill Bowmar failed to connect with the ' first wave ' and returned to the field. The other pilots decided not to fly until something better came along.

Sunday, January 1st, 1950, Lyle Maxey got away early and got up to about 27,500 feet where he found his controls so loose and sloppy due to shrinkage of the metal ship, that it was no longer safe to continue flight, even though he was still in the ' up ' area.

Bill Bowmar had named a goal with John Robinson —the Army Air Base at Reno, Nevada, which, if he had made it would have given him his Gold " C " distance, and altitude and one leg of his Diamond " C." If Johnnie had completed this flight it would have given him his only remaining leg of his Diamond " C." Bill Bowmar landed almost three hours later at the airport, after his wife Caroline, had paid all her bets off that Bill would not stay up an hour. We found that he had been spending the last hour and a half ' trying to get down ' ! He had been up to about 27,000 feet where he found his rudder stiff as a board. He had the gap between the rudder and fin covered with a rubber strip cemented on, and the rubber had frozen solid ! He found himself really in a quandary ; spoilers were not effective enough to offset the lift, and he was afraid to spin down because of the possibility of not being able to recover without use of rudder, so he did the only thing left to do ; looked for downdraughts to circle in.

Per Meulengracht and Fred Walters both had a pleasant afternoon exploring the ' harmonies ' and second ' waves ' over the airport. Fred had as his passenger Grace Young, Ollie's wife. They climbed up to over 18,000 feet, making Grace the second woman in the U.S. to have soared in the wave ; the first being Betty McMillen Loufek on her altitude breaking flight from Bishop two years ago. Per got up again to over 27,000 feet with his passenger Jorgen. They were able to work down the valley in the second ' wave ' and where they found a ' jog ' they got into the first wave. This is the first time this has been done.

Just when everybody was waiting for the phone to ring at dark for Johnnie to say he had landed, Fred saw him over the field. He landed with a spectacular display of sparks from his steel landing skid on the runway. We all ran over to the ship and helped get his canopy open to find the water and ice just streaming off of it inside. The ' view windows ' had worked perfectly, though. Johnnie's first remark was : " I ran into the biggest booby trap ever invented for a glider pilot—I lost ten thousand feet so quickly that I didn't know what was happening." Any way, the summation of his story was : he had ridden the first ' wave ' north and by the time he had got to Mono Lake, he had climbed to 38,800 feet, indicated, at which point he thought he had Reno ' in the bag.' He had continued north in the ' wave ' position, with mostly zero sink for about 40 miles when suddenly he noticed the rate of climb ' pegged ' in the down position. He turned and flew at high speed into the wind in an effort to regain the lift area, but to no avail—the wind was too strong and he was not able to make sufficient headway. He made the wise decision to return towards Bridgeport and then on south towards Mono Lake, arriving there with only 11,000 feet with the intention of landing somewhere on the lake shore. He noticed wind patterns on the water where it was hitting the lake and bouncing up into a lenticular overhead ; so right out over the lake he went (it is twenty to thirty miles wide) and found the updraft. He planned to ride it to 20,000 feet, which was enough altitude to get him to Bishop,

but when he got up there, he was climbing so fast that he stayed in the up area a few more minutes until he was at 32,000 feet, when he dived for Bishop, seventy miles away.

In summing up these flights for the useful things we learned :—

(1) ' View windows,' a double layer of plexiglass with a trapped air space seemed to conquer the canopy icing problem, at least to the altitudes and temperatures flown—34,000 feet and about 45 to 50 degrees below zero, Centigrade.

(2) Good insulation, both in the ship and on the pilot was satisfactory for flights of at least two or three hours duration with outside temperatures of 40 below zero. Of course all openings were taped with masking tape.

(3) Oxygen equipment used was of the best obtainable (mostly all pressure demand) and the oxygen used was also ' dry, breathing oxygen,' so no difficulties were encountered. Most pilots carried an emergency oxygen system on my recommendation. I consider the ' walk around ' bottle with its integral regulator the minimum safe emergency system. The bottle measures about 6 inches in diameter and is about two feet long.

(4) Wood ships as a whole experienced the least difficulty due to control effects in the extreme cold, although the new " Schweizer 1-23," showed no bad effects either.

(5) Rubbergap cover seals were definitely not usable at high altitudes because they froze the controls.

(6) Metal ships that use cable controls should have their cables rigged tightly before take-off, so they would not be excessively slack at cold temperatures.

All in all, the wave expedition was a good success, even though the ' wave ' conditions were not very good. There was a total of 10 flights over 25,000 feet and three flights over 30,000 feet. Six records were broken one day. Gold " C " altitudes were earned, and also Diamond " C " altitude legs (three).

An amusing situation arose with the barographs. Here were record flights on the drums, and the possibility that good conditions would come the next day when these records could easily be broken. Should one break the seal and remove the record and install a new tinfoil and gamble on conditions that would be better, or play it safe and keep what they had ? Needless to say all the extra barographs were used.

The local soaring organization " The Bishop ' Wave ' Workers " have started a new exclusive club, called " The 25,000 Club." All who have soared, either as pilots or passengers, to over 25,000 feet above sea level are eligible, and all will receive a lapel pin that has upon it a small lenticular cloud against a blue field. A pin with two lenticulars will be available for those that climb to over 35,000 feet, and also one with three lenticulars for those who gain over 40,000 feet ! We, who for the first time, are recognizing passengers, feel that with the necessary oxygen equipment, warm clothing and cold that must be endured, the passenger should be rewarded as well as the pilot. The pilot will also receive a metal plaque to install in his sailplane that certifies that he attained such an altitude on a certain date.

Winds aloft December 29th, 1949. Morning run.

Altitude	Wind Direction	Velocity (knots)
4,000	270	01
5,000	190	03
6,000	160	09
7,000	170	18
8,000	170	17
9,000	190	10
10,000	240	31
12,000	240	21
14,000	230	13
16,000	240	32
18,000	220	37
20,000	230	40

Winds aloft December 31st, 1949. Morning run.

Altitude	Wind Direction	Velocity (knots)
4,000	320	07
5,000	330	02
6,000		calm
7,000	310	06
8,000	240	04
9,000	240	06
10,000	240	16
12,000	240	26
14,000	230	27
16,000	240	23
18,000	230	19
20,000	250	19
25,000	240	28

Winds aloft, January 1st, 1950. Morning run.

5,000	100	03
6,000	110	04
7,000	170	04
8,000	280	02
9,000	270	06
10,000	250	11
12,000	240	14
14,000	230	24
16,000	220	41
18,000	230	40
20,000	230	48
25,000	220	39
		Afternoon run.
4,000	240	05
5,000	170	09
6,000	170	14
7,000	160	16
8,000	160	13
9,000	150	03
10,000	150	02
12,000	200	09
14,000	240	06
16,000	250	10
18,000	210	19
20,000	210	15

All altitudes given with respect to records are subject to barograph calibration and homologation by the N.A.A., Soaring Society of America, and F.A.I.

John Robinson set his altitude mark of 33,500 feet just a year before, on January 1st, 1949 !

SOUTH AFRICAN HEIGHT RECORD

REPORT ON A FLIGHT IN THUNDER CLOUD

7th February, 1950.

Aircraft: "Arsenal Air 100-ZS-GBG."

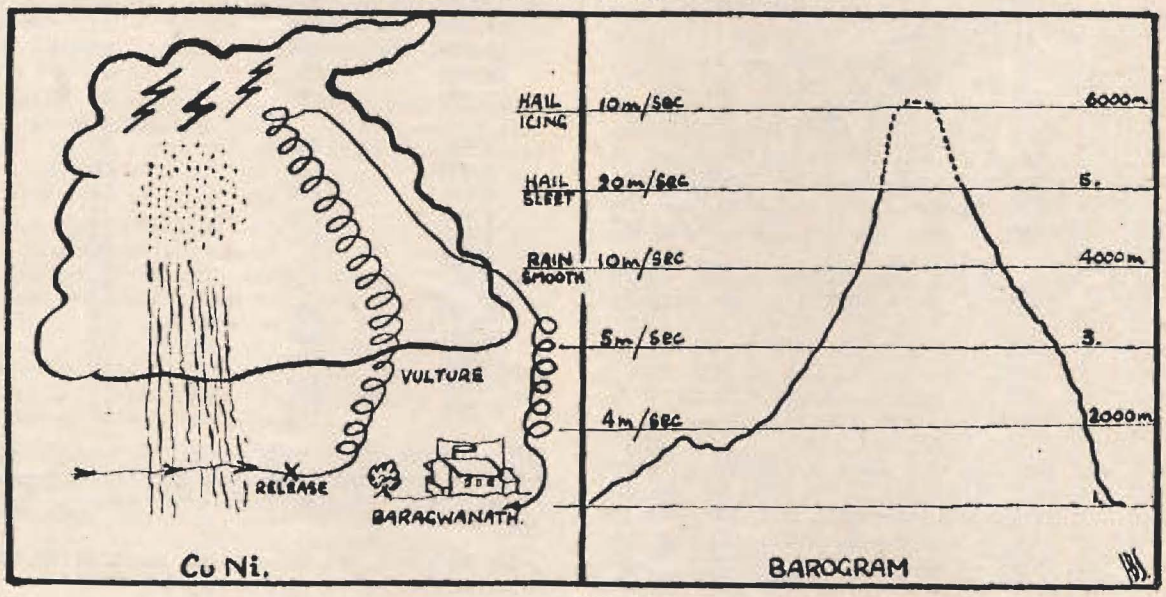
Pilot: H. R. Lasch.

BOOTS O'RILEY towed me off at 11.05 hours behind the Club "Moth," from Glen Walton in the Free State, to take me home to base, Baragwanath, Johannesburg.

We were, at 12 hours 10, approximately eight miles south of Baragwanath when we encountered a small thunder storm moving in the direction south-north. I released from the tow plane at about 6,500 feet A.S.L., approximately 1,000 feet above ground, and began to fly towards the front of the rain in order to search for lift, which I found without much trouble. Once arriving in front of the rainy section of this cloud I travelled due north, steadily rising at approximately two metres second. I soon got into stronger lift area, showing three metres on my variometer and spiralled up to cloud base, which was approximately at 9,000 feet A.S.L. The air was very smooth, and it was obvious that I had contacted the centre of this minute front. Not far away I saw a vulture soaring up and down in a straight line, obviously having the time of his life travelling on the storm front. I immediately went to join him and we soared together for a few minutes travelling to and fro in front of the rainy section of the cloud. It was interesting to note that the bird flew at approximately fifty miles an hour, and my rate of sink was obviously better as I was gaining height on him soaring up and down. I then switched on my artificial horizon and a minute later I uncaged the instrument while flying on a straight course further ahead of the front.

On coming into contact with cloud base, the instrument registered four metres per second, and I found little turbulence. In view of this I centred accurately in this zone of lift and was soon swallowed up in the darkness of the cloud. The lift was incredibly smooth once inside cloud, and though registering four, five, six metres, my variometer showed still increasing lift. As confirmed by the barograph readings after the flight, I must have had anything up to 20 to 25 metres lift per second. At approximately 16,000 feet I noticed rain, and climbing higher I soon encountered sleet forming into hail and accompanied by lightning, at approximately 20,000 feet. The A.S.I. had become unserviceable by now and as the din caused by the hail became so great, I could no longer judge my air speed by sound and, of course, the artificial horizon enabled me to keep my speed within reasonable limits. The air then became more turbulent, and I noticed that while circling the noise of hail was greater in the one half of the periphery of my circle than the other, which made me assume that I was no longer accurately centred in the up-draft section of this cloud. The variometer confirmed this, which showed a variation in lift while circling. I assumed that I must have been nearing the top of cloud as it began to get lighter, and noticing that my finger nails were turning blue indicating lack of oxygen, I decided to descend. A glance at the altimeter showed 23,500 feet and I now set course due north, which I knew would take me out in front of the storm.

I was perturbed to find that it was difficult to move the stick, which indicated heavy icing, and I took great care to move the controls in all directions in order to free the control surfaces of ice, and to keep them from further icing. It was impossible to look out of my cockpit, as the canopy was completely covered in ice, but I found that I could



operate my air brakes in order to accelerate my descent. A few seconds later I flew through the turbulent section of the cloud which made it difficult to keep the ship in a normal flying attitude. However, once having passed through this section, the turbulence abated to a considerable extent, and I then sank at the rate of some 20 metres second.

I found it difficult to open one of my little windows due to the heavy coating of ice, but once the window was open I saw that the leading edge of my wing had approximately two inches of ice. The descent continued to be rapid, and I eventually broke cloud at about 10,000 feet, coming out over Orlando Township. I immediately set course for Baragwanath, and landed there at 12 hours 45 minutes, approximately half an hour after entering the cloud.

Unfortunately my barograph was only capable of registering up to 20,000 feet, but continuing the curve of ascent and descent seems to confirm the height of approximately 24,000 feet.

Note. The above flight may be confirmed as the S.A. height record at 20,000 feet (Lasch had only just *sold* his high altitude altimeter).

The following week-end he made a flight of 276 miles from Baragwanath, this beating Wernher Kunze's record of 202 miles made in the December National Rally. (Ed.)

FIRST AUSTRALIAN GOLD "C"

PARKES TO CULBURRA—192 MILES

By FRED D. HOINVILLE

(It is with very much pleasure that we print this account by Fred Hoinville, of the distance flight which earned him Australia's first Gold "C.").

IN a cloudless Central New South Wales sky, at Parkes aerodrome at 10 a.m. on Thursday, 5th January, 1950, a tiny speck of white appeared in the north. It became the first of many long awaited cumulus clouds. Members of the Sydney Soaring Club watched it with keen interest. Our Meteorologist Collaborator, Uwe Radok, of Melbourne University, and his assistant, Miss Grant, took temperature and humidity readings and happily announced a sharp increase, from 20 to 44 per cent, since the preceding days, and predicted a good soaring day with a strong N.W. wind. They were right !

On their advice, the take-off was timed carefully and I was towed off in the Slingsby "Gull IV" sailplane, by " Tiger Moth VHCGK," piloted by Keith Colyer, and released at 1,100 feet above ground level (2,200 above sea level) slightly north of the aerodrome at 10.55 a.m., Eastern Standard Time.

A moderate thermal took me up several hundred feet, then I headed for the drome itself, where another thermal was waiting. This one, fast and narrow, took me to 3,000 feet, using very steep turns, about rate 4, 15 seconds per turn. Small clouds were now forming throughout the district, but not far westwards. Using these, I see-sawed between 3,000 feet and 1,500 feet for some time, then, at 11.50 a.m. reached 5,000 and decided it was time to go. Clouds were at this stage about 4 miles apart, but growing larger and more numerous. Throughout the whole day I did not see one cloud which exceeded 400 feet in depth.

From this point, all heights shown are above sea level. The next cloud took me to 7,300 feet, base being 7,000 feet, and I came out near the top and set out, across wind, for the south. I soon found that lack of clouds to south and west forced me to go S.E. with the wind. So, at 12.20, I found myself at cloudbase at 7,800 feet, 8 miles east of Forbes. Cloudbase was rising rapidly and continued to do so. A fairly heavy haze was visible, stopping sharply at the inversion, which apparently remained fairly constant at 400 feet above cloudbase. The wind at these levels was about 305 degrees, 20 K. The " Gull " was fitted with 2-way radio, and each half hour I reported height, position and plans to the radio car which accompanied our Club.

At 1 p.m. I was still trying to make good a southerly track and was keeping to the western fringe of the cloud-belt but now it ended about 20 miles S.E. of Forbes. At this point, I again succeeded in topping cloudbase, but now it ended about 20 miles south-east of Forbes. I now had to make a vital decision. Either I must leave the clouds and try to find blue sky thermals to the south, or give up the southerly course and turn eastward towards the coast, only a bare 190 miles from Parkes. I stayed a while with that cloud and thought it out. While I stayed with the clouds, nothing but a gun could bring me down, but, if I ventured into the cloudbase blue, I might find that the air in those areas lacked sufficient humidity to form good thermals. Remembering my friend Radok's insistence on the importance of humidity on this day, I gave up visions of a 400 mile run to the south, and turned eastwards.

At 1.30 p.m. I entered another cloud at base 9,600 feet, just as the radio call was due and, for the first time had the experience of blind flying, with the aid of an electric turn indicator, and operating the radio at the same time. Thus I reached 10,100 feet at the top, 8 miles east of Grenfell. At 2 p.m. the position was Koorawatha, height 9,000 feet and at 2.30, 10 miles N.E. of Boorowa at the same level. At this point I found a series of clouds, not strictly a street, but somewhat closer than usual, and travelled non-stop for eight miles, diving at 65 m.p.h. between clouds and zooming up at 40 m.p.h. under them, and was delighted to find that I had gained a net 300 feet over the eight miles, with a ground speed of 80 m.p.h. for this brief downwind run. At 3 p.m. I again reached 10,100 feet in cloud.

Base was now constant at 9,700 feet. I was 10 miles S.W. of Crookwell. At 3.30 p.m., height 9,700 feet, position 20 miles N.W. of Goulburn, appetite awakening, I dined happily on two apples, four biscuits and a bunch of raisins, washed down with a sip of water from a rubber tube connected to a thermos flask. At 4 p.m. at 9,000 feet over Goulburn, once more I found myself trapped by a cloudless sky ahead.

I swung lazily over Goulburn for about 20 minutes, considering the possibilities. " Thar's *Gold* in them thar hills." To complete my Gold " C," I needed another 40 miles S.E. But in that direction lay rough country and no clouds. Somehow, I had to get through to the Coast and there's always a way if you try hard enough. Only the north-east lay open to me and, fifty miles in that direction, I spotted a cloud street, which appeared to cross the mountains to the Coast. But at that point, the Coast was not far enough (187 miles) from my starting point, which meant that I should have to detour 50 miles N.E., then 40 miles S.E., for a net gain of 40 miles. Well, that 40 miles was essential, so, if that's how to get it, let's get going ; I got.

It now became a race against time. Purple-misted night falls swiftly on the range-shadowed Eastern Coast.

I had 90 miles to go, across-wind most of the way, and a bare two hours to do it. Clouds averaged 2 minutes apart at 60 m.p.h. but I travelled swiftly to Mittagong at 5 p.m. at 9,000 feet, where I joined the cloudstreet seen from Goulburn and raced to its eastern extremity, just above the Kangaroo Valley. Here I selected a straggler cloud, hooked on to its base and drifted slowly but safely with it across the wind mountains and gorges of the Coastal Ranges, at 8,800 feet. At 6 p.m., I reached the Coastal side of the range, at 7,000 feet, and turned south to Nowra, which was reached without any more clouds, in a long, straight glide, throughout strangely buoyant, smooth evening air, with a rate of sink of only 1 foot per second on the average, and occasional slight lift. Twenty miles were covered in this manner for the loss of only 1,000 feet.

A deep purple grey haze made visibility very poor. Open fields could be seen near Nowra, but they were not far enough east for my needs. Towards the coastline, 12 miles away, the country looked heavily timbered and even more so to the south. With ample height, I drifted to the shore and inspected a few beaches, and found a most inviting one at Culburra, still 5,000 feet below. The waves beneath indicated a strong north-east wind, quite usual on the coast, but not extending to my altitude.

I hung around over Culburra for another 10 minutes and was still at 4,000 feet at 6.30, when I made my last radio report. By this time, I had spotted an even better haven, a golf course with an inviting fairway and a most attractive-looking guest-house alongside. The radio call over, I dived into the north-east 20 knot breeze, which reached only to 1,500 feet, and made a steep crosswind approach, from the sea, with dive-brakes open, then, by careful use of the brakes, slipped in over the trees on the lip of the cliff and turned into wind to make an exceptionally short landing at 6.58 right at the front door of the Culburra Guest House which promptly gave birth to about 40 guests, big and little, who had been enjoying dinner until a youth popped his head in the doorway and shouted—" There's a glider landing on our golf course." An unfortunate guest nearby said, " Bet £3 there isn't." However, he joined the rush and seemed to think the show was worth it.

Amid tremendous excitement, two selected helpers assisted me to wheel the " Gull " back into the low scrub bordering the golf course. The clicking of cameras, sounding like hail on a tin roof, almost drowned the hundred and one questions being shot at me from all sides. One remark, penetrating the din, roused my curiousity—" This is almost as exciting as yesterday." I duly enquired about yesterday and learned that Daisy had presented Culburra with a heifer calf, her first born. I took a photo of Daisy and that calf.

The " Gull " safely tied down, the din subsided and I was welcomed to Culburra House by George Jordan and his partner, R. Quiggin, and invited to be a guest of honour until the trailer arrived to pick up the " Gull " ; also I was told that I was just in time for a barbecue which was being held that night. Probably to celebrate the calf. After enjoying a beautiful meal and making several phone calls, I joined the party at the barbecue and fun went merrily until midnight. Everybody had to do an act, so I sang " South of the Border " into the amplifier, which broke down in the middle of my masterpiece. Next morning, a small girl remarked with childish innocence, " Mummy, there's that man who couldn't sing properly last night." Do you think perhaps she may have meant the amplifier ? It still troubles me—a little. The popular Culburra House was packed right out, but somehow a bed was made up for me on the verandah and clad in George Jordan's best silk pyjamas, I slept blissfully.

Next day, about 5 p.m. the trailer arrived, having travelled over 300 miles by road from Parkes. The occupants, Len and Peg Schultz, with their son Michael, and Martin Warner, were promptly " adopted " also by Culburra House and, after packing up, enjoying a glorious surf and a beautiful dinner, we all said a fond farewell to hospitable Culburra House and set out on the long journey back, this time to West Wyalong, where we arrived late next day, after camping overnight near Goulburn.

The point to point distance covered in the flight was 192 miles, but the track actually flown was over 260 miles and, of the 7¾ hours elapsed time, only about 6 hours was travelling time, the rest being spent in getting starting height at Parkes and in loafing around over the Nowra district at the finish. If the coast had been further away, the conditions were such that at least another 40 or more miles could have been added, but there just wasn't anywhere to go, except the Pacific Ocean, and unluckily our one and only aircraft carrier was not in sight at the time.

Given a good day, I have no doubt that the " Gull " can do 500 miles—and the " Olympia " can, too, for that matter. Such days have been seen here, and will occur again. This trip, we were rather unlucky.

Note on the Situation of Gliding in Italy

THE present situation of gliding is far behind the results arrived at during the pre-war period. In fact, the schools at Asiago, Pavullo and Littoria have not been re-opened again owing to lack of interest on the part of the Aeronautical Authorities.

We owe any initiative in this field to the few enthusiasts who in several localities have formed groups or centres which as a rule are carrying on some activity with what is left over from pre-war times.

It should be borne in mind that before the war gliding was followed in Italy not only by the Air Force, but also by the former Fascist Party, which looked after the initial training schools, of which there was one in every province.

Name	Wing Span (m.)	Length	Wing Surface (mq.)	Tail-plane surface (m2)	Weight (empty) (kg.)	Weight (in flight) (kg.)	Wing load (kg./m2)	E max.	Vy. min. (m/sec.)
Allievo Cantú ..	10,5	10,3	17,5	6,37	140	215	12,3	—	—
Balilla ..	12,5	9,4	16,6	6,38	126	211	12,7	—	0,85
Nibbio II ..	13,4	14,3	12,6	6,2	125	210	16,65	19	0,8
C.V.V. 2 Asiago ..	13,7	14,8	12,7	6,5	130	210	16,5	20	1,8
Astore	14	10,9	18	6,25	177	252	14	—	—
Grifo	14,2	12,6	16	6,53	135	220	13,7	—	0,9
B.S. 28 " Alcione "	14,5	15	14	6,55	160	245	17,5	22	0,75
A.L. 3	15	16,1	14	6,85	160	235	18,2	25	0,78
C.V.V. 4 Pellicano ..	15	15,3	14,7	6,6	160	255	17,35	23,15	0,7
C.V.V. 5 Papero ..	15	15,3	14,7	6,5	180	270	18,4	25	0,65
C.V.V. 1 Pinguino ..	15,3	15,54	15,2	6,5	190	270	17,75	25	0,7
C.V.V. 3 Arcore ..	15,7	17,1	14,45	6,5	180	260	18	24,3	0,7
Falco	16	13,7	18,6	7,06	155	240	12,9	—	0,65
Sparviero	16	14,7	17,4	7,16	315	400	23	26	0,85
Orione	16,6	16,6	16,6	7,18	238	323	19,5	28	0,75
Super Grifo ..	18	20,1	16	6,8	204	289	18	26	0,65
Cat 28 II	18,2	15,8	21	7,7	230	390	18,5	26	0,6
Turbine	18,5	21,4	16	7,6	238	328	20,5	29	0,54
Vizzola	14	13	15	6,55	158	248	19,1	22	0,73
S. Ambrogio II ..	10,26	9,6	11	4,65	90	170	17,7	20	0,85
C.V.V. 6 Canguro ..	19,2	17	21,6	8	280	460	21,3	30	0,6
Pinocchio ..	18,50	19	18	7,75	220	320	17,80	33	0,50
Cat. 15	10,70	7,80	14,70	5,60	95	165	11,20	15	1
Cat. 20	9,69	10,18	9,20	4,76	94	184	19,50	17	1
BF. 46	13,24	8	22	7,50	200	350	15,8	13,2	1,30
Parma	11,30	11	9,60	4,80	65	145	15	22	0,80

F.I.V.V.

" Federazione Italiana Volo a Vela " (Italian Gliding Federation)—Via Capuccini 20, Milan.

The Federation comprises the groups of Milan, Vergiate, Florence, Pisa, Adria and Rome, who are equipped with gliding material and carry on a certain amount of instruction and training. Other groups, with no gliding material at their disposal, belong to the Federation and concern themselves with propaganda in this field. In Genoa, for instance, there is the " Meta " gliding group, which consists of a number of young people, but is not able to carry on any activity for lack of money and material.

We set out hereunder data concerning the work done in 1948 by the following Groups :

Vergiate

SIAI Marchetti Gliding Club—Organisor of this club is the well-known glider-pilot Plinio Rovesti and the flying instructor is Commander Rosaspina. 1,454 launches were made during a camping holiday in 1948. The Club possesses two " Zoegling " gliders, two " Cantú " gliders and one " Vizzola II° " sailplane, a car for towing and an ordinary winch. The Club has 34 members who in 1948 put in as many as 4,200 working hours for the maintenance of material and equipment.

Milan

The Milan Gliding Association's activities (" Associazione Volovelistica Milanese ") may be briefly summarised in figures as follows : Launches : 1,836, gliding days 75, average daily launches : 24, Licences granted 24. Said Association owns 4 gliders, a " Zoegling," a " Cantú," an " Asiago " and a " Cat. 20." The building of a second " Zoegling " has been started.

Florence

The Gliding Section of the Florence Flying Club has done some preliminary work and has finished the building of a " Zoegling " glider which has been tested.

Milan

The " M. Zuccardi Independent Gliding Club " is owner of one " Asiago II° " glider and a "H.4 " sailplane. Its activity chiefly tends to the building and the preparation of flying material for instruc-

tional purposes. This Club uses the Ponte S. Pietro flying field and disposes of a " F.L.3 " plane for towing and a tow-car with a winch.

Pisa

The Leonardo Da Vinci Gliding Club's activities were devoted in 1948 to replacing in service the " S. Ambrogio II° " glider and preparing the material for air-tow which will be done with a plane which is being built in the works of the Leonardo Da Vinci Industrial Aeronautical Institute.

In 1948, on the occasion of the flying displays at Milano-Linate, Venegono, Roma-Centocelle, Parma and other localities, gliders and sailplanes gave exhibitions for propaganda purposes.

Both the Gliding Federation and the Gliding Clubs deplore in the press the Aeronautical Authorities' with-holding of support and of the necessary financial contributions.

The aeronautical periodicals " L'Ala " (Florence) and " Alata " (Milan) have a special section dealing with questions concerning this sport; there is also a publication, " Il Volo a Vela " (" Gliding "), issued in Milan at irregular intervals.

The aeronautical firms which, in the past, built gliders and sailplanes, are chiefly represented by Messrs. Ambrosini S.A.I., of Passignanon sul Trasimeno, and Messrs. Marinavia Farina, of Milan. The latter, however, suspended all activities in consequence of bankruptcy.

Characteristics of the motorless planes designed and built in Italy are shown in the attached statement. Many of these were, of course, destroyed during the war or remained in the blue-print stage only.

Leading Types	*Wing Span*	*Rate of Sink*
" Cat 28 II "	18.2 m.	.6 metres per sec.
" Turbine "	18.5 m.	.54 " " "
" C.V.V.6. Canguro "	19.2 m.	.6 " " "
" Pinocchio "	18.50 m.	.5 " " "

There are a total of twenty-one other types listed.

A JET-PROPELLED AIRSCREW-DRIVEN LIGHT AIRCRAFT PROJECT

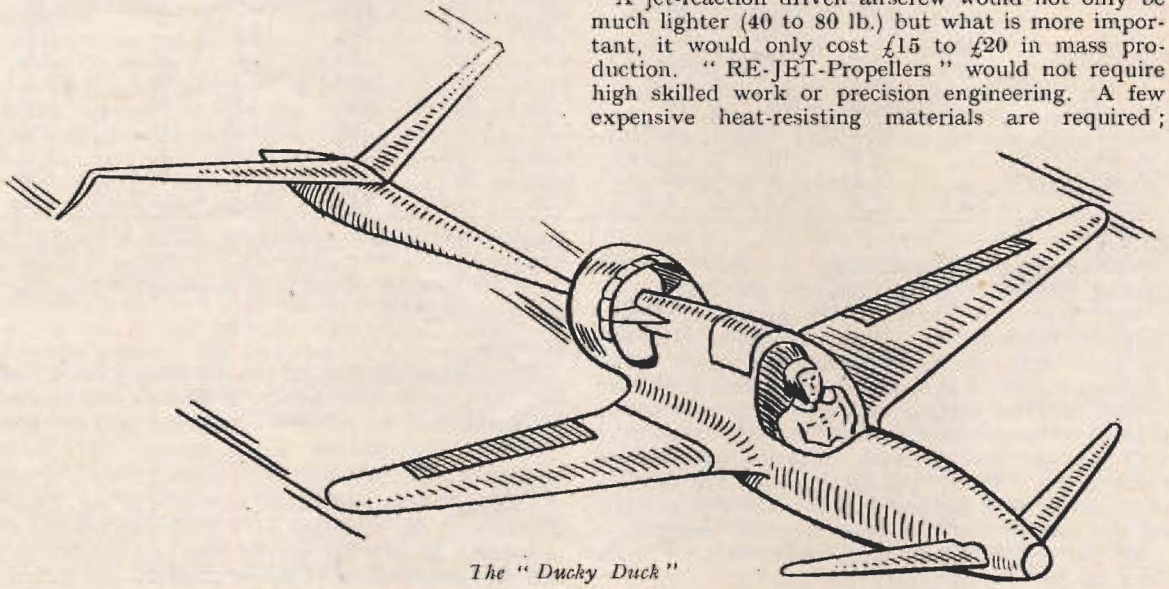
By Joseph Reder (Consulting Engineer, Wiesloch/Baden, Germany).

IN any chemical process molecules are split, just as well as atoms. It was found that molecules of certain cheap fuels can be split off to form highly explosive (reactive) particles by means of a " REsonator-JET "; or, in other words, within a combustion chamber, the fuel and air molecules are literally shaken into pieces by high frequency and self-generated—ultra sonic—gas oscillations and that if some water is mixed with the fuel, the power output is even better. The dissociated hydrogen in a certain oscillating field unites with the split-up fuel molecule of carbon to a highly reactive composition like acetylene, inducing detonation shocks; this permits the construction of very small and simple propulsive ducts (Pulso-Ram Jets).

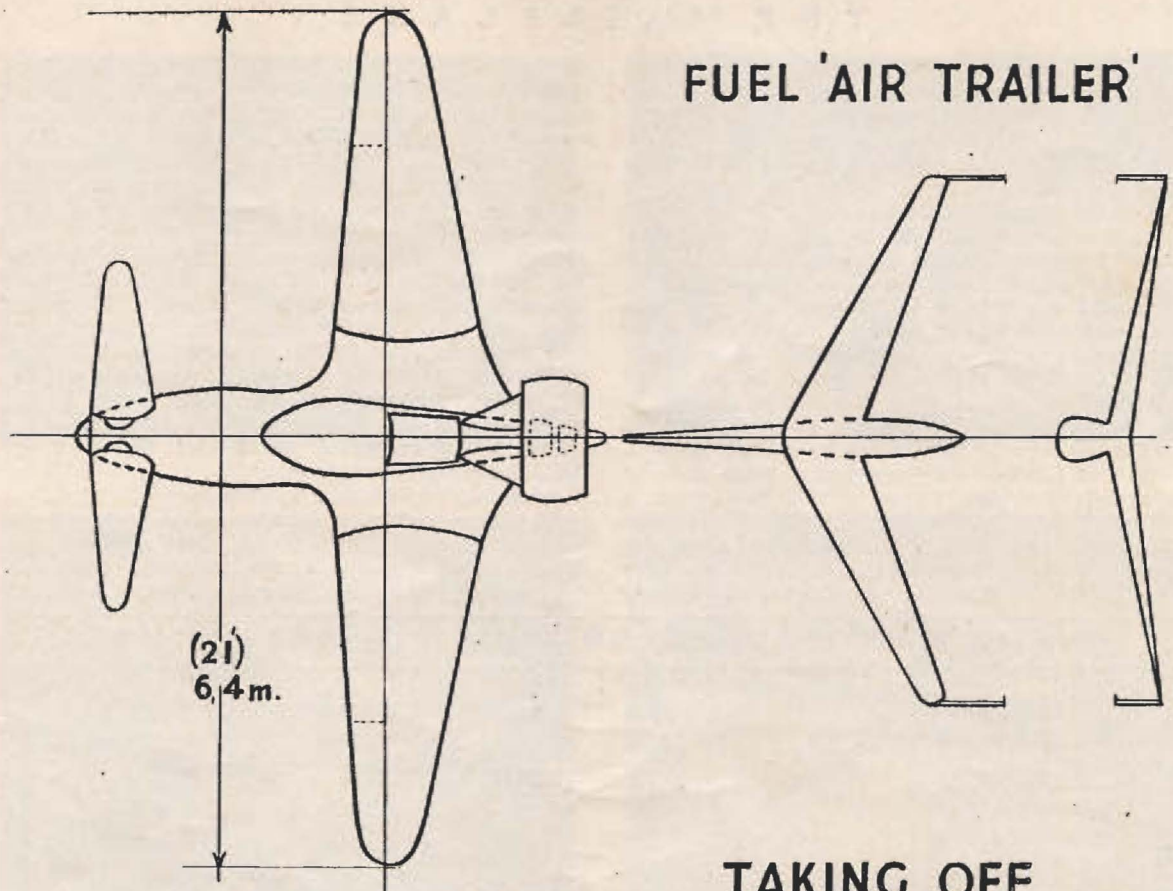
The propulsive device of the V.1 flying-bomb is well known. There are now ram jets for small model aeroplanes. These " buzzers " are pipes open on one end and closed on the forward end by a simple valve. But much can be done with valveless ram jets. Their best utilisation would be in the " RE-JET " jet-driven propeller, as an ideal means for the propulsion of ultra-light aircraft.

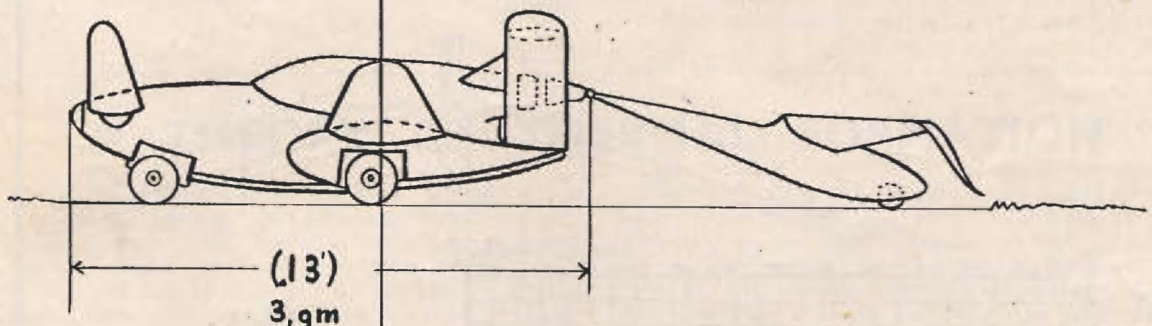
To-day a suitable power plant for single- or two-seater private aircraft still costs some £250—£500. 45 to 70 h.p. are required to get a small aircraft off the ground. To make that aircraft cruise at fair speed a fraction of that power would be sufficient. But, we have NO gear to reduce that power with small construction weight, in order to fly economically. Even so, the design weight of small power plants is as high as 120 to 200 lb.

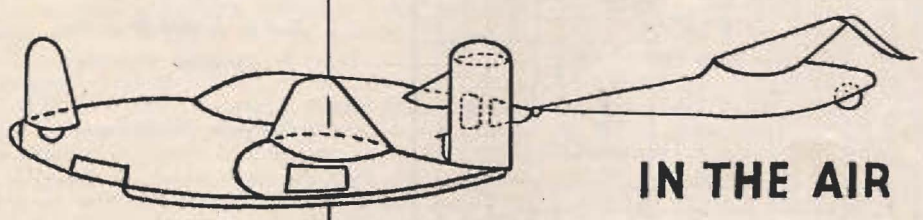
A jet-reaction driven airscrew would not only be much lighter (40 to 80 lb.) but what is more important, it would only cost £15 to £20 in mass production. " RE-JET-Propellers " would not require high skilled work or precision engineering. A few expensive heat-resisting materials are required;



The " Ducky Duck "


FUEL 'AIR TRAILER'
(21')
6,4m.


TAKING OFF
(13')
3,9m


IN THE AIR

everything else is simple steel tubing welded together and a few sheets of light metals. Cheap production costs and small weight easily compensate for the higher fuel consumption.

A " RE-JET " airscrew would easily fit into the stern of a tailfirst or even tail-less craft. Its power reserve for take-off is high. 50 to 75 h.p. (with a static thrust of ca. 300—500 lb.) are needed to take off from rough ground, but only 15 to 25 h.p. are required for cruising at economic speeds of about 70 to 90 m.p.h. No existing I.C. Engine airscrew-power plant is flexible enough to have such thrust power range (except, of course, multi-engined aircraft).

A " RE-JET " power plant would be integrated in a small aircraft, so that it would be difficult to determine the borders between power plant and airframe go together thus saving weight and space.

My " DUCKY-DUCK " project is such a baby, the prototype of bigger tourist aircraft (multi-seaters).

If your family is increasing, or if you plan a somewhat longer trip without landing after about her economic range of 250 miles, just hang on an AIR-TRAILER. They are already developed to carry auxiliary fuel tanks for fighter aircraft. Such *rigidly* coupled trailers are easy to handle, on the ground and in the air. One may even attach two of them : " DUCKY-DUCK " would still take the " composition " off. Thus you could increase your range up to 1,000 or more miles, or take other equipment with you, or plant your offspring into it, carrying the whole tribe with you !

Carries 1,4 times of its empty weight (with Air-Trailer even 1,8 times) takes off like a helicopter off any rough ground, cruises at about 70 to 90 m.p.h. but could do more than 125 at top power.

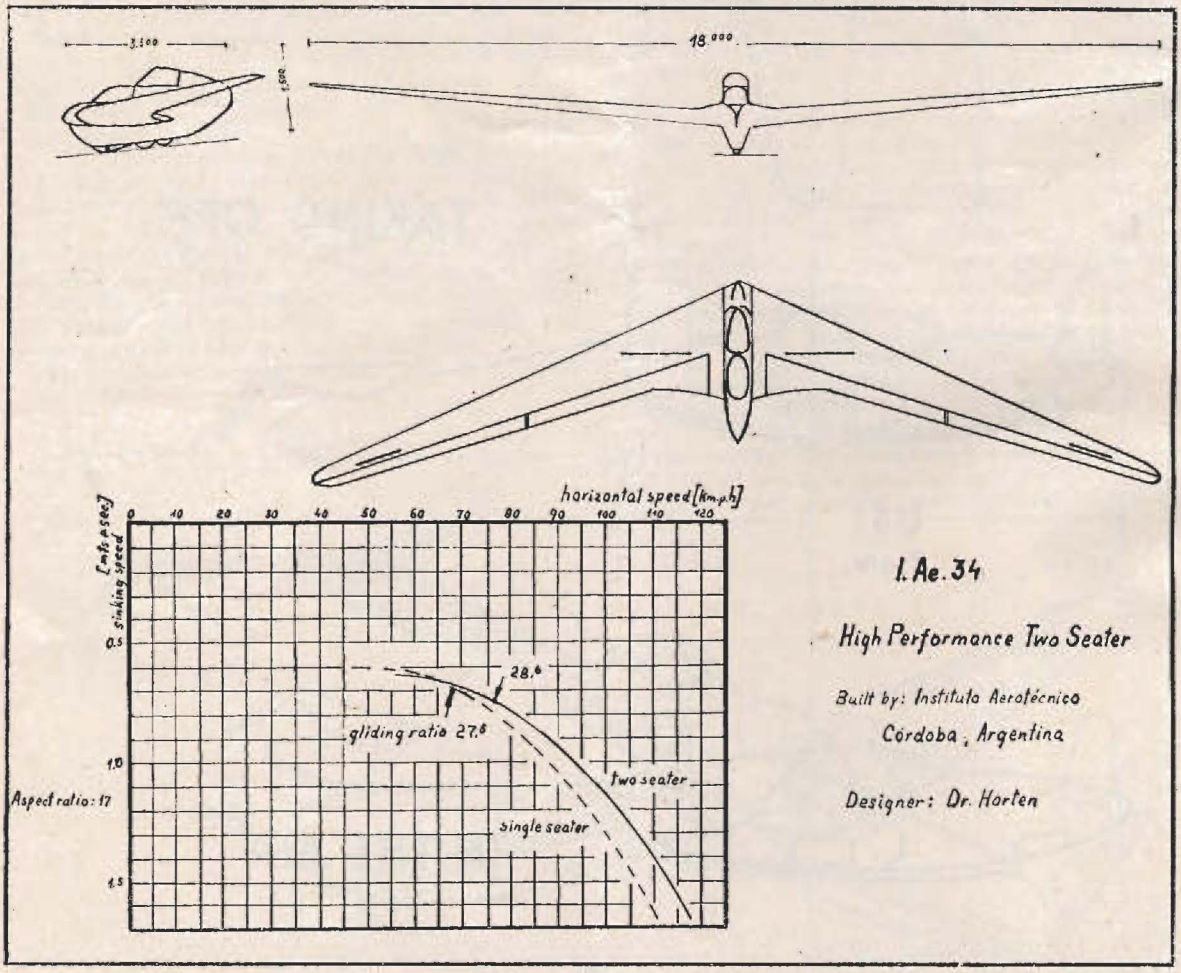
It has a range of 250 to 300 miles, but could fly more than 1,000 miles with an attached AIR-TRAILER carrying her fuel. The power plant works with any cheap fuel of low octane value.

The mile flown would cost 2/7 less than that of the average light aeroplane.

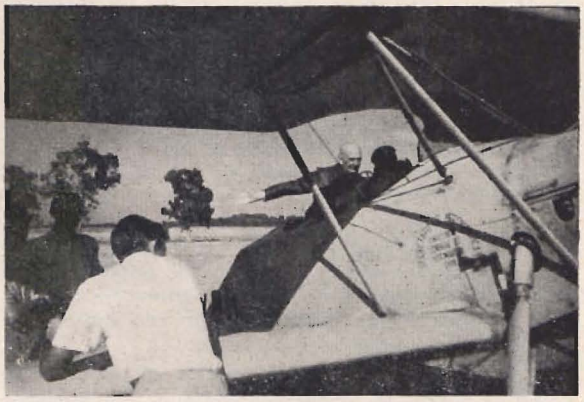
It would cost less than a motor-car.

All this would be, if somebody had guts enough to risk the trifle matter of some £50,000 to develop the already known principal facts of " Resonator-Combustion " for private flying.

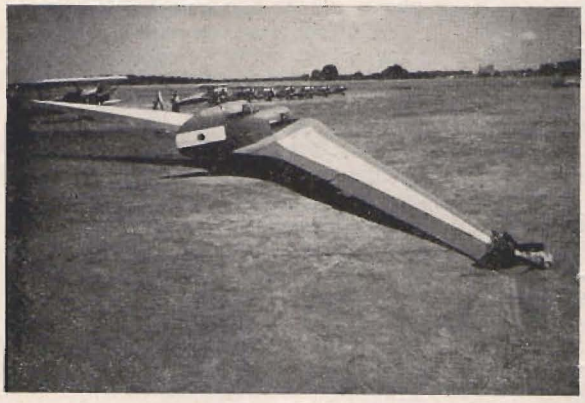
THE NEW HORTEN DESIGN—BUILT IN ARGENTINA

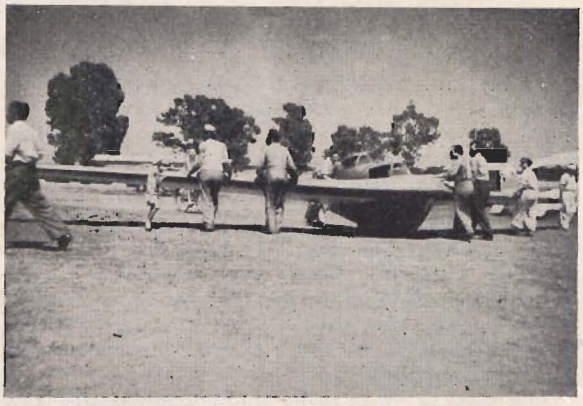






Prof. Georgii back from weather flight.





Handling the 1.*Ae.* 34. (*See p.* 119).

A THEORY OF THERMAL FORMATION

BEING a comparative beginner in the gentle art of gliding, the following ideas are put forward, more with the idea of stimulating discussion, than of stating a positive theory. Not having yet gained even a " C " certificate, all the data I have been able to acquire has been from discussion with pilot friends.

The fact which really started this train of thought was the apparent paradox that a sailplane, if properly flown, need not " fall out of the bottom " of a thermal. Let us imagine a thermal breaking loose from the ground and as it starts on its upward journey a sailplane flies into the top of it at, say, 300 feet above ground level. Now, there cannot be more than 300 feet of " thermal " below the sailplane at this moment, and if the sailplane's sinking speed, while circling, be taken as 3 ft./sec. we might expect the sailplane to have sunk through the thermal bubble in 100 seconds, although during this time the sailplane would of course have gained height at a rate depending upon the rising speed of the thermal.

Now this state of affairs would undoubtedly occur if the thermal rose as a solid lump of air. But thermals are often contacted at low altitudes, and sailplanes do manage to stay in them and to climb for long periods. We are thus driven to the conclusion that thermals do not rise as solid lumps of air, but must have considerable movement inside them, and we might be able to use this, if we could get a thorough knowledge of how a thermal works.

If a mass of air starts to rise through the atmosphere, the outer portions of it will surely be slowed down relative to the rest of the mass. This means that in the centre of the thermal, the upward velocity of the air must be greater than the mean velocity of the whole mass. This is supported by reports of pilots, who speak of the " care " of a thermal. The whole thing in fact would resemble a gigantic smoke ring in the horizontal plane.

Let us take a numerical case. Using our sailplane with a sinking speed of 3 ft./sec. let it fly into a mass of air rising with a mean velocity of 10 ft./sec. Now if, in this mass, the centre should be rising at

20 ft./sec., the outer portions might be rising at only 7 to 10 ft./sec. The sailplane circling in the centre mass will rise at 20 minus 3 = 17 ft./sec., but, more important still, it will rise to the top of the thermal and sit there, and travel upward at the mean speed of 10 ft./sec. If, however, the sailplane circles in the outer portion it will only climb at some 4 to 7 ft./sec. but it will slowly sink to the bottom of the thermal and eventually fall out of it.

Is this actually the answer to the pilot's statement, so often heard, that he " lost " the thermal ? Has he sunk through it, by flying in the outer portions and let it rise above him ? I don't know the answer ; but I suggest this possibility for the experts to consider.

A point which I have been, as yet, unable to check is this. In the above example the sailplane flying into the central mass would initially rise at some 17 ft./sec., but the rate of climb would steady down to 10 ft./sec. when the machine had risen to the top of the thermal. Now has anybody actually noticed this state of affairs ?

Most pilots seem to agree that a sailplane tries to turn away from a thermal, and this is what we should expect ; for, if the thermal is struck tangentially the wing nearer the centre of the thermal meets air rising more rapidly than the outer wing. Unfortunately the model aircraft enthusiasts who go in for model sailplanes appear to hold the opposite view, and maintain that their models tend to turn *into* the thermal. These two statements, which are only hearsay admittedly, are however so diametrically opposed that they present a serious problem ; and the question is, can we form a theory which fits these opposing facts ?

If a mass of air is rising through the atmosphere, it must displace the air immediately above it. Similarly the air of the atmosphere must flow in to fill the space left by the rising thermal. This means that there is a tendency for the cold, atmospheric, air to flow down round the outside of the thermal and into the space under it. (This action, incidentally, would accentuate the " smoke ring " movement of the thermal itself.) The cold air may be looked on as flowing down round a streamline body and will have its greatest velocity, downwards, at the maximum diameter of the body. It would also be at its thinnest, in cross section, here. If this cylindrical down draught were thin enough, say two or three feet thick, a sailplane would pass its wing tip through it and into the thermal before the down-draught could depress the wing and turn the sailplane into the thermal. The model machine, however, flying more slowly, and being of much smaller scale, might well put a whole wing into the narrow downdraught and thus be turned into the thermal. Again, I do not say that this is the solution to the paradox ; but it seems to be a possible answer. If it is correct, we should expect that a sailplane which flies *radially* into a thermal would experience a sharp jolt as it flew through the narrow down-draught. Can anybody confirm that this does happen ?

One day last summer at White Waltham Aerodrome, I saw a small, but violent thermal break loose from one of the blister hangars used by the Community Flying Club. This thermal whipped up a quantity of waste paper to some hundreds of feet and the paper showed quite clearly that this particular thermal was rotating rapidly about a vertical axis, in the manner of a whirlwind. The day was quite calm, and very hot. This occurrence suggested that it might be worth investigating whether there is normally any rotation about a vertical axis in a thermal. If there is, it will clearly pay to circle against the direction of rotation, since, the time for one circle will be longer and the actual diameter of the circle smaller and nearer the " core."

Has anybody ever tried circling, first one way and then the other, and timing the circles when in a strong thermal ?

Coriolis' Theory of Accelerations would suggest that this rotation about a vertical axis would probably be anti-clockwise, when viewed from above, in the Northern Hemisphere, and clockwise in the Southern Hemisphere. If this is the case, we should expect to find that circling to the right would pay better than circling to the left. Admittedly, the tendency for the rotation of the thermal to be anti-clockwise, rather than clockwise, in the Northern Hemisphere, is extremely small, but it does exist, and once rotation has started in one direction it will build up.

Finally, let me say once again that all the above is in the nature of conjecture, rather than a working theory, and I would like to thank all those friends who have helped with their accounts of various flights. I now leave these ideas to be discussed by the experts.

R. C. STAFFORD ALLEN.

SOARING IN FRANCE—*continued from page 98*

Wing loading of 5 lb./sq. foot.

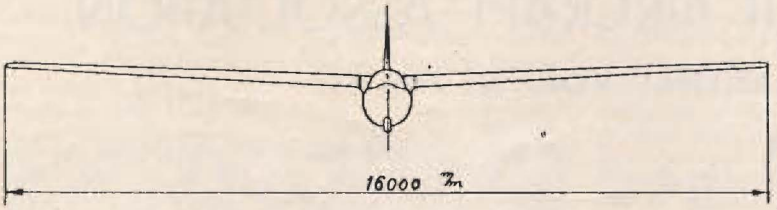
But the performance was improved : at 62 m.p.h., sinking speed of 4,9 ft./second—Minimum vertical speed of 2,5 ft./second.

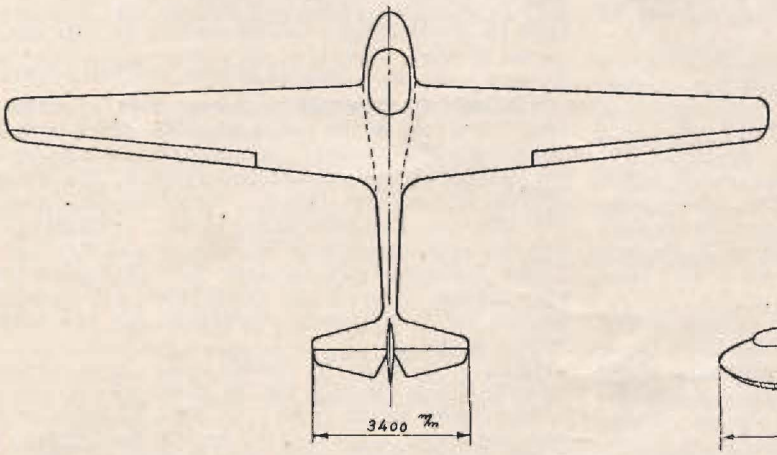
In the " Bréguet 900 " Mark II, M. Lepanse broke the French goal record by a 292 miles flight ; without very much wind he registered the good average speed of 41 m.p.h. In thermals he completely extended at 40 degrees the flaps for flying at 25 m.p.h. ; between clouds, he closed them and flew between 60 and 90 m.p.h. with 10 ft./second down.

The Mark II has just completed, with high praise from the officials, its tests at Brétigny (the French Farnborough). After this success, it is possible that its new trend will find favour with the S.A.L.S. and be preferred to the " Air 100 " for use in the French Clubs and Centres.

GUY BORGÉ.

NEW TURKISH 2-SEATER "T.H.K.14."





"T.H.K.14" is a two-seat sailplane which is being built for use in the League's flying school as a trainer.

The glider is of wooden construction with plywood covering.

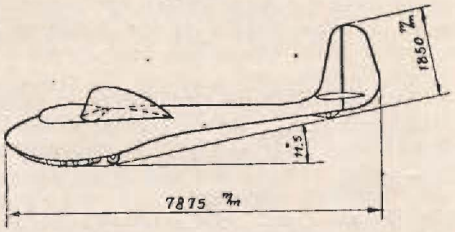
The wings are of the single spar design, and are cantilever.

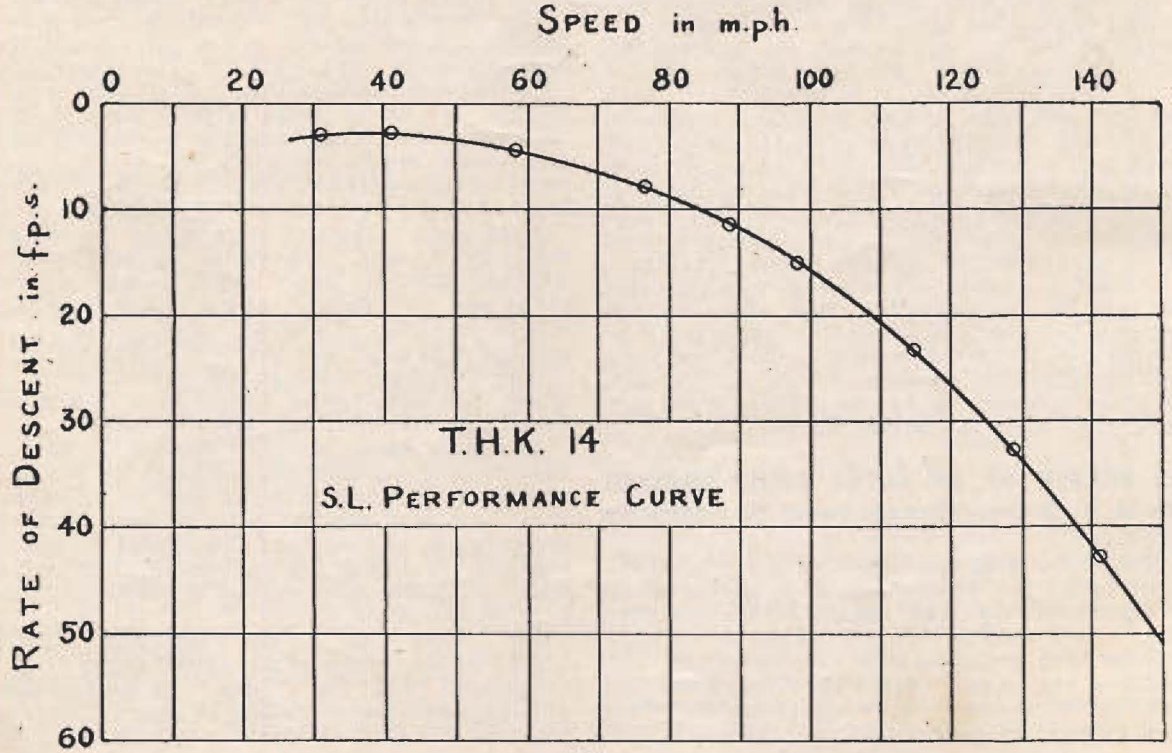
The seating arrangement is staggered side-by-side, and a single wheel and skid type landing gear is employed.

The fuselage is a monocoque structure.

Principal Dimensions

Span	52 ft. 6 ins.
Wing area	246 sq. ft.
Aspect ratio ..	11.2 lb./sq. ft.
Wing loading ..	7.7
Empty weight ..	1,220 lb.
Gross weight ..	1,900 lb.
Minimum sinking speed	3.0 f.p.s.
Best gliding ratio ..	1:21
Stalling speed ..	33 m.p.h.





ULTRA LIGHT AIRCRAFT ASSOCIATION

BULLETIN. VOL. 3. No. 11.

FORTHCOMING EVENTS

THERE are two events taking place very shortly which should be of very great interest to our members.

The first, on Sunday, May 14th, is the Royal Aeronautical Society's Garden Party at White Waltham Aerodrome to which a considerable number of our members and groups have been invited to send aircraft by the Society.

The second is the Association's own Rally which this year will be held at Fairwood Common in conjunction with the Swansea and District Flying School and Club on the weekend on June 3rd and 4th.

It is earnestly hoped that all those invited to last year's rally at Skegness will make every effort to attend, and that as many members and groups will support the Association's own event three weeks later. Further details of the U.L.A.A. Rally will be found in the Operations Supplement of this issue of the *Bulletin*.

There should be no need for us to enlarge on the importance of both these occasions for the Ultra Light movement. Interest must be stimulated in ultra-light aircraft on all possible occasions if a healthy and flourishing movement is to be built up. Those who attended last year's Garden Party at White Waltham will know of the appreciable interest shown in the ultra lights present, whilst those who attended the Association's Rally at Skegness will give Testimony to the " good time had by all."

This year's Rally can be a greater success both socially, and what is more important, financially, if it is well supported by members and groups both with and without aircraft. We hope to see many more at Fairwood Common than we saw at Skegness. It is worthwhile remembering that Rallies and displays are organised because those organising them consider there is a genuine demand for them.

Failure to support such occasions must inevitably lead to the conclusion that such affairs are not wanted. We should be reluctant to believe that of all sections of the flying movement the Ultra Light section alone does not want Rallies and Displays. We hope to be convinced to the contrary by the time this year's Rally has become history.

IN SEARCH OF AN ULTRA LIGHT TRAINER

By H. G. Davies, Chairman, Cardiff U.L. Aeroplane Club

The Cardiff U.L. Aeroplane Club has debated the question of the development of a British Ultra-Light at great length, and has reached the conclusion that such a venture MUST be backed by far more Groups than the Association has at present. In order to form a new Group, the Founder Members must be able to lay down a rough programme which will include the provision of an ULTRA LIGHT aircraft in the very near future, and yet the purchase price of that aircraft must not be so high that it cannot be bought out of the Group's Funds immediately—or at least bought with a Kemsley Flying Trust Loan which can be completely repaid within two or three years at the most. The proposed range of U.L. trainers would put any Group £600—£700 in debt for a period of 8-10 years, and thus prohibit the purchase of a second aircraft for that same period of time. This is surely a frightening thought for any would-be enthusiasts.

The ideal thing would be the provision of an aircraft for a sum in the region of £250—£350, so that the Group could become airborne immediately and yet be able to contemplate the purchase of another aircraft in the near future. Providing the Group can offer its Members flying almost immediately, the Membership will rapidly increase and the Non-Flying Income alone (Entrance Fees, Subscriptions and Income from Social Functions) will rapidly provide the Capital with which they can buy their second aircraft.

Thus, with 20 or 30 Groups ready for a second aircraft, this is the time for the Association to place a Mass Order for 20 or 30 " ULAA " Trainers, and such an order might surely reduce the proposed figure of £800 to something in the region of £500.

The above scheme has obviously its good points but the question arises—" Where can one get the first aircraft for £250—£350 ? " The answer is—" On the second-hand market." The Cardiff people are 100 per cent in favour of the " Tipsy B—2," for it looks clean, is fully aerobatic, is relatively easy to maintain, handles beautifully, has an economical petrol consumption of 3¼ g.p.h. at a normal cruising speed of 85 m.p.h., and is an ULTRA-LIGHT !

There are 3 " Tipsies " being offered for sale at this very moment, their prices varying between £250 and £300, and to our certain knowledge there are at least 12 " Tipsies " in this country, together with at least one " Tipsy S-2 " single-seater. It is also our firm belief that the very appearance of a " Tipsy " greatly enhances the reputation of a Group, and would prove invaluable to a building Group who wish to attract new Members.

As regards spares, the Tipsy Aircraft Co. have a small stock of airframe spares, although the airframe itself is fairly simple to repair even by amateurs. They have also acquired a fairly large stock of engine spares, and we have also located a London firm who can arrange the importation of all engine spares (including spare engines if required) direct from the Continent.

The " Piper Cub " is the second-best ULTRA LIGHT in the opinion of the Cardiff Group.

Compared with the " Tipsy," its performance and appearance leaves much to be desired, but it is suggested as a good alternative.

We really do believe that initial cost frightens most would-be enthusiasts, and that even with a Loan, the prospect of paying back £800 over a period of many years makes them give up even before they've started. Let the Association literally offer a cheap aircraft (£250 ?) to anyone who will form a Group, give them 3 years in which to buy the aircraft (30/- per week) and there will be at least a dozen new Groups literally overnight ! Within six months, most of these new Groups will have expanded so much that they'll want a second aircraft, and THERE'S your market for the new ULAA Trainer, with such a demand that the initial order will just about halve the original estimated price !

" Sagittarius " is apparently not the only one who believes that the new ultra light two-seater is too expensive. We would welcome further opinions.—Ed.

CONSTRUCTION SUPPLEMENT

Contributed by H. Lewellen Pitt, A.R.Ae.S., Chairman, Construction Sub-Committee.

In response to a request, we have received from Mr. Simpson (concerning whose efforts we wrote last month) a letter enclosing an account of his experience in re-conditioning his " Aeronca."

Mr. Simpson points out in his letter that he and Mr. Ord-Hume have helped each other with their machines ; he discovered the " Luton Minor," and Mr. Ord-Hume bought it last Easter. Both of them towed it down to London during the night. Mr. Ord-Hume put in about 300 hours on Mr. Simpson's plane, and Mr. Simpson has been helping him with his " Luton Minor " and engine.

Referring to his article which follows, Mr. Simpson says he is excluding the actual constructional work " which anyone can do " and which he feels is less common knowledge than the cost and time side. He says that all his work has been toward obtaining a full C. of A. and his knowledge of a Permit to Fly requirements is less well defined.

SOME NOTES ON RECONDITIONING

By P. Simpson, Esq.

Mr. Weyl suggested in his article " Home Built Aircraft " in *Flight* for March 2nd that for some time, the only ultra lights that will be coming out of the workshops will be reconditioned pre-war machines.

To help those who are working on such aircraft, but in particular those who know of dilapidated pre-war ultra lights lying in barns and garages and cannot see their way to making anything out of them, the following may be of interest.

I obtained a very dilapidated " Aeronca " in 1947, but it had the advantage of possessing all its log books, which showed its total flying time to be only fifty-three hours.

The advantages of an official record of this type are considerable since the A.R.B. will have something to go on, and certainly no more work than is absolutely necessary will have to be done, particularly as regards the engine. This would not be the case if there were no record of total hours flown.

Considering the newness of the engine and reasonably good condition of the steel tube fuselage and components I did not think £40 for the engine, and £35 for the airframe, too much.

Having paid £6 for the carriage by rail, all the way from Lancashire to Harrow Weald (it might not be as cheap as that now) and having started work on stripping the airframe and engine, I decided that I should not have paid more than £50—£55. Internally the wings were in a worse condition than I thought and I discovered that both cylinder heads had some minute cracks in them, visible only after de-coking and actually discovered by accident.

That was bad luck, and the trouble I had trying to replace them with units supplied by the Association in an unfinished condition but needing the smallest amount of work on them, was considerable.

I bought another pair of wings for £10, which needed less work on them.

It was only at this stage that I found that I could not get a permit to fly because the machine had a full C. of A. before the war, and M.C.A. would not give it anything less than this since it would amount to lowering the standard to which the machine was originally built.

The C. of A. for an " Aeronca " costs £7. 10s. 0d. which is considerably more than for a Permit.

I was now able to make a guess at the time it would take to get the machine flying, and the total cost.

I was, and still am an Aero Engineering student at Loughborough and I only had the vacations in which to work. This was a good thing because I didn't have the distraction during term time, while I had the whole term in which to build up enthusiasm for really hard work when I got home.

We get three weeks at Christmas and Easter and about ten weeks in the summer, sixteen weeks in all, in which I worked 755¼ hours in the first year, 861¾ in the second and 378¾ hours in six weeks this Christmas. All this amounts to 7½ hours a day for 266 days on my own account, while Mr. Arthur Ord-Hume put in 250 hours or so in a year and a half.

Now most people only have weekends and a few other odd evenings, but two and a half years of weekends amounts to 260 days, so being a student is not really all that advantageous especially when the cash side of it is taken into account. I gave up all spending except for the bare necessities and bought material for the " Aeronca " instead.

There is also an advantage in taking a long time over the job (working hard all the time of course) for it is much easier to scrape up the pound notes when given time.

Whether you are working for a C. of A., as you will probably need to do on " Aeroncas," " Comper Swifts," etc., or a Permit to fly, you *must* toe the A.R.B. line.

When you buy materials, such as Spruce, fabric, dopes, etc., you will get Release Note numbers and Approved Certificates with them which is all well and good, but it is the smaller details that get overlooked. For instance, you may be asked for test and overhaul certificates for instruments, or a certificate covering the proof loading of the Control cables which you have spliced.

People who are not members of groups will have to arrange for engineer's inspection themselves.

There are plenty of things that must be looked into before the job is finished, such as fabric stringing, and if possible, the engineer who is going to sign the aircraft out should do all the other inspections so that his final signature will cover everything that has been done.

Groups will of course have their own appointed inspectors, who are responsible for the whole job and who are under Capt. Sturton's travelling inspectors or a local engineer.

In the end, the A.R.B. will have to see the aircraft and work should always be carried out with this end in view. It is definitely a good idea to know your area surveyor since he is actually a human being (although the amount of work some of them have to do might lead one to believe otherwise) and whatever happens you will not find him unreasonable. The A.R.B. are definitely out to help but they cannot allow anything but the best workmanship to pass, so the standard you must attain should be realised.

Returning to the " Aeronca " the main jobs carried out on it were complete refinishing of the fuselage structure and components, recovering and doping, overhaul of the engine, recovering one wing after rebuilding the leading edges of both wings, and, of course, hours of spraying. I spent about £25 on dopes; £6 on fabric (it was cheap in 1947), £3 on new bracing wires, £5. 14s. 7d. on new and certified A.S.I. and Altimeter, £7. 17s. 6d. on a new tank, plus many other bits and pieces representing the things not mentioned in the outline of the work above. The whole amounted to £77, to which must be added £75, for the initial purchase, plus £7. 10s. 0d. for the C. of A., £5 engineer's fee for signing the machine out, £5. 10s. 0d. for hangarage while going through the C. of A. at Elstree Aerodrome, and £10 Third Party Insurance, bringing the grand total to £180, ready to fly after very extensive reconditioning.

OPERATIONS SUPPLEMENT

Contributed by M. Macdonald, Chairman of the Operations Sub-Committee.

The Executive Committee are pleased to announce that the U.L.A.A. Annual Air Rally, 1950, will be held at Fairwood Common Aerodrome, Swansea, on June 3rd and 4th in co-operation with the Swansea and District Flying School and Club.

Further details regarding the Programme etc., will be announced in the *Bulletin* as they are finalised. Accommodation will be available near the aerodrome at very reasonable rates, and in addition a Buffet Dance will be organised for the Saturday evening.

GROUP NEWS

The Experimental Group

Having been given notice to quit their home at Elstree, Herts., the Group negotiated successfully for a Nissen hut at Redhill Aerodrome, Surrey. It took several weeks hard work, culminating in a grand trek with the Group's effects to move down there. The Association's " Zaunkoening," at present in the care of the Group, flew down and has been repainted where the former finish was unsatisfactory. A new tail-skid shoe was also fitted.

The Group's " Moth Minor " was nearing completion of the repairs to the wing roots when it was discovered that both ailerons and wing-folding flaps would have to be rebuilt. It is feared that this will mean a further few months hard work.

The " Auster," which the Group was operating at Elstree has gone for C. of A. However, by courtesy of the Redhill Flying Club, the Group is being allowed to use one of their " Austers " and is endeavouring to send off solo some of their more advanced pupils in the near future.

Between flying, the job of reconditioning the roof of the Nissen hut and building bunks therein has begun.

David Armstrong and John Allan both soloed this month, and are offered the Executive Committee's congratulations.

Flintshire Aviation Group

February was a rather busy month for the Group. A dance which was held did rather badly in one way, but luckily it was not a complete flop !

It has been decided within the month to buy a glider for some immediate flying and the Group has been given information about two suitable trainers that will start them flying at a very low cost.

A glider show by Bill Crease in an " Olympia," also proved to the local sceptics that we at least existed !

Wycombe Flying Club

Due to reasons such as flooding and the prohibition of building, the Bourne End site is no longer being developed. Adjacent to the Thames, it was a pleasant spot and thus attracting many sightseers and the occasional prospective member.

Blackbushe is the main base now and the club's " Auster " lives there in the care of Mr. Bianchi. During the week and at some week-ends club flying takes place from there, but when there is sufficient demand in the form of advanced booking, the machine is flown to Booker and members living in that locality can carry out their flying from there.

During January, Messrs. R. P. Mayers, Bernard Vine and Michael Hague completed their first solo flights from the old Bourne End strip. David Ogilvy has become a Royal Aero Club Observer and another member hopes to obtain his instructor's endorsement soon.

Aircraft utilisation is rather low at present and new blood is being sought either in the shape of trained pilots or beginners, to warrant the overhaul of the second aircraft for its C. of A.

Last year several members were given short familiarisation flights in a " Tiger Moth," and as they all enjoyed the experience, a machine of this type is wanted for occasional hire during the coming season.

Prospective members or anyone interested in hiring an " Auster " for a day should contact either Mr. V. M. Stoodley at Hamble, Riverside, Bourne End, Bucks, or D. F. Ogilvy, at 9 Imperial Road, Windsor, Berks.

NEWS FROM THE CLUBS

SOARING COURSES AT THE BEYNES CENTRE

By Guy Borgé

The Saint Cyr—Beynes soaring centre, which owns a batch of training and performance machines (" Air 100's," " Weihes," " Minimoa," " Mu 13," " Rhönsperber," and so . . .) organizes courses opened to foreign pilots between April 1st and September 30th at the following rates : Two-seater or one-seaters, 2,000 francs an hour.

For distance flights the retrieving costs by road have been fixed at :

0/ 15	miles	600 francs
15/ 31	,,	1.200 ,,
31/ 47	,,	1.800 ,,
47/ 62	,,	2.400 ,,
62/ 78	,,	3.000 ,,
78/ 93	,,	3.600 ,,
93/109	,,	4.200 ,,
109/124	,,	4.800 ,,
124/140	,,	5.400 ,,
140/155	,,	6.000 ,,
155/171	,,	6.600 ,,
171/186	,,	7.200 ,,
186/201	,,	7.800 ,,
201/217	,,	8.400 ,,

By air the retrieving cost is 3.500 francs an hour.

Candidates must write to : Direction du Centre de Vol à Voile de Beynes-Thiverval (Seine et Oise) in mentioning their previous experience, time and duration of their stay. After acceptance by the Centre, they must pay 3.000 francs as a provision, 500 francs as the personal insurance fee. Candidates under 21 years must also send the legal permission of their parents, legalized by the Civil Authorities of their city. Medical examinations or flying licenses must be valid for the current year. The feeding fee is 500 francs a day. For bedding, bring some sheets and blankets.

THE VICTORIAN MOTORLESS FLIGHT GROUP

March 1950

The *Flying Diary* lapses this month for lack of flying ; turbulent winds and winch trouble kept us on the ground. Winch broke down on Sunday, 12th February, and the trouble was found to be serious. Offending part was dismantled and later laid tenderly on the doorstep of Mechanical Equipment man Les Williams, who was away on holidays. We thought it would be a nice way of welcoming him home. The Iggulden winch was to have gone into action to save the day, but that's when the wind took over, the windsocks streaming full out under hot northerlies. The winch should be working again for the long Labour Day week-end and normal week-end flying resumed.

Soaring in New Zealand

It is with considerable satisfaction and pleasure that we report the test-flying of the first sailplane to be registered by the New Zealand Civil Air Board. Soon after seeing Arthur Hardinge's " Yellow Witch," during its N.Z. tour last year, Gordon Hookings and R. Court of the Auckland Aero Club, began negotiating to import an " Olympia " from England. The " Olympia " arrived last month, was apparently approved by C.A.B., registered, and given the identification letters ZK-GAA. Test flights were made at Mangere Airfield, launching by " Tiger Moth." R. Court reached 3,000 feet and stayed up for half an hour. On the way down, he looped, stalled turned and spun for the benefit of spectators and, no doubt, to express his own elation. Congratulations and all good wishes to the New Zealanders.

Annual General Meeting

Was held on March 1st. As the retiring Vice-President and Hon. Secretary (Ron and Grace Roberts) did not stand again for office (regretfully and due to pressure of other commitments) the following office-bearers were returned unopposed — *President* : Les Williams. *Vice-President* : Geoff Richardson. *Hon. Secretary* : Jack Iggulden. *Hon. Treasurer* : Alan Patching. The Committeemen elected were—Mike Bruce, John Day, Viv Drough, Gordon Macdonald, Jack Scully.

68 GLIDING UNIT, R.A.F., ST. ATHAN

March saw a full programme of flying uninterrupted by bad weather, a very pleasant change after the rain experienced during the winter months, thus allowing us to maintain our target of course graduates, actually passing the expected number. Our increased target is attributed these days to the amount of tuition and flying experience that the cadets receive in the new Slingsby Two-seater " TX1 " and also, to a certain extent to a revised policy of training, training procedure and discipline.

During the month, the telecommunication system was used in the initial stages. This is a very safe and simple method of training but it is felt that cadets should learn to fly themselves by feel, and not as " Robot Pilots " at the constant dictation of an instructor. Consequently the headphones are discontinued after proficiency in low hops, this helping and teaching a cadet self-reliance and confidence and as a result is bound to prove safer as training progresses.

So much for ab initio training. As yet, turns and circuits have not been introduced as part of cadet training. Instructors, though welcoming this further development in training, are treating this phase with great caution in order to avoid any possible mishaps which might arise during this advanced stage. For at 68 G.U., even a slight mishap is regarded as reprehensible. This is due mainly to the strict insistence on " Safety First " by the Commanding Officer and this common sense rule being religiously supported by all instructors. G.I.L.

ARMY FLYING CLUB NOTES

On Sunday the 19th of March, with the Odiham skies rendered untenable by swarms of " Vampires," the " Grunau " was taken to Inkpen for its first experience of the hill.

Our grey winch—which had previously undergone some drastic

surgery, in the process of which Bob claims to have expended eleven hack-saw blades—was already on the hill, but upon being attached to the "Grunau" it threw a fit. No further surgery was required, however, the spasms being due to an eccentrically wound drum, and Bob Swinn was soon launched off the west face for a twenty-minute test flight.

He was followed by Major John Awdry, who obtained a very satisfactory "C" before being flagged in. Gilbert Hannington was less lucky, and had to land at the foot of the hill, but after stout manual labour the "Grunau" was carried to the top, and Ken Kimber was launched for what turned out to be the last flight of the day. He unluckily sheared off the port tailplane on landing. We will have to conduct a detailed reconnaisance on foot and rub our noses on all wires, posts, and other obstacles.

Incidentally, although Inkpen is famed for its north and north-easterly slopes, which are indeed superlative, it is interesting to discover that on this occasion, using the very limited beat of the smaller west face, in a moderate wind, height was quite easily maintained by two pilots without previous hill experience.

The optimists amongst us believe that we have a hill-face for every wind except a universal down-draft! We hope to prove the contention at Easter. R.L.P.

THE SOUTHDOWN GLIDING CLUB
Addendum

Sunday, March 11th, saw our first visitor by glider. Mr. Neilan of the Surrey Club arrived in his "Weihe."

The week-end March 18/19 presented us with a 40 m.p.h. S.W. wind and we got in 18 hours 13 minutes cliff soaring although it was hard work keeping over the edge. To obtain lift, machines were flying tail first. Then speed was increased to beat the wind and regain position over cliff thus losing 200-300 feet. The process was then repeated as often as required and the average flight was about one hour. Machines were 'kited' to over 2,000 feet.

G. Ratcliff, Southdown and Handley Page Club member did five hours in his "Buzzard" sitting well above all other machines at 1,200 feet coming down finally at 6 p.m.

Week-end, March 25/26, the wind was easterly about 20 m.p.h. With our C.F.I. at the B.G.A. meeting we managed a total of 73 launches. Our "T21" and "Tutor I" going up alternately. Weak thermals were around but it was not possible to stay in them although the "Tutor" did much better than the "T21" and Don Snodgrass finished Sunday by remaining aloft for 20 minutes getting slope lift from the Eastbourne main road ridge.

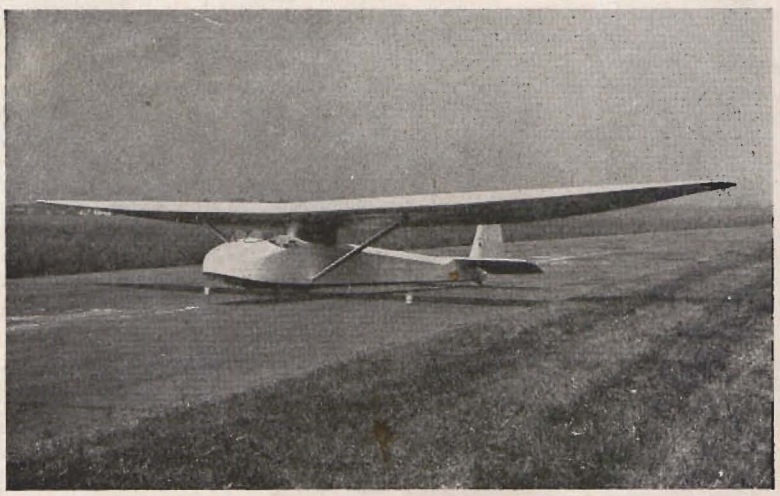
I hear plans are afoot for making this Easter a bumper one. Given fair weather and a good wind from the thermal direction anything may happen in this neck of the woods so I am hoping to have a lot to say in the next issue of the *Sailplane*.

Letters to the Editor

DEAR SIR,

I have been instructed by the Directors of the Scottish Gliding Union Ltd., to express their regret for the remarks concerning the Lochleven Aero Club made in the Scottish Gliding Union Club News in the March issue of *Sailplane and Glider*.

On Service—for The Service



The T21B, 2 seater is now in quantity production for the Reserve Command Royal Air Force as well as for export to foreign governments.

Slingsby Sailplanes Ltd., Kirbymoorside, Yorks.

The notes were published without the knowledge of the Directors and the views expressed were merely those of the correspondent.

Relations with the Lochleven Aero Club continue to be most cordial, and in addition to using the same Club rooms, the alternative membership arrangements is still in being, whereby flying members of either Club can use equipment of the other, for one subscription.

Yours faithfully, D. HENDRY,
Hon. Secretary.

DEAR SIR,

The unpenitent " EX-A.T.C. Instructors " 180 A.T.C. launches per crash as stated in March *Sailplane*, seems more like a nightmare than an experience. He may be interested to know that Reserve Command gliding analysis for 1949, taken over all schools in the British Isles, would still show over 1,000 launches per accident, with ground slides ignored. (The German figure was 1/12,000.—Ed.).

Mr. Hands in his letter, asks for co-operation between Clubs and gliding schools. I know he is aware of the London Gliding Clubs assistance to A.T.C. instructors in the past, and how they are at present permitting these instructors to fly their machine at Dunstable, in order that they may improve their ability and experience.

It is, I believe, in this direction, that the gliding clubs can and do, help gliding schools most, and although officially gliding schools can give little in return, at least they are introducing a large number of young cadets to gliding, and eventually, some to the clubs.

Concluding, may I quote Phillip Wills from February London Gliding Club *Gazette* :—

" . . . official interest in gliding must produce official interest in, and sympathy for, civil gliding as well.

" The more ' high ups ' realise what Gliding has to offer, the better for all of us. So let us do everything we can to help the Services and the A.T.C."

Yours faithfully,
S. R. DODD,
L.G.C. and 106 G.S., Henlow.

DEAR SIR,

The *Sailplane* seldom comes my way but I was fortunate to read the March issue and enjoyed the article by Mr. Harland Ross on the exhibition held at Bishop.

To read all that has happened within the last 15 years is shattering. Noughts have been added to altitudes almost unheard of in those days.—3 G loads—checking oxygen systems—seeing horizons through small holes in ice crystals—insulated cockpits — lenticular clouds—pressure breathing masks —radio with frequences and outputs —they all read like a dream.

It's a pleasant thought to think back on the good old days to the " Reynard " at Dobrudden Farm—a machine of blue wing fabric liberally spattered with white patches and fondly referred to as the " white one with blue patches." And the good old " Dixon " friend of many with its ugly king post and heart of gold. I wonder where " Dixon " is now—an honourable death or lying forgotten in some farmer's barn to be discovered in years to come and given a place of honour at last at the Science Museum in Kensington.

The most memorable day of it all was when I helped get a scratch team together to dig friend Norman Sharpe out of bed and push him off the " edge " at Baildon to achieve the great honour of getting the first " C " for the Yorkshire Gliding Club in the " Teufel."

And what now !—Golden " C's," Diamond " C's " and the Gliding Certificates up to serial 11309 !

" Reynard " and " Dixon " and I (not forgetting the Holdsworth Special—forty metal screws to every vib.) all lie idle—out of the gliding game for good I'm afraid.

Please remember us a little sometimes—perhaps in the dark evenings when you are gathered around the Clubhouse fire and someone starts " Now, in the old days . . . ."

Sincerely yours,
" Gliding Certificate No. 428 "
(late The Glider Pilot Regiment)

Argentine National Gliding Contest

The third Argentine National Gliding Contest took place at Merlo, Buenos Aires from February 5th—17th. Participating sailplanes included " Rhonbussards," " Meise," " Olympia " and " Grunau Baby IIa " in three different categories, namely : Performance sailplanes (Inter club) and Training sailplanes (Individual), totalling 24 teams. 8 towplanes were available and the teams brought their own cars and trailers along, so retrieving was fairly fast and in most cases done by aerotow. Meteorological direction was in Prof. Georgii's expert hands, alas he was unable to get us good conditions, so the results as far as performances are concerned were not as good as they could have been. The best flights were :

Duration : 7 over 5 hours
5 over 3 hours
Distance : 3 over 300 kilometres
6 over 200 kilometres
19 over 100 kilometres
Goal flights : 2 over 100 kilometres
Out and return : 7 over 120 kilometres.

There were no conditions for altitude ; only Joe Ortner reached 3,000 metres on a distance flight and won his Golden " C ". Number of aerotows during the contest : 396.

The best teams were :

Performance Sailplanes

1st Gliding Club Córdoba
2nd ,, ,, Albatros (Bs. As.)
3rd ,, ,, Condor (Bs. As.)

Training Sailplanes (Inter club)

1st Gliding Club Esperanza
2nd ,, ,, Albatros (Bs. As.)
3rd ,, ,, Tucuman

Training Sailplanes (Individual)

1st Luis Vastik (Gliding Club Esperanza).
2nd Juan Etcheverry (Gliding Club Azul)
3rd Hector Bernasconi (Gliding Club Albatros)

For the next year an international Contest is planned which is to take place in the interior of the country, where excellent thermal conditions are found and we are all looking forward to it as it will be our first contact with foreign pilots.

Shortly before the beginning of contest the first of a series of 3 tail-less two-seater performance sailplanes was towed from Córdoba to Merlo (700 kms.) and many of the pilots had a chance to fly it ; some fellows had 3 hour flights with it. It was built in the Aero-technical Institute and designed by Dr. Horten. Performances are shown in the graph (*see p.* 110).

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"B" .. 24
"C" .. 13
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Gold "C" —

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	"B" CERTIFICATES		
3152	David Frederick Ogilvy	Scottish G.U.	12. 2.50
3663	Simon Bainbridge Young	Cambridge U.G.C.	24. 11.49
10154	Norman Henry Reeves	143 G.S.	12. 3.50
10274	Ronald Alfred Smith	Yorkshire G.C.	14. 8.49
11431	John Edwards Elliott	R.A.F. Cranwell	15. 6.49
11453	David Leonard Court	H.Q., B.A.F.O.	9. 9.49
11461	Nancy Moffat	London G.C.	11. 3.50
11464	Robert Anthony Carson	R.A.F. Gutersloh	19. 2.49
11469	Edward King	Luneburg G.C.	1. 3.50
11473	Philip Morgan Davey	R.A.E. Tech.	21. 7.50
11474	Gerald Roy Paddick	Luneburg G.C.	23. 1.49
11488	Harold Booth	23 G.S.	19. 6.49
11489	John Garne Reussner	Slingsby F.C.	18. 2.50
11503	Barry Radley	E.T.P.S.	12. 6.49
11504	Jack Wilfred Carver	22 G.S.	5. 3.50
11505	David William Townend	22 G.S.	5. 3.50
11509	John Clarkson Johnson	H.Q., B.A.F.O.	5. 8.49
11517	Neville Arthur Dean	22 G.S.	5. 3.50
11528	Eric Dring	Slingsby F.C.	16. 8.49
11534	Cyril Hartington	R.E.F.C.	12. 3.50
11535	Kenneth William Simpson	Wahn G.C.	27.12.48
11548	Michael John Walter Wright	R.E.F.C.	12. 3.50
11549	Ronald Iain Radford	R.E.F.C.	5. 3.50
11550	Albert M. Joseph Rollin	Rerek F.C.	24. 9.49
	"C" CERTIFICATES		
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10338	William Neil Slater	Yorkshire G.C.	5. 3.50
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11286	Robert George Frecheville	Derby & Lancs G.C.	18. 2.50
11431	John Edwards Elliott	R.A.F. College, Cranwell	12. 8.49
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11474	Gerald Roy Paddick	Luneburg G.C.	12. 6.49
11489	John Carne Reussner	Slingsby F.C.	5. 3.50
11503	Barry Radley	E.T.P.S.	16. 6.49
11535	Kenneth William Simpson	Wahn G.C.	18. 4.49
11550	Albert M. Joseph Rollin	Perak F.C.	26. 2.50

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251	R. A. Carson	11464	5. 2.50
252	R. MacFie	7715	15. 3.50

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