

Sailplane and Glider

The First Journal devoted to Soaring and Gliding



DECEMBER 1950

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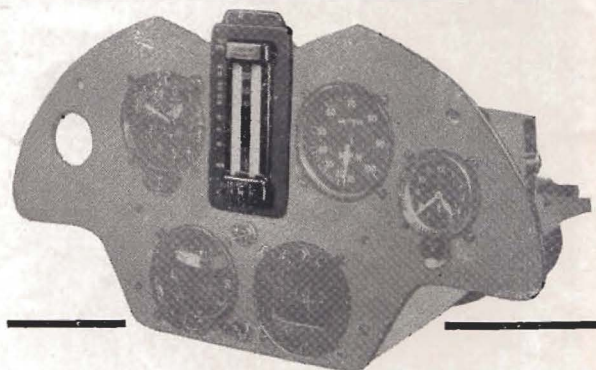
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THE FIRST JOURNAL DEVOTED
TO SOARING AND GLIDING

DECEMBER 1950 ★ Vol XVIII No 12

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COVER PHOTO:

Henri Lambert and "Minimoa"
(Service Cinématographique de l'Armée de l'Air.)

Editorial

Coming of Age.

THE news that the British Gliding Association has just celebrated its 21st birthday comes as something of a shock. Back in those far-off days (we reflect) when Doc Slater first played *Eine Kleine Nachtmusik* on his immortal penny whistle—plus purchase tax—, when Pop Furlong was still "Son," when Espin Hardwick and Sling first soared the Long Mynd, when the Pons was still but a gleam in its designer's eye, when the lions at Whipsnade didn't suffer from Tennis Neck, when a certain famous firm at Derby still made cars rather than winches, when "Tiger Moths" thought Redhill a safe aerodrome to land on, we were well under the minimum pilot weight for any glider, though now, alas, our weight problem is at the other end of the scale. But there is this advantage in youth. Our 21st birthday is not so far behind that we cannot remember the newly-realised responsibility—brought home by our researches into the law of Contract—and the emergence of the child into manhood, at any rate in the eye of the law, if not that of our parents. A sobering thought, the moral of which needs to be pointed, not so much at the B.G.A. itself, which has reached that healthy state of advanced chaos which characterises the really worthy gliding organisation, but at the fantastic controversy which has been plodding its weary way between some of the Powers that Be at the B.G.A. and the permanent editor of this journal. It appears to have had its genesis—as far as written evidence goes—in an argument over the expenses of the British Team at Samedan way back in 1948. Not even the tragic deaths of Nicholson and Greig at that meeting served to kill it. The dismal story has unfolded itself month by month, from Council meetings to competitions, from expenses to a Black Market in "Weihses." No doubt it will carry on to its logical conclusion in a duel with signalling bats in the hall of the Royal Aero Club. So it goes on. The Editor pursues his boggy with the persistence of a Captain Ahab after the White Whale: the B.G.A. retaliates with a boycott of the only periodical which tells the English gliding movement what goes on from month to month, and which is, after all, a most potent ambassador abroad, as well as a dollar earner. In short, the two organisations are cutting each other's throats, and would do well to remember what happened to Captain Ahab and Moby Dick.

In the meanwhile, *Sailplane* will continue to be read, because people are curious to see what's for sale, who's done what, and whether any letters to the Editor are libellous. The B.G.A. will continue to be consulted as the ruling body in British gliding, because no one in his senses really doubts its *bona fides*. Who after all are the villains? Phillip Wills, with his parti-coloured "Weihe," shambolic family retrieving team, which has a curious habit of getting there all the same, and unreliable Ford? Anne Douglas, of the Peter Pan outlook? Basil Meads, keeper of the Privy Purse? The whole attack is a gigantic parody of the Barrister's tale out of the "Hunting of the Snark," and we are convinced that this Snark is not going to turn out a "Boojum."

We have had the honour to edit this journal for two months. During that time, it has become clear to us that there is a great deal of goodwill in this movement as well as a great deal of misunderstanding. Can this not be used to secure peace in the press as well as on the flying field? We have, in these same two months, made what may well turn out to be an abortive effort to bury this Lewis Carroll set-up six feet down. Well, if it fails, it doesn't matter. If intelligent men, who are old enough to know better, are going to behave with an asininity explicable only by a pathological *idée fixe*, we shall simply have to say "A pox on both your houses, I am sped," and suit the action to the word, leaving our elders and betters to take "the lid off the cauldron" once again. But out of the mouths of babes and sucklings . . .

And after that effusion, the only thing left to do before we take our leave is to thank the staff of *Sailplane* for all they have done, and to wish all gliding men and women a very Merry Christmas.

THE T/34

The interim report on the "T/34" appears in this issue as promised. The only remaining problem, after the usual snags have been ironed out, will be to find a name for the type.

With some deference may we suggest "Gull V."? The most successful of Sling's sailplanes have been "Gulls." There are still in existence the famous "Blue Gull," the lovely and ruinously costly "Gull II," Bira's "Gull III," and the "Gull IV," which has established an excellent reputation for itself.

But what's in a name, anyway?

THE "T/34"

INTERIM
REPORT

IN the atmosphere of secrecy which inevitably surrounds the launching of a new venture, it is difficult to evaluate with any accuracy the importance as far as international sailplane standards are concerned, of the new "Slingsby 18-metre" Sailplane. It clearly owes something to the "Weihe" in its general layout, and may not unfairly be said to be a development of the same character as that type. In these circumstances, it will be obvious that, even if it is no improvement on the "Weihe," at least it makes a really high performance type available to the public, and it is understood that it will sell at about £1000, not a prohibitive price by modern standards. But the news which is now filtering through about it is far more encouraging than a mere parity. On Thursday, November 9th last, it was flown against a "Weihe" at Detling. The "Weihe" was flown by F/Lt. R. C. (Jock) Forbes, and was a fully panaceaed version, that is to say, it suffered from no defects or excrescences which might be said to reduce its performance. The "T-34" was flown by Mr. Pratt of Slingsby's, a gentleman of small size, but the load was brought up to that of the "Weihe" to compensate. In the result, the "T-34" was found to have a useful flying range from the stall to 80 m.p.h., and in that range to be superior to the "Weihe" at every point.

Jock Forbes is hoping to finish handling tests on the type in the near future, after which a "Polar" will—with any luck—be undertaken by the B.G.A. No. 2 Test Group at Cambridge. Until these tests are completed, which will take some time, and a



comparison made with the "Weihe" Polar done at Redhill some years ago, it will not be possible to say to what extent this sailplane will flutter the doves, but Jock is emphatic that the handling as well as the performance is very good indeed—particularly the rolling speed after 45°—and he should know. The appended photographs give a good idea of the lines, which are not unlike the "Gull IV."

Appended is an extract from Jock Forbes' letter.

"I really don't want to push out any information on the "T-34a" until I have conclusively proved my statements by actual flight tests. So far I have only done a few flights in it, but I can say with certainty that it is a better machine than the "Weihe"—and being so fond of my "Weihe" I'd be the last person to admit this fact if I had any doubt in my mind.

The "T-34" like most other prototypes, has some obvious faults which Slingsby is going to correct in production models. The main fault of course, is the difficulty experienced in rigging and de-rigging the thing. I think, after hammering away at Sling. for over a year, that I have convinced him that the "Weihe" fittings are the best yet made. In consequence he will have similar

(Continued on page 281)

THIRD INTERNATIONAL SOARING CONGRESS

Orebro, Sweden, 1950

by Dr. August Raspet, Engineering Research Station, Mississippi State College.

TO this meeting nine nations sent representatives: The United States of America, England, Holland, France, Belgium, Switzerland, Norway, Sweden, Yugoslavia, and Denmark. Five papers were given at the technical session:

1. Some Remarks on Glider Design and Related Subjects, L. L. Th. Huls of Holland.

2. Sailplane Blind Flight by W. Ledermann, Switzerland.

3. Atmosphere Waves and Rotors, J. Jucker of Switzerland.

4. Air Flow over an Extended Ridge by A. Raspet, U.S.A.

5. Performance Measurement of a Soaring Bird by A. Raspet, U.S.A.

A short film taken by R. Symons showing the motion of the lenticularis clouds over Owens Valley in California was also presented at the meeting. W. B. Klemperer of U.S.A. described the process shown on the film.

Following the technical meeting a sub-committee was appointed by the president, L. A. de Lange of Holland. This sub-committee was charged with preparing a constitution for the OSTIV. The first draft was submitted to the delegation and approved on July 8, 1950. Under this constitution the OSTIV is charged with the international dissemination of scientific and technical information in the field of motorless flight.

Two committees act as the working body of OSTIV, the Scientific Committee and the Technical Committee. To the former the writer was appointed chairman and to the latter Mr. W. Ledermann of Switzerland.

The first action of the Scientific Committee was to organise a series of comparison flight tests between the various high performance sailplane at the International Soaring Competition. The first test was run off on July 10 between the German design "Weihe" and the Yugoslavian design "Orao II." The latter is particularly interesting because of its revolutionary design. The result of this test is given in Appendix B.

In examining the various sailplanes at the contest the writer was impressed by the fact that many of them carried artificial horizon instruments. These were in general driven by a venturi on the exterior of the sailplane. Not only is this arrangement costly in drag but in actuality the instrument furnishes incorrect information when the sailplane spirals (and a sailplane spirals continuously up through clouds).

Close observation of the sailplane showed that to a large degree attention to the fine details of reducing parasite drag were not exercised. In particular pitot-static and venturi tubes were placed on the fuselage nose in regions of high velocity. The windshields were also equipped with ventilators placed at the high velocity points instead of at the stagnation point at the forward edge of the windshield. Such a forward ventilator also acts as a scavenger to remove

the turbulent boundary layer. Some sailplanes also had numerous unnecessary protruberances. Close attention to details such as these has resulted in a minimum drag coefficient of the American sailplane "Tiny Mite" of 0.0112. This sailplane was tested and modified at the Engineering Research Station at Mississippi State College.

Some sailplane with laminar profiles are now being built. In Holland the "491" is being built with the airfoil NACA 64 (215-7) 16.25), $\alpha=0.7$. In the U.S.A. the "Ross-Johnson 5" is built with NACA 64₃-615 section. This craft was finished at Mississippi State College and was flown in early August at the U.S. National Soaring Contest. Profile drag tests will be made to determine if the airfoil is behaving. Overall performance tests will also be made to determine the effective aspect ratio of the wing.

On July 12 the writer gave a lecture "The Sailplane in American Science," to the personnel assembled at the International Soaring Competition. This lecture, a feature of the OSTIV, was illustrated by slides showing the various research applications to which the sailplane was put in the U.S.A. This same lecture was repeated in invitation at Gottingen, Dortmund, Frankfurt, and Darnstadt in Germany.

The author was also invited to visit Yugoslavia and to give two lectures at the universities at Ljubljano and Beograd. However, after receiving the required visa the author found it impossible to go there. The organization of the Yugoslavian soaring movement is very interesting. There is a plant with 45 people making sailplanes for the movement. They have several talented engineers who devote their spare time to designing sailplanes. One of these is Boris Cijan, designer of the "Orao II" and the other is a young student of Ljubljano Technische Hochschule, Jaroslav Koser, who designed the "Triglav" and the "Jadran" amphibian sailplane.

The Yugoslav sailplane designers seemed very anxious to have the writer come up to their country to carry out performance measurements on their sailplanes. They seem to lack experience in this particular field. Not one of their sailplanes has been quantitatively flight tested, yet they have a number of designs which would yield valuable information to the technique of fine aerodynamics.

For the international exchange of knowledge in motorless-flight science it appears that the offices of the UNESCO are needed. Standardised instruments will require transportation from one country to another. The customs officials of these countries can make the process very difficult. Data so collected will be reduced and published in the OSTIV publication "Contributions to the Science and Technology of Soaring." The international programme of sailplane performance evaluation has been set up by the writer as a first project of the Scientific Committee. It is hoped that international barriers do not hinder the programme.

THE SAIL PLANE

APPENDIX B

COMPARISON FLIGHT TESTS OF "ORAO II" AND "WEIHE"

By

AUGUST RASPET, and BORIS CIJAN,

At the World Soaring Championship at Örebro, Sweden, in July, 1950, there appeared a number of very interesting sailplanes as well as a good number of the classical design "Weihe." The Scientific Committee of the Organisation Scientifique et Technique Internationale du Vol à Voile, appreciating the contributions to soaring which a careful flight analysis could make, suggested a comparison flight testing of all of these designs.

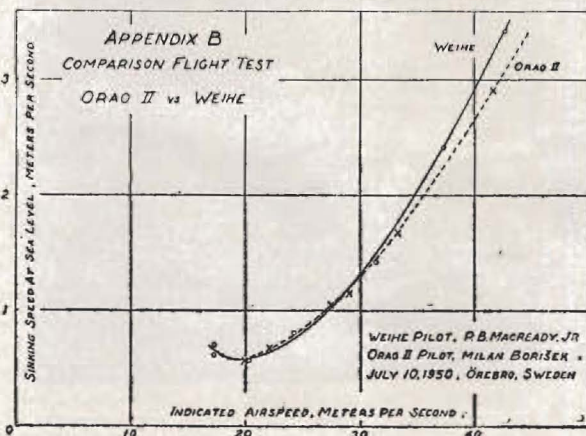
A programme, suggested by the Scientific Committee, was presented to the contest committee and through the good offices of Mr. Berthold Florman of the Swedish Airo Club, the first test was arranged between the "Orao II" and "Weihe." The Swedish Air Force kindly furnished the tow planes and the Yugoslavia team the "Orao II" and pilot Milna Borisek and the American team, a "Weihe" and its pilot Paul B. MacCready, Jr.

The "Orao II" is fully described in Schweizer Aero Revue, April, 1950. At flight test the sailplane had a gross weight of 400 kilograms. Its computed minimum sinking speed is 60 cm. per second and its best glide ratio 31.7. The finish on the sailplane was not a glossy finish such as usually found on high performance sailplanes. In addition there were numerous large openings and slots which no doubt acted as spoilers to the smooth air flow. Upon completion of the flight test the pilot, Milan Borisek, reported that the left dive brake protruded five mm. from the upper wind surface. The drag of this brake was sufficient that the pilot had to hold rudder to maintain straight flight. In addition the "Orao II" carried a pitot-static tube on the fuselage nose which the "Weihe" did not.

The "Weihe" which Paul MacCready, Jr., flew in comparison with the "Orao II" was a typical example of how a sailplane can be improved by attention to small details. The American team used the nose pitot for the airspeed indicator. This permits an uninterrupted flow over the nose of the sailplane. The lower laminar drag over the fuselage is then obtained. In addition the American team closed the aileron gap on the wing by screwing flexible aluminium strips to the wing. All other openings and gaps were sealed with adhesive tape. Even the canopy opening was sealed after the pilot was ready to go. Such attention to detail raised the maximum glide ratio of this "Weihe" from 29 to 31. But the gain in high speed cruising flight is even more important than the maximum glide ratio since a sailplane is usually flown at speeds above the best gliding speed during competition. The finish of the "Weihe" was almost a glossy mirror finish.

The comparison flight was conducted in the evening when it was felt all turbulence should have dissipated. The two sailplanes were towed to 2,000 metres altitude by two towplanes of the Swedish Air Force. At this altitude the sailplane pilots released and joined flight

so that they were side-by-side. MacCready then flew at constant airspeed while Borisek flew on MacCready. After two minutes the pilots noted the altitude of the two comparison sailplanes which resulted after two minutes of flight at the particular airspeed which was flown. From an average of the readings of altitude differences taken by the two pilots and the time one can compute the difference in sinking speeds of the two craft. A series of such runs starting at the stalling speed of one sailplane and extending up to 150 km./hr. made it possible to obtain the speed polar of the "Orao II" from that of the "Weihe." The comparison method has the advantage that slight vertical motions of the atmosphere do not influence the results. Unfortunately for reasons beyond the control of the OSTIV it became impossible to conduct the comparison tests on the other sailplanes listed in the programme. However, it is felt that the results which are shown in the curve (Appendix B) should warrant an effort by the individual nations possessing



the particular sailplanes to complete the comparison tests. For example Switzerland could conduct the tests "AIR-100" vs. "Weihe," "Moswey VI" vs. "Weihe" and "Moswey IV" vs. "Weihe"; France could conduct "Breugot" vs. "Weihe" or "AIR-100."

In the speed polar curve (Appendix B) the "Weihe" curve is the result of absolute sinking speed tests made by MacCready using an altimeter vs. time method. Unfortunately the airspeed was not calibrated although an attempt was made to do so. For this reason the glide ratio cannot be computed very accurately. The "Orao II" curve was obtained by the comparison test which is the subject of this report.

It will be noted that the minimum sinking speeds of the "Weihe" and "Orao II" are nearly identical, 58 cm. per second. At 42 metres per second the "Orao II" has a sinking speed of 30 cm. per second less than the "Weihe." However, since the wing loading of the "Weihe" was 19 kg./square metre and the "Orao II" was 22.5 some of the high speed performance of "Orao II" may be ascribed to its higher wing loading. On reducing the performance of both ships to a loading of 19 kg. per sq. metre the "Orao II" still shows up better by 10 cm. per second at a forward speed of 42 metres per second.

1. Chairman Scientific Committee OSTIV (U.S.A.)
2. Member Scientific Committee OSTIV (Yugoslavia)

JUMPING FOR JOY

NEWs has reached us from our friends abroad of a comparatively new sport which is becoming very popular amongst members of the Aeronautical Union of Yugoslavia—"parashutism."

Over twenty-thousand jumps have been made since the end of World War II without a single accident.

The youth of Yugoslavia is very interested in this exciting new sport and it seems that most of the jumps are being made by the younger ones as this is essentially a sport for the strong.

There are in Yugoslavia a number of National records, some of them they think to be of world worthiness: 132 jumps in a single day is the proud achievement of young Junko Lootovuz; 25 jumps in one day made by a girl, Zagorkah Speechunavich, with a 52 second delay before opening the parachute with each jump; a jump from 4770-metres with free fall to 1,780-metres by Alexander Stunich last year, and a number of other high altitude single and collective jumps.

There are many such achievements but the greatest success was in June when, starting at 03.54 hours a.m. from the aerodrome at Novi Sad, on the Danube, Junko Lootovuz began his new record-breaking endless series of jumps from a school two-seater aeroplane. Fitted on the wing was an attachment on which the parachutist lay during the take-off and climb to 250-metres when he slipped down the wing and jumped with free non-automatic opening of his parachute.

At the end of seven hours he had made seventy-five jumps but had to take a rest because of a strong wind which was blowing at eleven metres per second. When the wind lessened to five metres he proceeded and at the end of a further eight-and-a-half hours his total stood at 101 jumps. Then at 21.06 hours he made his final 132nd jump.

His efforts had by no means exhausted him and after a bath and refreshment he took a walk through the Corso in Novi Sad the same evening.

Only from Russia do the Yugoslavs receive any competition in this remarkable new sport but we do not receive any details of their records to publish.

(Details of Soaring Activity in Yugoslavia can be found amongst Club News.)

THIRD INTERNATIONAL SOARING CONGRESS from page 268

When the revolutionary design such as the "Orao II" of Boris Cijan and Stanko Obad appears in competition there also appears wild guesses and opinions as to its performance. Some designers are occasionally too proud to permit their craft to be evaluated. It is fortunate for the international soaring movement that Boris Cijan not only did not object to the foregoing comparison test but indeed co-operated in its execution. The contribution of Cijan and Obad to sailplane design thus becomes immediately available to other designers the world over. In turn, Cijan, as a result of these tests, appreciates the fact that "Orao II" can be improved by the same techniques MacCready used on the "Weihe."

In this programme it is hoped the reader sees the function of OSTIV, the world discussion of information on soaring flight.

SOARING IN FRANCE

By GUY BORGÉ

The Military Soaring Contest

At Cazaux (Gironde), a Military Soaring Contest grouped from July 24th to August 3rd, 17 sailplanes: 2 "Weihs," 13 "Nord 2,000," 1 "Castel 310" and 1 "Nord 1,300," and some numerous pilots of different ranks from private to Colonel. Weather was fine, and 2,500 miles were flown in 281 hours. Figures are impressive when one learns that the airfield, near the Atlantic Coast, is completely bordered by some pine forests (average width 30 miles).

Sergeant Aubert became the winner by recording some top performances. He was classed the first in the circuit leg with 55 miles in 3 hours, and the first in the goal distance leg with 147 miles from Cazaux to Toulouse. In the free distance leg, Soldier Serf was first with 173 miles, Sergeant Orgueil second with 147 miles. Five other flights exceeded 125 miles, and eight between 60 and 125 miles.

The Angers Regional Competition

A few clubs, only three, entered the Angers Regional competition with 14 sailplanes: 1 "Weihe," 3 "Nord 2,000," 5 "Nord 1,300," 2 "Castel 310," 1 "Emouchet" and 2 "Castel 301," and also 14 pilots. This small number of participant Clubs is certainly caused by the financial difficulties of numerous Soaring Sections, but perhaps also because their Presidents fear to lose their precious sailplanes during the distance flights. These fears are real (see the British National Championships), and the wealth of the machines is kept safer by letting them on their airfields or even in their hangars. But such an attitude is retrograde and negative; by observing the results of the 1949 and 1950 Regional Competitions, one sees that no one sailplane was broken in spite of the miles flown. Training of the competitors is better and they are prudent enough to limit the inevitable risks.

At Angers 4 pilots succeeded to follow the imposed circuit of Angers-Saumur-Cholet and return (98 miles), a nice achievement and a historical circuit, since it was the famous "Circuit d'Anjou," in 1912 along which Roland Garros won the speed race and the great prize of the France Aéro-Club.

In the goal flight leg, one pilot reached La Châtre (138 miles), and two others Cognac (129 miles). Another competitor arrived at Cognac, but he preferred to pass the town and to try his 186 miles; he landed at 160 miles, missing in the same time his goal and his distance leg. Winner in the performance class was Gautier from Nantes in a "Nord 2,000," followed by Moreau from Saumur and Marenne from Angers.

These performances would seem good by our usual standards, but weather was not very favourable. The Loire country is excellent for soaring, with numerous and frequent cumulus generally beginning at 6,000 feet. But certain days their base is staying at 10,000 feet above the ground, and I know one pilot that taking off at 2 hours p.m. from Chateauroux in a "Castel 310" covered 174 miles.

Therefore I think that this country would be the better one for organising a great National Competition, with possibilities to fly along great distances and perhaps to break some records. But I hear from certain unofficial informations that my Rhône Aéro-Club would receive permission to organise at Corbas the 1951 Championships during a June fortnight. Even by fine weather the distance flights will be not very great because of the proximity of the Mediterranean Sea, but with some more difficult thermal conditions the training of the entrants will improve better and give better means to compare on a similar scale the present soaring abilities of the top French pilots.

I then hope these noises of a National Competition at Corbas will become a reality.

WASSERKUPPE 1950

From "*Thermik*" and "*Ikarus*,"—translated
by Sigfridd Neumann.

As every year on the occasion of the anniversary of Otto Lilienthal's death, German glider pilots met again on the Wasserkuppe in the Rhön Mountains of the beginning of August. In the first post-war years only a few die-hards had gathered there; and even last year's meeting had fallen under an unlucky star, because it had been prohibited at the last minute. This year's rally, however, turned out to be a true "Rhön Festival."

On the 3rd August, the representatives of the West German clubs had a conference at Gersfeld, the small town near the Wasserkuppe. Numerous old and hardy supporters of gliding had also been invited so that about 200 glider pilots took part in the discussions. A survey of the progress made in the past year showed that since the middle of June, the occupation authorities had no longer raised any objections against the formation of gliding clubs. (Gliding itself and the building of sailplanes are still forbidden). This relaxation was welcomed by everybody, but at the same time it was noted that this had led to the establishment of all kinds of flying clubs which had begun to spring up like mushrooms as early as July. In order to guide this development along the right lines and especially to prevent unpleasant surprises it was decided at the end of the session to found the German Aero Club (Deutscher Aero Club, E.V.).

The rules of the Aero Club were worked out on the following day and the executive committee was chosen. Wolf Hirth who was elected president declared in his concluding speech that the Aero Club would endeavour to link all groups that are interested in gliding, power flying, aero-modelling and balloon sport, so far as they pursue their activities for sport's sake and are of no party—political or military character. (§5 of the rules reads: "The D.A.C. is confessedly neutral. No military, semi-military or party-political activities are allowed within the functions of the association. Offenders against this



The "Pferðskops" and "Wasserkuppe."

rule will be excluded.") On the morning of the 5th August, the Aero Club was officially registered at Gersfeld.

In the course of Saturday more gliding enthusiasts arrived at Gersfeld from all parts of Western Germany and, under considerable sacrifices and difficulties, even from the Russian Zone. A pilgrimage to the Holy Mountain of Gliding seemed to take place, with a great many omnibuses, motor-cycles and bicycles.

Late in the afternoon there was a reception at the town hall, given by the Mayor of Gersfeld who had contributed a great deal to the success of the meeting. He bade welcome particularly to "Rhön-Father" Ursinus (who organised the first competition at the Wasserkuppe), Prof. Dr. Klemperer, the winner of this first gliding contest in 1920 who has lived in the United States for the last 20 years, and the French holder of the duration record, Guy Marchand.

In short speeches Guy Marchand emphasised that he would continue to use all his influence in order to get gliding allowed again for his German friends, and Prof. Klemperer said how glad he was to see the old *Rhöngeist* [press on mentality, Ed.] alive and young again.

On the evening of the 5th August more than a thousand glider pilots assembled in a gymnasium at Gersfeld, leaving a great many more outside the open doors of the overcrowded hall. The audience was addressed by Wolf Hirth, Fritz Stamer, gliding pioneer and author of the book "12 years Wasserkuppe," Guy Marchand and Prof. Klemperer. The professor pointed out that in his opinion the nations of the world could get along with one another far better if gliding people had a greater say in politics. Eventually Rhön-Father Ursinus was appointed president by seniority, and Prof. Klemperer honorary member of the Aero Club.

During the night, balls and dances took place in all the inns of Gersfeld. The Mayor had cancelled the closing hour for this purpose.

On the following Sunday morning, a gliding congregation of nearly 2,500 gathered around the monument on the Wasserkuppe, where Wolf Hirth, Guy Marchand and Osner Ursinus spoke a few words of commemoration, and a wreath was laid down in honour of all dead pilots of the world.

Translation from "Ikarus," Stuttgart, Sept./Oct., 1950, and "Thermik," Göttingen, Aug./Sept. 1950.

"YOU'VE GOT HER!"

BY JOHN FREE

(Concluded)

WRITING in the November issue of *Sailplane I* drew a pen picture of my personal conception of the ideal dual instructor, followed by some remarks on passenger carrying in two-seater gliders. I concluded with a few disjointed thoughts on dual instruction in general from the viewpoint of the gliding instructor under training.

This month I propose to deal with the all-important and broad subject of dual instruction, with particular emphasis on methods which has been found to work satisfactorily in the past.

Supposing someone now put the following questions: Why have you made no provision for item two of the B.G.A. Instructors' Dual Category which requires 12 flights or 1½ hours flying in a two-seater being taught how to instruct by an experienced instructor? And how long should this period of passenger carrying last?

Taking the last question first I would answer that it depends on the pilot. My own view is that two to three months regular passenger flying, using all the launching methods available to the club and flying in all weather conditions, is a reasonable period. The pilot should then be ready to sample his first serious attempts at giving restricted instruction in the air. And although the actual requirement of the Category deals with arbitrary figures this is the stage at which he will profit most by flying with, and learning as much as possible from, an experienced dual instructor.

Power and Sail

How does his approach to this problem compare with that of the power instructor?

Overlooking the fact that he has more to teach and more time while airborne in which to teach it, surely there is some justification to suppose that the power instructor has an easier and more concrete task than he who aspires to give dual instruction in a glider?

For example, if the power instructor finds that his pupil is backward in learning how to three-point an aeroplane (a common enough experience) he can taxi him about the airfield so as to simulate the landing attitude and fix the picture in his pupil's mind's eye.

He may have difficulty in judging the "checking height" so the instructor can fly him across the aerodrome, or over the low flying area, at that height.

Some idea of the "feel" and "attitude" of the aircraft as it flies slowly and approaches the stall, as while checking and "holding off" during the landing run, can be obtained often enough at height while descending after practising different exercises.

The engine can always be used on the approach to correct undershooting; and correcting a "bounce" with engine after a bad landing can so easily be left to the instructor's discretion.

Making a pupil fly along roads, rivers or railway lines helps him to appreciate and counteract drift,

T H E S A I L P L A N E

and is yet another way to assist straight and level flying.

Low flying over the appropriate area turning first upwind, across-wind and then downwind provides a useful demonstration in the effect of ground speed and drift, the way in which an aeroplane must be turned (having regard to the wind) around obstructions, and the illusion experienced while doing low, flat turns in fresh to strong winds.

All these, and many others, are the "tricks of the trade" which the power instructor can use in teaching his pupil to fly. The gliding instructor, however, is at liberty to use only a few of these in a rather restricted way.

But we must remember also that during an hour's "circuits and bumps" only a part of that time is spent in actual air instruction, the remainder of the time the aeroplane is on the ground taxiing from one place to another, and the instructor is engaged in putting over his "patter."

So in average fresh wind conditions an aeroplane takes five minutes to take-off, climb to 1,000 feet, make a regulation circuit and land. Given the same weather conditions, and a reasonably long launching run, the time spent in the air in a "T.21 B" doing the same exercise is roughly the same.

Now we see that the spoilt aeroplane instructor does not have it quite all his own way, and we must admit that a glider is an easier machine to land. Here we can leave the detailed comparison between power and glider instruction, and I make no apology for adding that the one cannot be divorced from the other.

Dual Instruction

I am not going to set out a sequence of instruction here, this depends entirely on the individual club, its experience, the aircraft used and the local site. It will suffice to say that such exercises as cable breaks, stalls and incipient spins must be fully grasped before the first solo attempt.

Neither am I going to give any hard and fast rules as to how long it takes to go solo. It depends on the weather, the pupil's natural aptitude, the serviceability of aircraft and ground equipment together with the number of regular attendances and the standard of instruction. But it would seem that thirty to forty launches represent a fair average.

If the pupil has not flown before air experience is essential before serious instruction is undertaken. Also a little elementary knowledge of how and why an aircraft flies supplied in the form of a cheap, easily read book or a few type-written notes (with plenty of illustrations) is a great help.

It is well worth permitting the pupil to have two or three launches in rapid succession as he learns so much more quickly, but it is well-known that this system cannot always be adopted. If dual instruction is given while thermal or slope-soaring, however, care should be taken not to fatigue the pupil in the early stages.

Wind balancing, a proven method of teaching how to use the ailerons correctly and instinctively while solo training, is still a useful practice in fresh wind conditions.

Should the pupil occupy the left or right seat? We know that on a left-hand circuit the pilot is normally required to sit in the left seat, but I think there is more than a little to be said for the instructor occupying this seat on all occasions. The pupil can then fly in the right seat (even on a left-hand circuit) and use the controls normally and naturally, and it will then not be necessary for him to change hands later when he flies solo. In addition, when he looks in the direction of the turn before commencing it to see if all is clear (sailplane pilots have a bad habit of not always doing this!) he must look right across the instructor's line of vision. By the way, some instructors do not always find it easy at first to fly in the left seat as it means changing hands in order to do so. In the early stages you may find it easier to fly with your left hand, close to the ground, if you concentrate on keeping your right hand fully occupied. A fore-and-aft trimmer situated in between the seats performs a useful secondary task in this respect.

Is the pupil to have the use of instruments or not? Up to the first solo, anyway, there is still a lot to be said in favour of the instruments being blanked off if only for the reasons that a sailplane's airspeed indicator continues to get clogged with ice and water, and the height at which a pilot may find himself above a forced-landing field many miles from his take-off point is still very much a matter of visual judgment only.

Briefing

Ensure at the outset that the terms "You've got Her" or "I have Control" are fully understood so that both you and the pupil know at all times during the subsequent flight exactly who has control of the machine.

The pupil must then be securely strapped in, quite comfortable, able to see and hear properly. Show him the correct way to hold the stick, and get him to relax as much as possible.

Check that he knows the aircraft's flight limitations and go on to explain the object of the exercise clearly and concisely, then *impress* the salient points on his mind by using a few, well-chosen words. Try not to refer to the movement or position of the stick, but talk instead about the aircraft's "attitude" and "nose."

Before each take-off insist on his doing a complete cockpit check, telling you what he is doing as he goes along. Make him ask if it is clear above and behind, then have the appropriate launching signals operated when the cable is attached and he is satisfied that all is ready to take-off. This may appear pedantic but it cultivates good habits, the foundation of good flying.

During the early launches let him rest his "hands and feet on" to accustom him to the feel and attitude, as this will afford a good introduction to cable breaks should they occur. And if you instruct launching last he will have acquired plenty of this sort of practice.

As a general rule, if you have briefed your pupil well on the ground, explanations and instructions in the air are unnecessary and even undesirable.

Demonstrate what you require the pupil to do, let him try himself and make mistakes, correct them and then let him try once more. It is always very noticeable that pupils who have instructors who permit them to do the flying themselves get ahead fastest. Remember that the pupil will never have much confidence in your ability as an instructor if you "natter" incessantly in the air or keep your hands and feet on, or even close to, the controls. Some pupils really get upset and annoyed when not allowed even to prove how well, or badly, they fly. You must let your charge feel he can do it, or he never will! And once he has grasped the essentials of one exercise he will have plenty of time to practice it while flying around the circuit learning another.

Some instructors hold that in the early stages the approaches and landings should be done without the use of spoilers. I do not see why the instructor should not regulate the approach with the spoilers to eliminate excessive overshooting, provided the pupil has been briefed about the change in trim. After all this gives him plenty of opportunity to appreciate how the spoilers are used; on the other hand spoilerless and sideslip approaches are an independent exercise.

Hand over the circuit planning to him as soon as practicable, he cannot learn if he is not allowed to judge situations for himself.

One of your own early difficulties may be to know just how far to let the pupil go without endangering the safety of the aircraft. This is especially true during the early part of the launch and the last part of the approach and landing, particularly with regard to "bouncing."

Assist him to alter the machine's attitude gently and progressively by holding your hand out in front, moving it up and down, left and right. If he continues to have trouble with the launches and landings demonstrate one or two with the pupil's hands and feet resting lightly on the controls. Tell him to look well ahead and keep his eyes moving.

Prior to the first solo do not pay too much attention to perfection. It is safety you want. The polish will come later. Provided the pupil's general flying is safe the object must be to get him solo as quickly as possible, after which frequent check flights in the two-seater will prevent bad habits and over-confidence and add the polish so necessary at later stages. He only really starts to learn when he is flying solo.

Check Flights

We know how difficult it is to even attempt to stick to the same pupil throughout his pre-solo work, but when you put him up for a solo check with another instructor make certain this is treated as an ordinary training flight.

De-brief the pupil after each flight while the points are still fresh in your mind, making it a friendly man-to-man affair. You might even ask him to tell you where he has gone wrong. Constantly put yourself in his place. Could you have done any better at his stage? Have you explained it in the best way? If the pupil has failed to progress satisfactorily are you absolutely sure the fault does not rest with you?

Hand him over to another instructor and get a second opinion, but take care the pupil does not regard this step as being detrimental to his progress and ability.

One circuit is normally enough to assess a pilot's ability. This is true of power flying also. Get him to do some true and accurate turns (constant airspeed and rate of bank with neither slip or skid) and then make a glide approach. If there is then any doubt in your mind about his proficiency give him another dual circuit and, provided sufficient height can be obtained, ask him to give you an incipient spin. If the necessary height cannot be obtained give him a premature release at an awkward height, as in the case of a cable break, then sit back and see what happens.

The two-seater is an all-weather, all-the-year-round aircraft. It is the trace-horse of the club, but there are continual signs of its not being used nearly enough for the hack work. It is true also that the instructor gets a lot more time in the air, but conversely he does not do nearly so much flying himself. This is something the instructor must watch, bearing in mind that there is always someone, somewhere, who has done much more flying and instructing than he has.

What of the Future?

There will probably be many people who disagree with my views as expressed here. This I cannot help, and it is only to be expected. But I have tried to think very seriously throughout about this business of dual instruction because I think it may well be of greater importance than soaring during the forthcoming year. I also think that as an assistance to dual instruction, and in order to prevent further serious accidents most clubs are in need of more discipline, both in the air and on the ground, as a necessary and immediate step.

During the last year or so we have in many cases watched solo training go, and dual instruction come. This has been a tremendous move forward as it has gradually been accepted that there is no better way of training *ab initio* pupils than the dual method.

In a recent editorial this magazine advocated that only when the British Gliding Movement has the unreserved services of a few dozen instructors of the same calibre as Jock Forbes (and I venture to suggest Peter Mallett and Lorne Welch) will we be in a position to make a serious mark in international competition flying.

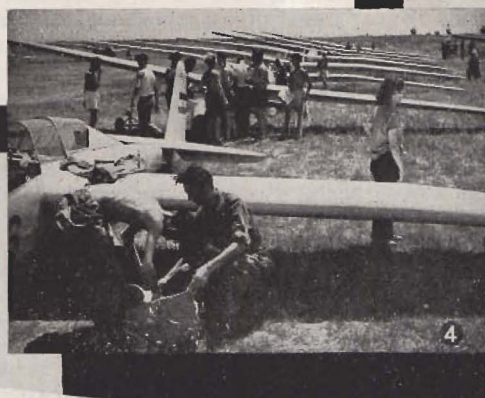
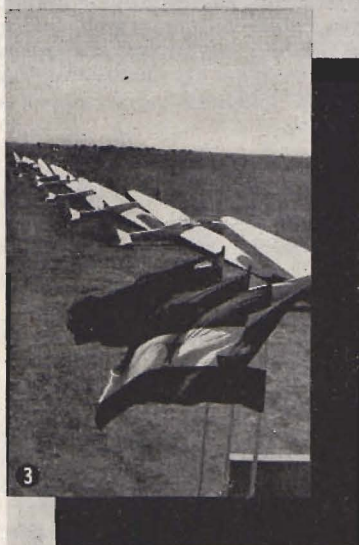
But as this caters for advanced soaring only I am prepared to go even further and say that the present method of giving dual instruction will only be really worthwhile and produce the best, safest and most far-reaching results when pupils are sent on their first solo in the two-seater, in which they have been trained, with ballast in the other seat.

At the moment the obvious arguments of expense, and the limited number of two-seaters, are valid. But if the time comes when this situation is improved perhaps we can look to the Instructors' School at Detling, or the Surrey Club, to show us the way to tackle this revolutionary problem. Then we shall get on.



YUGOSLAV GLIDING.

*Pictures taken at IIIrd Federal
Soaring Contests, July, 1950.*



1. K. Bozidar, "Weihe."
2. S. Alexander, "Weihe."
- 3, 4. Some of the competing
Sailplanes (mostly "Kranichs.")
5. I. Undriiashevich with his
water-glider "Iadran."

THE SAILPLANE

THE SAILPLANE PROJECT

By J. D. Graves

DURING my recent eastern trip, I had an opportunity to not only "sit in" on two days of the 17th National Soaring Contest at Grand Prairie, Texas, but to also visit Dr. August Raspet of Mississippi State College, Starkville, Mississippi, home of the Sailplane Research Project.

Arriving at Starkville, a small southern college town in the late afternoon, a phone call brought Dr. Raspet to meet us. One is immediately impressed by his enthusiasm and sincere interest in the work at hand and in future projects. We made a preliminary visit to the present headquarters and offices of the Sailplane Project, which are located in one of the temporary buildings on the campus. Dr. Raspet's office is located on the second floor. The rest of the building has just recently been assigned to the project, and is now in the process of being fitted for use. The first floor consists of one large room approximately 40' x 15' in dimensions and will be used as a workshop, I believe. Large doors at one end permit the entrance of a loaded sailplane trailer. The main room on the second floor resembles that of the first floor, with a small room at one end of the building housing Dr. Raspet's office. This second-floor main room is being outfitted as a drafting and design room. The entire building seems admirably suited for the work of the group. Dr. Raspet told us that he soon will have a larger office in the new engineering building now being completed on the campus.

Following this inspection of the project headquarters, we returned to town and obtained quarters in the local hotel. After cleaning up and enjoying a good meal, southern style, we returned to Dr. and Mrs. Raspet's home for some colour slides on the activity at Mississippi State and the International Contest at Orebro, Sweden, which Dr. Raspet attended. He pointed out that, at Orebro, Paul MacCready introduced the use of masking tape for sealing to the European soaring fraternity. The Yugoslavs, for example, were immediately interested in ordering a large quantity of the tape. Later in the evening we visited the home of Dr. Harold Flinsch, Director of the Engineering Research Station, and enjoyed some colour movies of the flight activity at Mississippi State. It was indeed a pleasure to meet Dr. Flinsch, the man who has offered so much support to Dr. Raspet's work.

The following morning was taken up with discussion of many of the problems connected with sailplane design and flight testing. Too much material was covered to be reported in its entirety at this time. Several items of general interest included the use of the flush pitot-static arrangement and the use of the rounded fuselage skid, which will further reduce drag. This rounded skid has no sharp edges which would induce premature turbulent flow. Also discussed in detail was the use of the stethoscope probe for determining, in flight, the air flow transition from laminar to turbulent over wing fillets at various lift

coefficients. This method would probably greatly aid in the design of optimum fillet shapes.

Another item of general interest was the Swiss barograph which Dr. Raspet had recently purchased. This beautiful instrument uses special roll paper graduated in hundred and thousand-metre intervals, (maximum range: 8,000 metres), and a continuous flight record may be obtained for thirty hours. The roll of paper is inserted on one side of the instrument, is drawn past the stylus, and wound on another roller—the rolling action being similar to that of an ordinary box camera. The stylus records by perforating the paper once each second. This particular instrument also had an electrical heater unit for cold weather operation, and an impulse marker unit for marking interesting or important points on the barograph trace by merely pushing a button in the cockpit. The instrument owned by Dr. Raspet cost \$170.00 including import duty. The company is now also manufacturing a "standard" model which has an 8,000 metre range, 30-hour drum, but no heater or impulse marker unit. This instrument, with duty and transportation paid, sells for about \$140.00. Import duty amounts to about 25% of the price and transportation costs approximately \$10.00.

After lunch, Dr. Raspet drove us to the airport for an inspection of the flight facilities and equipment. The aircraft in use by the project include: one "Stearman PT-17" towplane in excellent condition, three "L-K Flat Tops," one "quick and dirty" "L-K Flat Top" (modification took only 20 man-hours), one "Olympic Eon," Dr. Raspet's personal "Kirby Kite," a standard "Pratt-Read," and a French "Air-100" which will be flying soon, following completion of reconditioning. There are also several other privately-owned sailplanes based at the field.

As for the projects underway and the sailplanes used for each project: The three "L-K Flat Tops" are being readied and calibrated for meteorological (convection) tests; the "quick and dirty" "Flat Top" is used for preliminary studies and now has an automatic directional control device installed; the "Olympia" is used for special projects and has been recently flight-tested with wing-tip "tanks" (3-dimensional bodies of revolution). Increases in performance were noticed and will be reported on following completion of the test programme; the "Kirby Kite" is used for the bird studies. Dr. Raspet hopes to design and build a light sailplane capable of being flown at speeds down to 15 miles per hour for use in the final phases of the bird studies; the standard "Pratt-Read" operates as a good-will airplane—rides, demonstrations, and the like; and the "Air-100" has a definite part in the overall programme, but the details elude me at this time. It is a beautiful sailplane and Ray Parker has done a fine job in restoring it to flying condition.

Acknowledgments to "The Thermal."

A Happy Christmas British Gliding

MANY people may have been intrigued—or even baffled—by Rex Young's letter in last month's "Sailplane". These exclusive pictures of the natives in question—and one of their counterparts in the Antipodes—are now published, together with an account of the festivities of a rather more civilised community somewhere in wildest Bedfordshire, and an announcement of how the British Raj, in the shape of the B.G.A., proposes to spend Christmas, at greater expense if with more decorum.



Loading up covered wagon

The Dunstable Party

To say that on occasions like this the gliding movement goes berserk, is not strictly accurate. One ought rather to suggest that on Saturday, Nov. 4th, it went more berserk than usual. The late arrival was met by a wall of cordite-redolent smoke, barring his entrance to a club room already overfull with an extraordinary array of bodies, ranging from Dudley

Hiscox (in a lounge suit) and a nameless, and obviously newly-joined female member of the London Club in evening dress, to Ken Machin, in flying suit, with Very pistol in one pocket and liquid oxygen in the other, and Anne Douglas, looking and behaving younger than ever, arrayed in the inevitable ski ensemble (but no shorts). To complete the picture a bevy of irresponsible ladies and gentlemen from South of the Thames had used burnt cork to good effect, though this distinguishing mark became less noticeable during the later part of the evening when everyone had been to the bonfire, an exotic affair, situated appropriately enough, right in the middle of the overshoot area.

The party went the way of all gliding parties, apart from a few vandals dancing upstairs. (This phenomenon can only be explained by the oversophistication of the L.G.C.). Many, many fireworks were let off, some at the right time, others not so well-timed. Inevitably, Cambridge, as the home of nuclear fission, produced a passable imitation of the atomic bomb, only this one worked with liquid oxygen and petrol, and no goats survived. Inevitably there were several casualties but none fatal. Inevitably, Philip Wills and Bill Bedford, our oldest and newest Gold "C's" met for the first time. Maybe they had a learned talk about Upper Air Turbulence, maybe. Inevitably, about midnight Doc. Slater was dragged out of his retirement in the civilized section of the organisation, and played *Eire Klene Nachtmusik*, this time arranged for duet for tin-whistle and Popple Beaver-horn, followed by a duel with the piano which resulted in a photo-finish victory for Doc. Orpheus, never had to use a gliding club lyre; otherwise Eurydice would have jilted him at once. Inevitably, the beer tasted of saltpetre, and the ladies discovered the dyeing properties of Guinness on an



Vogue—Camphill

to all our Readers

ts Its Hair Down



Flesh-pots

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TWENTY-FIRST ANNIVERSARY

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is to be held on the
4th DECEMBER,
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Londonderry House,
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TICKETS price 15/- each
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*Please try and come along and bring all your
Friends to join in our Birthday Celebrations*

Lounge Suits or Evening Dress



Vogue—Australia

expensive dress, and the peculiar combustible properties of nylon stockings. Inevitably, flying next day at the headquarters of the various clubs involved lacked that zest and precision usually so much in evidence. Dunstable, November 4th: Surrey, December 9th: Imperial College, January: Cambridge, April. It's a hard life.



Medicine Man

THE SAILPLANE

PAUL E. TUNTLAND

"His Dreams Grew Into a Reality."

"PAUL'S death doesn't seem possible and it is with great difficulty that I write this memorial of my very best pal, whom I had known for a little over thirteen years," writes Edward G. Minghelli in the October issue of *"The Thermal."*

"Ours was a friendship and partnership that grew and grew from the first days we met on that dusty dirt road in Baldwin Park, Calif. Within several months we were building models together, most of them gliders, and watching them soar out of sight, wondering if some day we too might be able to soar. Our dreams did come true and grew into a reality. Very soon after that we were building the "Bowlus Baby Albatross" and organising a club that grew into the San Gabriel Valley group we now have, of which Paul was very proud. His many accomplishments, plans, and hopes for the future of soaring are all a matter of public record, and I know, some day, history."

"From the soaring experience he had gained in the "Albatross," just prior to World War II, he was able to get a position as glider instructor with the 29 Palms Air Academy in Calif. During this time he flew and helped with the testing of the "Bowlus Flying Wing." It was in this huge cargo glider that he had a very interesting flight on tow behind a "DC-3" from California to Wright Field, Ohio. After the glider programme ended, Paul was one of the few selected from the group of glider instructors to instruct powered aircraft for the Army in the Palmdale, Lancaster, area. Later Paul joined the Army and flew as Flight Officer for the Air Transport Command, later checking out in light twin-engine bombers."

"After the war," continues Edward Minghelli "Paul flew in Florida for the Thunderstorm Project. In a sailplane equipped with recording instruments, he flew into the core of thunder clouds to check turbulence unsafe for motored planes. During this time he repeatedly made flights of over 20,000 feet, establishing a new National altitude record. On one of these flights he was forced to land on one of Florida's many beaches, leaving the ship overnight to be towed out. The following day while he was being towed out he discovered, at about 2,000 feet,

that he wasn't alone. A water moccasin had crawled into the glider during the night, and was slowly becoming a menace. He managed to make a quick landing at the airport, and let the snake crawl out. Perhaps this was Paul's most spectacular feat."

"But then there was the time that he flew as a stunt man for the movie "Gallant Journey," in which he flew the type of glider John Montgomery flew back in the early days of aviation. During the filming of this picture, Paul was to fly a replica of Montgomery's glider, and so as not to reveal some of the motion picture commercial tricks, the stick was strapped to Paul's back under his clothing. The result was a fall of 50 feet to the ground, that left him badly shaken, but otherwise unhurt. Within a few days he was back on the same job and made an unintentional free flight upwards of 14,000 feet in a very flimsy balloon without a parachute."

"Paul later became a director of the Aero-Physics Institute at Mattituck, New York, a group organized to study meteorology and the flow of air over terrain, which required many weeks of intense study."

"Soon after that he started flying for Trans-World Airways then transferred to Western Air in Denver, because it offered him a chance of getting back to the West Coast. He was transferred to Los Angeles after a few months and lived with his parents there. Just recently, he told me of accepting the job of chief pilot for the Sierra Wave Project, which was to begin some time this winter."

Edward Minghelli concluded his tribute: "This is in brief some of his many accomplishments, too numerous to mention in this article. He was active in soaring wherever he went, meeting people and making friends, with a vigorous personality and enthusiasm for each new endeavour. Although I was Paul's closest friend, I feel all who knew him intimately will always carry in their hearts the treasured memory of the courage, faith and enthusiasm he had in gliding and will try to carry on the job he has so brilliantly started."

[Paul met with his fatal accident whilst flying the "Prue 215" at El Mirage Field on Saturday, September 9th, 1950].



THE SAIL PLANE

THE "SCHWEIZER T.G.3A."

By GRACE ROBERTS

THIS is a report on the first "Schweizer T.G.3-A." to explore the Australian skies. In this country, we have been starved for good gliders; our "Grunaus," and ships of similar performance, have given wonderful service for many years now and I am not belittling them in any way—I am too grateful for the many joyous hours of soaring in them to do such a thing. But, in all



Australia, the only machines we have which could be termed high-performance are three "Olympias" and two "Slingsby Gulls." To these we can now add the "Schweizer," owned by Fred Hoinville and operated within the Hinkler Soaring Club, of which Fred is President—and Geoff Richardson's newly-modified and very elegant "Golden Eagle." Probably none of these would be classified overseas as high-performance, but they'll do us.

On Sunday, the 17th, I had my first flight in "Explorer," when Fred and I flew on tow from Bankstown to Camden, with Nancy Ellis and John Patcha in Fred's "Tiger Moth," "Brolga." With two up in both aircraft, little "Brolga" dances off and chuffs happily along without complaint. To my secret horror, Fred left everything to me.

However, as soon as I had her, a feeling of pure delight swept me. Certainly, she was a little heavy to handle on tow and I had both hands on the stick, but she was sweet and biddable. The tow to Camden took half-an-hour then I dropped off and was newly delighted with her lightness in free flight. I tried her out in stalls and experienced her faint, protesting tremble followed by the warning shudder. There was no vice and no viciousness.

It took us eleven minutes to lose a thousand feet over pretty little Camden town. It was around 10 o'clock and the air was starting to bubble, but not enough to use. It was obviously going to build up nicely later. Already, over the misty Blue Mountains, little pearly cu. were forming and drifting our way.

Accustomed as I am to flying 1 in 18 types, I found it needed plenty of concentration and thought to plan my approach to the airstrip. The spoiler brakes were most effective. I touched down a little fast on a slight roll of ground, off the surfaced runway

but let her float off again, then gentled her in. When she slowed down, I braked her to a standstill, grinning foolishly to myself at the thought of having brakes on a sailplane. When I climbed out, I wanted to tell Fred how awfully good of him it was to let me fly his "Schweizer," but all I managed was an enormous and uncontrollable grin which spread from ear to ear and was promptly christened by the others—"That Schweizer Smile."

The "Grunaus" were doing quite well, the cu. had moved in on us, the ground temperature had that still, warm feel that sets one's eyes gleaming and the old head back scanning the sky—and I gulped and gaped as Fred told me to climb in and take "Explorer" off solo and see what we could catch for ourselves.

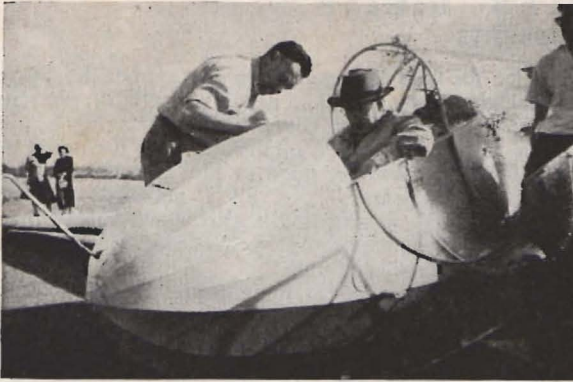
As Fred and "Brolga" towed us off, turbulence from the surfaced runway kept me with both hands on the stick, working hard. Seven minutes later, at 1,500 feet over the end of the runway, I pulled the plug after a rough ride. I had a hankering to see if I could do some good from an altitude I'd have gained on a good winch launch, since all but four of the flights I've made have been launched by winch or auto-tow, as indeed are the vast majority of flights in Australia.

I was in very weak lift and had trouble centring it. At the same time, I was very much aware of the ease and manouverability of the "TG." More than twice as heavy as most of the gliders I've flown and with 14 feet more wingspan than our loved "Coogee," which I fly the most, she yet handled with a lightness and sweetness that brought the "Schweizer Smile" back to my face.

At last, the runway began to recede and soon we were going up steadily. The variometer went berserk and gave me 5 fps. red and green at the same time. For a mad moment, I thought it must be a new type variometer, then I thought the hell with it and used the rate-of-climb indicator and the seat of my pants—the latter has never yet let me down, which is more than I can say for these instruments.

Cloud base was then around 5,000 feet and the lift petered out about 500 feet below that. I recalled that for the first time I was actually carrying a barograph sealed by an Official Observer, so I sat up and decided this was as good a time as any to grab my Silver "C" height leg. During the next hour, cloud base gradually lifted until I was topping 7,000 feet.

Incidentally, I'm sorry that this is not a more official-sounding report on the "TG"; I always intend to make efficient and coherent notes about things but somehow I get sidetracked. I start noticing how beautiful Sydney Harbour looks, a blue watery wilderness on the horizon—what strange patterns the weaving of that cloud is making—what an uncannily straight road that is down there and I wonder where it goes to—how the heck did that farmer keep his furrows so mathematically precise and wouldn't he love to see them from here—what is that bird doing over there and hey, he's getting better lift than I am, let's go!



Between clouds, I bumped the speed to around 80 m.p.h., losing so little it made me feel vaguely hysterical. About a mile away, I noticed a cloud that seemed to be based a little higher than the others, building up rapidly and looking as though it would break up fast, too. I tucked the nose down and whizzed over. I think the speed was around 90 m.p.h. but it was quite possibly more as I was anxious to get there fast. We lost under 10 fps. on the way. Arriving, I pulled up and had 8 fps. green to 8,000 feet, my maximum altitude.

As I'd been up for around two hours, I thought

I'd better get back and let someone else have a go. Camden was about fifteen miles away; I'd flown a roughly triangular course of about fifty miles and was surprised to learn later that I'd been out of sight most of the time and the boys thought I'd lit off for my home field at Berwick, 460 miles away!

Feeling very intrepid, I eased the stick forward until the a.s.i. said 100 m.p.h. I was delighted with "Explorer's" steadiness. I eased back again and idled along at 50, just twice as fast as I am wont to idle along in "Coogee." I kept looking back and down at those clean lovely wings below me, and twisting my head around like a hawk looking for field mice, just for the pleasure of taking in the marvellous visibility. Sorry if I sound like a salesman for Paul and Ernest!

I played around circling and practicing instrument flying until we were down around 4,000 feet, back a little from the airstrip.

We stooged around for a long time losing enough height to make the approach over the river and the trees, going well up the runway on the time-honoured theory that it's better to push 'em back than pick 'em out of the trees.

And so the "Schweizer" collected her first Australian Silver "C" height and her first official record. The barograph chart was later sent in to claim the first official altitude record for Australian women glider pilots.

R.A.F. GLIDING AND SOARING ASSOCIATION.

REVISED rules for the formation of R.A.F. Gliding Clubs within Commands, which in turn will now support the Royal Air Force Gliding and Soaring Association, were adopted at the first annual general meeting of the Association held in London recently.

The aim of the Association is to bring gliding and soaring within reach of all members of the Royal Air Force, with special regard to those normally employed on the ground, and under the revised rules it will:

- (1) Encourage the development of gliding and soaring facilities throughout the Royal Air Force.
- (2) Encourage and assist in the formation of gliding and soaring clubs within the Royal Air Force.
- (3) Arrange for the participation of Royal Air Force teams in contests, attempts on records, meteorological investigations and any other activities calculated to be of value to soaring in the Royal Air Force.
- (4) Act as the governing body for all non-public gliding and soaring in the Royal Air Force.

The revised rules give Commands complete freedom. Each Command will contribute to a common pool, club charges and arrangements being left to Commands' discretion. When framing their own new rules, Commands will also specify the subscriptions and charges necessary to raise sufficient income. The Association's income from Commands will leave the Association's capital available for use by Commands in forming individual clubs to replace the central club originally formed at Detling which had proved inaccessible to the majority of members.

The new scheme involves no direct membership of the Association. Full Flying Membership fees paid by airmen are being refunded and other members asked whether they wished their money to be refunded, since clubs will now pay nothing directly to the Association.

Membership of the Association is to consist of the U.K. Commands and No. 90 Group. Gliding and soaring clubs formed by these Commands will automatically be affiliated clubs of the Association. Each Command or equivalent formation will contribute annually on January 1, towards the running expenses of the Association, this contribution to be calculated on a basis of a half-penny per head for the permanent strength of the Command, calculated to the nearest £ and the nearest 500 in strength.

Group Captain G. J. C. Paul, D.F.C., was unanimously re-elected chairman of the Association, and Squadron Leader D. D. Martin, honorary general secretary, with Squadron Leader A. R. Williams, honorary general treasurer.

The Association started its financial activities in January, 1950, with £2,400, of which £500 was a grant and £1,900 a loan from the R.A.F. Sports Board for repayment over 10 years or earlier. It was also given a "Weihe" sailplane and some instruments. The funds have been used in four ways: (1) to buy or repair sailplanes; (2) to buy primary gliders for eventual disposal to unit clubs; (3) to finance a newly-formed club (Bomber Command GSC); (4) to pay incidental expenses and to make a grant towards the Association's participation as half the British team in the recent International Contest in Sweden.

A grant of £1,000 has been given to the Association by the Nuffield Trust.

The Association and its clubs had some twenty machines, including 13 "Cadets," and one "Sedburgh," "Prefect," "Weihe," "Gull 2," "EoN Baby," "Olympia" and "Kite 1," at the time of reorganisation. The aircraft which the Association held at Detling are being offered for sale to the various clubs formed or forming within Commands.

Full details of the revised regulations will be published in the 1951 edition of the R.A.F. Athletic and Games Handbook.

News in Brief

YUGOSLAVIAN CONTESTS

NEW regulations announced by the Civil Aeronautics Board, in America, now make it possible for power pilots to get their glider pilot ratings in an easier manner than in the past. Holders of a Private Aeroplane licence may obtain a Private Glider Pilot certificate merely by qualifying for, and passing the C.A.A. flight test for that rating. Likewise a Commercial Power Pilot may get his Commercial Glider Pilot Licence by passing the prescribed test. The amendment makes it possible for airplane pilots to get into soaring at only a small fraction of the cost of the training previously required.

WE hear from E. J. Reeves, past President of the Soaring Society of America that Dick Johnson failed to establish the National Distance record.

According to N.A.A., Dick's distance was 318 miles, just short of John Robinson's record 325 mile flight made in 1947.

MUCH testing is going on at Mississippi State and the "RJ-5" has been found to have an L/D of 33.1 and it is expected to be closer to 40/1 with additional refinements. It has the lowest drag coefficient of any ship tested to date.

THE Superintendent of Whipsnade Zoo is a very worried man. Apparently he is disturbed by the effect of low flying and possible effect of emergency landings in the Zoo on some of the birds and animals.

Pilots at London Gliding Club are therefore being asked to avoid low flying and in cases of emergency to choose suitable fields below the Zoo in preference to any of the paddocks. They have been told that the selection of suitable landing fields should be a normal practice on Zoo flights.

PAKISTAN GLIDING. Approximately 1,400 strong, and growing rapidly is the Pakistan Air Scout and Glider Corps. Many of these boys have now obtained International "A," "B" and "C" glider certificates and there are now six gliding schools run by the Royal Pakistan Air Force. It is hoped to publish news of their activities from time to time in *Sailplane*.

THE Annual Lulgate "At Home," arranged by the Bristol Gliding Club, is being held on Saturday evening, December 16th. It is hoped that many visitors from other clubs will attend.

THE most successful competition in the Third Aeronautical Contest, arranged by the Aeronautical Union of Yugoslavia, at Ruma, near Belgrade, in July, was the soaring contest in which some outstanding achievements were made. Six National records were beaten—three of them being unofficial International ones in the amphibean sailplane class.

The twenty-three best soaring pilots (except the four Golden "C" insignia pilots participating in the Orebro World Championship in Soaring) were flying 6 "Weihs," 9 "Kranichs" (as one-seaters), 4 "Orliks," 2 "Triglavs," 1 "Udarnik" and 1 hydro-glider "Iadran."

On July 4th there was a free goal flight. Results: two 117.5 kms. goals to Vrshaz (one amphibean sailplane class—a new National record) and seven 54 km. goal flights to Panchovo.

Free distance flights were made the next day and a new National record for a goal flight—355 kms. to Skoplie, Macedonia, was set by Saradich Alexander, recordman and Golden "C" pilot from Zagres, flying a "Weihe." The second distance flight on that day, also to Skoplie, was made by Bozo Komaz, a Golden "C" pilot from Vrshaz, in a similar machine. During his flight he gained an altitude of 4,600 metres—a new National record. Flying the hydroglider "Iadran," Ivan Undriashkevich of Spalato, Dalmatia, made 255 kms. to Voचितurn with a climb of 3,060 metres (two new National amphibean sailplane class records). Further flights this day were: Zrze—Albanian border (296 kms.), Prishtina (277), Lescovuz (276), Poduievo (253), (2) Nish (245), and Kosovskh Mitroviza (242 kms.).

After a few days' relaxation the soaring competition proceeded on July 9th with a speed goal flight to Runkovichevo (154.5 kms.). Seven entrants gained this goal and the best speed was 67.8 kms. p.h. by Saradich in a "Weihe."

Competition concluded on July 9th and the winner was Saradich Alexander with 486.1 points; second Komaz Bozidar from Vrshaz, 436.1 points and third, Dimitrovski Slavko from Skoplie with 390.5 points. All three were flying a "Weihe."

The best classed team in this competition, which was the best one in gliding ever held in Yugoslavia, was the Federal Soaring Centre's team from Vrshaz, Serbia.

Other events in the contest included parachute jumping, motor flying and a model aeroplane contest.

THE "T/34"—Continued from page 266

fittings on the production models. This will make it a pleasure to rig and de-rig. One or two other faults are obvious I think, and this machine can be improved a few per cent by reducing the odd bits of drag here and there. Anything which causes noise equally well causes drag, and the machine does produce noise, although not much, around the cockpit.

If you like you can mention in passing that I

have taken it upon myself to train two unknown pilots for next year's national contests. They will both be flying high performance machines and will fly at the contests with the idea of winning. They will receive almost full-time training—or as near full-time as possible—and I feel that, not having flown in a contest before, they can be trained in such a way and to such a pitch that the contest will appear to them as just a continuation of their training."

NEWS FROM THE CLUBS

LONDON GLIDING CLUB

September 1st-3rd. Friday the 1st saw the finish of Course No. 3,—and seven "A's" were taken. It would have been eight but for a shortage of two seconds. Saturday was an excellent day, over forty hours soaring being done, and over two-thirds of it in the club machines. The main times were a Silver "C" duration by Ginn in the rebuilt "Gull I," and four or more hours each by Scarborough, Allen and Russell in the "Scud," the "Gull I," the "Kranjanek," the "Gull IV" and an "Olympia." The "Tutors" also were put to good use by a number of members. The only fly in the ointment was a landing of the "G.B." near the Zoo by Buckle. He went into a hedge by a sunken road, and the photographs have to be seen to be disbelieved. In the circumstances the damage was surprisingly light. Sunday again was poor and there were only a few circuits, including circuits by Scarborough in Newley's newly acquired "G.B."

Week ended September 10th. Once more Monday proved just right, with only Marshall and Mercy to enjoy it. Marshall did over 5 hours in the "Olympia" and Mercy an hour in the "Prefect." On Tuesday Hanks, Ellis, Yates and Scarborough did eight-and-a-half hours between them in "Olympia," "Prefect" and "Scud," though the maximum height was only about 3,300 feet. On the Wednesday there was only the "T-21" in operation by Ellis and three pupils, but on Thursday there was an unusually good turnout and over 22 hours were done in 20 launches. Eight hours of this was in "Tutors" flown by Wynter, Doughty, Huggett, Ramsden, Haigh and Webster, the latter taking his "C" with a twenty-five minute flight. Jedynak took his "B." Hanks set up something of a record by launching, going to 3,200 feet and landing on the golf course, all in ten minutes. Ginn did nearly a second five hours in the "Gull I," Frank Foster flew the "Buzzard" for two-and-a-half and Pat had the "Prefect" up for an hour. On Friday there were only two launches, Scarborough in the "Gull I" and

Doughty in a "Tutor," but they totalled nine hours between them. On Saturday there was only five minutes flying, but Sunday for once produced a reasonable wind and nearly forty-eight hours soaring. Eighteen machines were out, including Ruck's "Kite I," Pilcher's "Kite II," and even the "Camel."

Week ended September 17th. There was no flying on Monday, but on Tuesday, Hanks, Scarborough, Driessen and Pilcher put in six-and-a-half hours in the "Camel," "Scud" and "Kite II," most of it being in the "Scud." Wednesday gave little but circuits, twenty-six launches amounting to less than two hours. Thursday was rather better, and the "T-21" did some useful work on instructional flights. Pilcher again flew the "Kite II" and Jack Hanks tried it out as well. No flying on Friday, and in a South wind on Saturday the best time was only 13 minutes by Bridson in the "Prefect." Sunday brought a strong South-westerly wind, and although Scarborough and Ginn flew the "Gull I" for nearly 4 hours, and Ivanoff and James did an hour each in the "Camel" and "Prefect" respectively, times generally were limited to about half-an-hour, and the total for thirty launches was less than fifteen hours.

Week ended September 24th. Once more (this is getting tiresome) Monday was good and the lucky few did over twenty-two hours in eleven launches. Clearly what we need is a revision of the working week. Scarborough and Pereira were the chief performers with five hours in the "Gull I" and four in the "Blue Olympia," but the other nine did pretty well. They included two-and-a-half hours by Haigh in a "Tutor" and over two hours by Webster in the same machine. There was nothing doing on Tuesday, but on Wednesday seventeen members turned out and got in thirteen hours between them. Stafford-Allen got his "C" with a fifteen-minute flight, and West landed the "G.B." below the Zoo without mishap. Thursday was still better and twenty hours flying was done. Coton was unlucky in doing only 4 hours 53 minutes on a five hour attempt. Doughty

landed a "Tutor" on the Golf course, and Hanks was given a shoulder launch off the top. The skid was later broken on this machine, but otherwise there were no untoward incidents. Apart from Coton, the chief times were done by Anson in the "Red Olympia," Ellis in the "Blue" and Frank Foster in the "Buzzard." Friday was soarable, but there were only five launches, only four members turning out, and they did three hours between them.

Week ended September 30th. Apart from Dagling hops by Miss Jennings on the Wednesday and 1 hour 35 minutes in the "Gull IV," 35 minutes in the "Prefect," and 30 minutes in the "Prefect" also by Cadman, Huggett and Sands respectively, there is no more Flying News to report: the weather on Saturday, 30th, was too bad for even the most enthusiastic of our pilots.

Totals for the month: 527 Launches; 287½ hours; 3 "C's" 1 "B"; 7 "A's"; 3 Silver "C" durations; 2 Cross countries totalling 48 miles between them.

MIDLAND GLIDING CLUB

The absence of notes from this club for the past year does not mean we have not been doing anything. On the contrary we have had a most successful year to date. Unfortunately, our membership has not increased as much as we should have liked, but we have some tentative plans to rectify this. We are one of the clubs who use the enlightened method of training, i.e., 2-pew *ab-initio* instruction. The new members we did get have more than increased our confidence in this method.

Up to November 19, we have flown 1,230 hours. September being our best month with 212 hours. A fair proportion of this total was done on "Hot Air" on so-called non-soaring days during June. We have been using an extended winch run which gives us nearly 2,000 feet on "T.21.B" and "Olympia." Contact on these days being almost as certain as on hill-soaring days. These days are noted for being 8/8 blue all round and one whacking great cu. over Pole cottage. The

best height in these conditions being 6,100 feet A.S.L. in "Gracias" (our Kite), J. H. Holder up.

Our wave has been present on about 50% of our hill-soaring days but it generally arrives too late to do anything about it. The best climb in these conditions was by Theo Testar who reached 7,100 feet A.S.L. in the "Eon Baby." Riley with joy-ride passenger reached 5,000 feet with the green ball trying to get into the static tube of the pitot. He had to come down because the St. cu. had filled in the hole and the Mynd had vanished. This was on the same day as Thomson's flight in Derbyshire.

All this sounds as if we just go up and come down again. We do, but some people go in horizontal lines as well; the author got a "Lead C" for a cross-country of 200 yards. J. H. Hickling and Bruce Bowdler both completed their Silver Badges with flights to Malvern and West Bromwich respectively. "Gracias" hasn't quite made it this year, with one flight to Bridgenorth (22 miles), J. H. Holder up, and one to Market Drayton (36 miles), G. N.R. Whitfield up. He was winched too high and was pipped by the 1% rule. Other cross-country flights were one of 40 miles by Philip Wills to Redditch and one of 85 miles by J. Grantham, and D. Martlew in "C.U.G.C. Kranich" to Silverstone.

Intending visitors are informed that the Burway is now completely unfit for traffic, and they should use either the Asterton, Bridges, or Leebotwood roads as these have recently been made up and are in good condition. J. H. H.

SOARING SOCIETY OF CANADA

Tenardee Gliding Club, Calgary

Tenardee 2-place "Schweizer" repairs are approaching completion and Norm Bruce plans an investigation of the famed Chinook. He says that the Chinook is most frequent in the Calgary area and believes that the Arch is a standing wave and can be used by sailplane pilots. Last month he planned some flight investigations and to chart the intensity of the wave, if it exists, and to ascertain whether or not it is possible to fly parallel to the Rockies, etc. He believes the phenomenon should extend from Montana to as far north as Edmonton

For many years the Chinook has been the subject of speculation by meteorologists and sailplane enthusiasts. It is well known to pilots of powered craft around Calgary who look upon it rather as a dangerous nuisance than anything else. It hits the news pages frequently with its unpredictable vagaries, including abrupt temperature changes within a few feet of altitude.

It is hoped that Norm Bruce has been able to lift a corner of this veil of mystery at last, as far as such aspects affect gliding. It could be that the Chinook will turn out to be a Canadian Bishop, and we are fortunate in having such a well qualified and enthusiastic glider bloke on the spot to make the investigation. Of course it is a long term proposition; the phenomenon is not static nor even predictable, so it may be some time before anything more is learned of it.

(We hope to be able to publish news of Norm Bruce's findings next month).

GATINEAU GLIDING CLUB OTTAWA

Visitors from Afar

Two notable visitors dropped in at Pendleton Airport to view our gliding activities: Emil Lehecka, a noted glider pilot and aviation photographer and member of the Air Hoppers Gliding Club in Massachusetts. Mr. Lehecka very kindly invited members of the Gatineau and Buckingham Clubs to pay a return visit. Four of our members did go down to Wurtsboro over the Labour Day week-end and in spite of the poor gliding weather (fog and rain) spent a very enjoyable time with the Air Hoppers.

Jack Scott, newspaper columnist from Vancouver, was very interested in the gliding activities at Pendleton. His article covering the visit appeared in the *Ottawa Evening Citizen*.

September Highlights

Glider Pilot Lands in Mental Home—Johnny Dure soared 70 miles to Brockville and despite a wet retrieve on a dark and stormy night, seems to have enjoyed the trip.

We regret the departure for Toronto of Johnny and Leo Dure and Tony Stallwood, three of our staunchest members. We sincerely hope they will be back with us next summer.

The editor was busy getting

married this month which caused a slight delay in the issue of the Bulletin. With the aid of the better half, however, we hope to meet future deadlines on time.

October Events

We wish to extend a very warm welcome to two original members of the Gatineau Gliding Club on their return to Ottawa this month: Admiral Harry DeWolfe and Squadron Leader "Chem" LeCheminant. The Club owes much to them and we sincerely hope that pressure of work will not prevent them from taking part in Club activities once again.

On October 7th a Gliding exhibition was held at Buckingham, Quebec. Leaflets were dropped over the town well in advance and the turnout was exceptionally good. With the aid of a P.A. system installed on the Buckingham Club's truck, Brother Hormisdas kept the crowd up to date on all events. Shorty Boudreault put the "Olympia" through its paces with a display of aerobatics and the "Grunau Baby" and "Schweitzer 2-22" also took to the air. Guy Joyce of the Buckingham Club managed to keep the "Grunau" aloft for almost an hour to the great amazement of the onlookers.

As the season draws to a close, we begin once again to take stock of what was accomplished. From the viewpoint of gliding enthusiasts this has been a very poor summer for soaring weather, however, four of the members did obtain their "C's"—Mel Miller, Maurice Boudreault, Elvie Smith and Don Stephenson. Mel Taylor and Tony Stallwood came very close to it but didn't quite make it. Eight people soloed in the "Grunau"—Mel Miller, Maurice Boudreault, Elvie Smith, Mel Taylor, Tony Stallwood, Don Stephenson, Norm Brown and Viatur Landry. A number were also checked out on the "Olympia."

FOR SALE

New 28ft. metal trailer, Knott, Rose and Crown, Coley Street, Reading.

"Minimoa" Sailplane—Current C. of A. and in excellent condition (ask Johnny). Complete with instruments and trailer. Can be seen L.G.C., Dunstable. Best offer over £500. Apply Tudor 5470 by day, Berkhamsted 588 evenings.

Letters to the Editor

33, Palace Court,
London, W.2.
20th October 1950.

DEAR SIR,

September/October Editorials

It is regrettable that your October Editorial repeats the unfair criticism of pilots who fly the best sailplanes available without regard to country of origin. Particularly so as your remarks contain veiled implications which are lacking in factual support. It is up to you to justify such suggestions, not for the persons aimed at to disprove them.

My more serious disapproval of your attitude results from the failure of the *Sailplane* to do anything to encourage the production of British machines superior to the "Weihe," while at the same time suggesting that British pilots should not fly German machines. I have seen no articles setting out methods of obtaining performances better than those of standard German machines. Maybe the *Sailplane* staff have heard of such modern developments as laminar flow wing sections, or could commission articles setting out the good and bad points of such aerodynamic features: maybe you know of various advanced materials and methods of construction such as used in the "D-30" and in a proposed two-seater. However, your articles do not discuss them. No doubt you have heard of two advanced British designs which have not been described in your paper. If you favour advanced British machines, your articles should be discussing methods of building machines even better than those already being designed. Instead you print articles on how some not particularly clever pilot flies a moderate distance in an inferior machine, or an article (well written) describing an American machine inferior to the "Olympia."

Have you considered what machines would be left in the National Competition if those of German basic design (which includes "Olympia" and "Petrel") were removed? Only the "Gull IV" could be considered in the performance class.

May I suggest that if you wish pilots to fly British machines, you

assist in their provision by the following methods:

1. Obtain articles describing how better British machines might be designed.

2. Organise competitions which encourage good machines rather than good pilots—you must admit that the only design competition held for sailplanes in this country was organised by the B.G.A., not the *Sailplane*.

3. Cut out articles which do not contain lessons for the future.

4. Suggest means of solving the financial problems.

Pending the arrival of suitable British machines, any British sailplane pilot would welcome the chance of laying his hands on another "Weihe."

Yours faithfully,

J. A. ALLAN.

"SAILPLANE & GLIDER,"

139, Strand,

W.C.2.

27th October, 1950.

J. A. Allan, Esq.,
33, Palace Court,
London, W.2.

DEAR SIR,

Thank you for taking the trouble of writing your letter of October 20th with its suggestions to which we shall refer later, however, it appears to us that you can't be aware of the full facts on which you base some of your criticism.

In regard to the "veiled implications"; these facts are well-known and we are only reminding the persons concerned that he who comes to equity must come with clean hands. The whole position in our view is most deplorable and we can't see how any movement can prosper when the leadership is confined to people who have obviously so many holes in their armour. The writer has been born too long to venture to put the facts on paper to a stranger, but you can find them out for yourself if you care to ask questions.

Now to some of your constructive suggestions:

We have indeed heard of laminar flow wing sections, but except on the "Mustang" and "Orao" we haven't heard that they have as yet been applied to any aeroplane. And

the "Orao" developed wing flutter and broke-up. Millicer's design, the "T.M.-2" has been abandoned by Bolton, who has been building it for four years, as being impractical.

We have not discussed the advanced methods of construction such as used in the "D.30," because Wolf Hirth told us they were too dangerous and we have not been able to find out anything about the advanced materials and methods of construction of the proposed two-seater from the Ministry of Supply or the Miles Aircraft Company who is building it. As to Slingsby's new designs, we asked him only last week, and he has undertaken to allow the Polarity Curves of the new "Gull IV," after it has been tested at Detling, to be performed at the Cambridge University Gliding Club some time in December. But Slingsby has had far too many designs and ideas stolen to allow them to be published before they are a *fait accompli*. Your point about our publishing articles by moderate pilots flying moderate distances in inferior machines, is answered by the fact that most pilots are moderate, most distances moderate and most machines inferior, and these are the sort of articles which the majority of our readers like to read as it is something within their own experience.

We don't agree that the "Olympia" is a German basic design, as the specification, which was international, was laid down in 1938 by an international committee in Switzerland. It so happens that I was able to provide a set of German plans to the Chilton Aircraft Company, which they restressed to British standards, and which on the unfortunate death of Andrew Dalrymple passed into the hands of Elliotts of Newbury.

We shall be delighted to obtain articles describing how better machines may be designed provided we are sure that the authors know what they are writing about. For example, the B.G.A. two-seater was rejected by Slingsby who refused to build it, because it contained too many discarded ideas which his experience had proved to be undesirable. On the other hand practical experts the world over have declared that the Czerwinski-Shenstone design, which was built

when the competitions were held, is a much better machine, yet it was turned down by the B.G.A. who are still, four years later, about to make practical mistakes against which they were forewarned at the time, unless the constructor Miles himself finds out that this is so.

You are no doubt aware that Shenstone was the first president of the Soaring Association of Canada, is the Chief Engineer of the B.E.A., and has been described as the most brilliant aeronautical engineer in the world. His post was previously held by Philip Wills.

If we were to cut out the articles which don't contain lessons for the future there would probably be no more *Sailplane*. Our suggestions for solving the financial problems of gliding begin at the top and we would suggest that the people who run British Gliding would set a good example by putting money into it.

Perhaps having read this you would care to write to us again we should be very glad to consider any articles you would care to suggest on how better British machines might be designed.

Yours very truly,
Signed, VERNON BLUNT,
Editor.

P.S.—This is a purely personal letter—as the Editor for the past two months, Mr. Lionel Alexander, is not concerned.

From J. C. Rice, Cosby, Leicester.
15.11.50.

DEAR SIR,

About your recent query as to how Wills got his machine, I think you must tread warily as firstly it would **not** be in this country if he had not brought it over—it would have gone with many hundreds of other gliders smashed up by the Control Commission or at least the senseless troops—and secondly, I was present at a Council meeting where it was arranged that he should buy and pay for it under an agreement with the Ministry of Supply.

You have got on to a nice spicy bit of sensationalism that is interesting to read. But I do think the campaign is hardly fair. The allocation of the "research" machines was done in my opinion

—I was then a member of the B.G.A. Council—with a high regard to where they would be most used. If those who got them profit by their use it is but a just reward for the hard work and zeal that those parties and clubs have applied to keep gliding going. In any case the gliders were in such condition that much money had to be spent on them and that rather rules out the idea of handing them on to other users. I do not think that there is any cause for recrimination or jealousy.

Yours &c.,
J. C. RICE.

12th November, 1950.

SIR,

I have read Mr. P. H. Blanchard's letter, published in this column last month as a result of my recent article entitled "Circuits Maketh The Man," and I should welcome the opportunity to make a reply.

Writing an article similar to the one referred to above does present difficulties in that it is often hard to know what to put in and what to leave out in the limited space available. Now it seems to me that Mr. Blanchard's letter can be whittled down to three main points, with which I will attempt to deal.

1. It was indeed quite factual to state that a high proportion of accidents occur "somewhere downwind on the approach"; I believe those very words were used by Reserve Command in conducting an analysis of glider accidents some three years ago. Certainly there have been a number of "S-turn accidents" since. Early this year the B.G.A. circulated, on a quarterly basis, an enterprising summary of all reported accidents to member clubs. It is a great pity that this informative service has apparently been discontinued. We neither hear nor see much of it nowadays.

2. I fail to see why anyone would want to "vigorously oppose" a "fairly long (but not low) run into wind," if only to discourage the over-confident gentlemen who persist in making an approach from about half-a-mile away, flying at nought feet and at a vast rate of knots!

3. To witness a pupil overshooting (whether he has been trained by the solo or dual method) and then brazenly try to lose this

unwanted height by doing "multiple across-wind legs," probably turning steeply with one wingtip in the wind gradient and the other out of it, gradually sinking lower and lower and flying slower and slower, is enough to make anyone prematurely grey. Such a performance (even by accomplished and experienced pilots) invariably results in the last "S-turn" being made so low that you can see the whites of the pupil's eyes! In their great wisdom the power pundits, I think I am correct in saying, have outlawed this sort of exhibition from their own forced landing procedure. I realise, of course, that there are situations brought about by extenuating circumstances and conditions, but I am still not prepared to retract the statement that numerous "S-turns," as frequently practised close to the ground on the across-wind leg of the approach for the express purpose of losing excessive height, look most dangerous and therefore should be strenuously discouraged; manoeuvres connected with flying that look dangerous can generally be relied upon to fulfil that role admirably. In his attempt at circuit planning surely we must try to give the pupil a complete and identical pattern to work to, not just be content to leave him perched one or two hundred feet in the air on his own, manhandling a few square feet of wood and fabric, turning first this way and then that in a frantic and largely uncontrolled endeavour to force his unwilling contraption to place him back on to the clutching ground in one piece. Clearly the object is to minimise the risk, not increase it.

As a point of historical interest I am bound to conclude, Sir, by confessing that so far the lustrous spectacle, conjured up for our entertainment by those who ambitiously "sail past the winch in a serene straight line to their doom," has escaped me. But even so I find it hard to believe that, if the wretched machine must be broken, Mr. Blanchard has forgotten the old maxim "that it is preferable to run into the windward hedge at taxiing speed rather than hit the leeward hedge at flying speed."

I remain, Sir,
Your obedient servant,
JOHN FREE.

ULTRA LIGHT AIRCRAFT ASSOCIATION

EXTRACTS FROM NOVEMBER BULLETIN

DESIGN SUPPLEMENT

Contributed by Group-Captain E. L. MOLE, Chairman,
Design Sub-Committee.

The Ilgen "Junior" Two-seater Trainer.

In the Bulletin last September, we described a very comprehensive design study of an ultra light two-seater trainer by Mr. H. R. Ilgen of The Hauge, Holland. This study was based on the U.L.A.A. specification requirements published in our Bulletin of October, 1949.

The designed was examined by Mr. A. R. Weyl, head of our Design Team, who considered it to be a most detailed and valuable study, but he criticised the equal chord, cantilever, two-spar wing as likely to be heavy in view of its thin section. The writer, also, suggested that it would be wiser to design to a rather lower all-up weight in order to allow a margin below the 1,200 lb. weight limitation of the ultra light C. of A. category.

In consequence of these comments, Mr. Ilgen has modified his design and provided a wing with a taper ratio of 0.77, having a root thickness of 15%. He has managed to reduce his fuselage structure weight, and by omitting the two parachutes from the useful load he has brought his all-up weight down to 1,115 lb.—a very reasonable figure.

The aircraft is a side-by-side two-seater low wing monoplane, with an enclosed cockpit, and fitted with

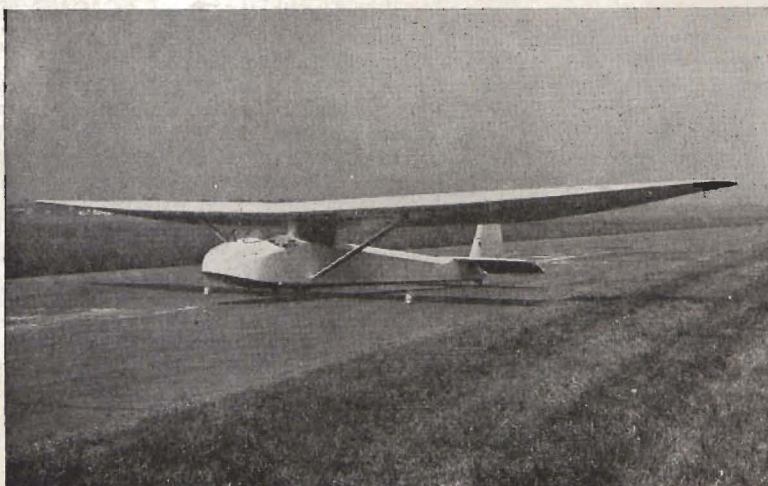
split flaps and a tail wheel undercarriage. It is of conventional wooden construction, and has an extremely smart and attractive appearance—which has been considerably improved by the taper wing. Revised details of its specification and performance are given below.

Mr. Ilgen, one of our recently joined members, has presented his design study to the Association, and we are holding it available for any Design Group contemplating a two-seater trainer. Mr. Ilgen has kindly offered to give them further detailed information and assistance with the stress analysis. We wish to express our appreciation of his public spirited action, and hope it will not be long before a suitable design and construction Group can be found to follow up the project. The provision of an ultra light two-seater trainer is, of course, of fundamental importance to the whole future of the movement.

Specification.

Span	34.1 ft.
Length	21 ft.
Height	6.37 ft.
Wing area	150 sq. ft.
Aspect ratio	7.75
Empty weight	663 lb.
All-up weight	1,115 lb.
Useful load	452 lb.
Wing loading	7.45 lb./sq. ft.
Fuel capacity	13½ gallons

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Performance.

(65 h.p. Continental Engine).

Max. speed	100 m.p.h.
Cruising speed	94 m.p.h.
Stalling speed (flaps down)	38 m.p.h.
Rate of climb	613 ft./min.
Take-off run (still air)	102 yards
Landing run (still air)	115 yards
Range (still air)	364 miles
Endurance	3.87 hours

Jet-Engined Single-Seater U.L.A. Project

We have received an interesting letter from Fl./Lt. J. R. Coates, of R.A.F. Station, Oakington, Cambridge, describing a project he has been working upon for the past two years. This is a small single-seater jet aircraft, similar to a scaled down "Vampire." When the design is completed, Fl./Lt. Coates hopes to undertake its construction; he thinks that the R.A.F. might be interested from the jet trainer point of view.

He has already designed the jet unit, which he describes as a simple sheet steel affair—and he has had a scaled down version working, though its life was short. He considers that the French Turbomeca would be suitable if a little more powerful.

We congratulate Fl./Lt. Coates on his enterprise and shall look forward to hearing of further progress with this interesting project. He has already proved his constructional ability by building his own "Luton Minor," which he is now flying successfully (see the Operations Supplement).

RESEARCH SUPPLEMENT

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

"ZAUNKOENIG"—Professor Dr. Herrmann Winter (of the Technical University of Brunswick), the designer of the "Zaunkoenig," has kindly passed on to us the following additional information relating to this aircraft:—

Two aircraft of this type were built with slight differences, designated V.1. and V.2. ("V" stands for "Versuch," i.e., "Experiment"). The first "Zaunkoenig" was destroyed during experimental flying. As Professor Winter states in his recently published book on *Soaring Flight and Slow Flying*, the aileron control failed when the aileron was suddenly fully deflected at an indicated airspeed of 215 km./h. (133 m.p.h.). The aircraft went into a steep spiral dive from which the pilot could not recover and he therefore baled out. The test was intended to check the justification of the officially prescribed load assumptions governing control and control-surface design.

This first "Zaunkoenig" had previously been sent to Paris for full-scale wind-tunnel investigations at Chalais-Meudon. The valuable results were, however, lost when documents were burned at the Volkenrode establishment of the *Luftwaffe*. Professor Winter claims that this was done in error by British officials; the Volkenrode files had, however, previously been systematically raided by instructed "displaced" persons.

"Zaunkoenig V.2." (now in our possession) was constructed after the destruction of V.1. The wing-incidence variation provided a separate research problem, and the gear was never completely installed.

Before doing so, stability tests and calculations were to be made with symmetrically adjusted wings. The end of the war, and the confiscation of the "Zaunkoenig," interrupted the development. The day before American troops occupied Waggun Aerodrome, near Brunswick, Professor Winter flew the aircraft 30 miles away to Harzburg where it was dismantled and hidden away in a shed. By order of the Occupation Authorities (to whom Professor Winter had to disclose the existence of his aircraft), the "Zaunkoenig" was transported to Volkenrode Aerodrome, reassembled, and demonstrated in flight by the designer. His plea to permit him to complete the experimentation, was originally agreed to by the British Authorities, but before any further tests could be made, the "Zaunkoenig" was sent to the R.A.E. at Farnborough. Without the publicity raised by an article in *The Aeroplane*, it might not have escaped the fate of destruction for want of hangar space.

OPERATIONS SUPPLEMENT

Operation of Light Aircraft from Confined Spaces

The following extracts from M.C.A. Information Circular No. 108/1950, will be of interest to all pilots who may wish to take-off from small fields:—

Published performance data for light aircraft must be used with discretion, since the take-off distances given can sometimes only be achieved under favourable conditions. Take-off performance can be adversely affected by a number of local factors, such as up-hill slopes, soft and rough surfaces, long grass, high temperatures, and down-draughts in the lee of clumps of trees, buildings, ground undulations, etc. The following table may be useful as a rough guide to their effect on the take-off distance covered in reaching a height of 50 feet. If more than one adverse factor is present, the cumulative overall effect will be greater than the sum of the individual effects.

(a) **Altitude**—The take-off distance is increased by approximately 7% for each 1,000 feet above sea level.

(b) **Temperature**—The take-off distance is increased by approximately 1% for each degree Centigrade that the air temperature has risen above standard. (Standard temperature is 15°C. at sea level, and is decreased by approximately 2°C. for every 1,000 feet of elevation).

(c) **Gradient**—An up-hill slope of one degree (i.e., 1 in 60 approx.) increases the take-off distance by 10%. (Where an airfield is concave, or the slope is steeper at the end of the take-off run, the adverse effect is greater than the above).

(d) **Take-off Surface**—A dry short turf surface increases the distance compared to dry concrete by some 10%, while soft turf or long grass may cause an increase of up to 50%.

(e) **Effect of Headwind**—When taking-off directly into wind, a headwind of 10 knots decreases the take-off distance by about 25%; and a 15-knot headwind decreases it by about 35%. A slightly greater advantage is obtained by light aircraft with a very low stalling speed. However, due to continual variation in the wind's speed and direction, it is not advisable to take credit for more than 50% of the reported or estimated wind.

(f) **Reduction in all-up weight**—A reduction of all-up weight by 2% decreases the take-off distance by 5%

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