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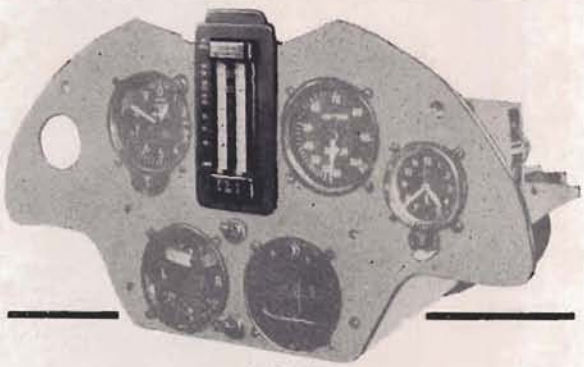

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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

JUNE 1950 ★ Vol XVIII No 6

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CONTENTS

COVER PHOTO:

"Olympia" being launched at Lulsgate (Bristol Gliding Club).

Camera Ikonta Kodak Super XX 5·6. 1/300 Yellow Filter. (J. M. Cochrane.)

Editorial

GLIDING REGULATIONS RELAXED

"TO encourage gliding, the Minister of Civil Aviation, Lord Pakenham, has decided to exempt private and club gliders from the requirements of registration and of certificates of airworthiness to which they were formerly subject under the Air Navigation Order, 1949, provided that their owners are insured against liability for injury or damage to third parties. The exemption is being granted under the provisions of Article 70 of the Air Navigation Order, 1949.

Although the owner of a glider will no longer be legally obliged to hold certificates of registration and airworthiness when the glider is flown in the United Kingdom, he may still, if he wishes, obtain these certificates provided that the conditions for their issue are met. New gliders constructed commercially will still need to have a certificate of airworthiness, which will be a guarantee to the purchaser that the machine is of satisfactory design and construction, and will ensure that the export of gliders is not jeopardised.

Gliders are in general maintained in a constant state of airworthiness by their owners."

The above announcement will come as a relief to the Gliding Movement of Great Britain and, we hope, as a green light to the Government Controllers of Civil Aviation throughout the world.

It will be recalled that of all the proposals of I.C.A.O. about the control of gliding, the above were the only restrictions placed on the Movement which remained after the Yorkshire Club, the B.G.A., and last but by no means least, *Sailplane*, had vigorously protested. Even these have now been removed. Whilst thanking the Minister for his interest, we now wonder why the regulations were ever proposed.

No doubt the Ultra Light Movement will feel the same. We sincerely hope that the Minister will see the light in regard to Ultra Lights, as he has about Gliders, and we hope it will not be long before they are equally free.

Our readers will have heard of the accidental death of F/L. Leslie A. Miller ("Dusty") on May 10th near Detling where he was C.F.I. This was a Service machine and we have only heard hearsay accounts of what happened. It appears that he was practising aerobatics at about 3-4,000 ft. for the R.A.F. Pageant in July. He did not recover from an evolution in inverted flight and the machine dived in, still inverted. He tried to bail out but did not succeed. We sincerely hope that the findings of the Court of Enquiry will be published for the benefit of the whole gliding Movement. In the meantime we extend to his relatives and friends and comrades our sincerest sympathy. "Dusty" was an outstanding glider pilot who had garnered a great deal of soaring lore as a power pilot over the Atlantic and Bay of Bengal. His flight to Belgium was a brilliant performance. Having writ his name in the book of fame he was not spared for more, but maybe we shall learn something from his passing of great value to the safety of those who come after, as he would have wished.

There is as yet no news of the decision of the B.G.A. as to whether "Steve" is to be chosen for the British Team for Sweden. It is said there is only one serious competitor—Pete Mallett—but we shall be surprised if, in view of the circumstances, "Steve" does not go to Sweden.

Meanwhile the teams for France have been announced—Lambert, Capt. Fonteilles, and Valette. Fonteilles is not a Gold "C" although this is due to occur during the contests. The Swiss "Five" are Franco Legler, Karl Ruckstuhl, Adolf Gehriger, Siegbert Maurer, all from Zurich, and the ineffable "Maxie cherie" Schachenmann from Oftringen. Paul MacCready, and we believe Stan Smith (U.S. Champion in 1933), are coming from U.S.A.

By the way, none of the foreign teams has indulged in the luxury of a non-flying "Captain"—a totally useless appendage to a gliding conxi—you cannot by any means call it a team, all performances are individual and so are placings. The British appointment has aroused a deal of comment abroad as well as at home (where it is very unpopular), and we suggest that the B.G.A. might well reconsider this appointment which only makes the British ridiculous in the eyes of foreigners.

The rules provide for a National Leader but this is not the same as a Captain.

Our readers will no doubt recall the satirical article we reproduced from the French on the occasion of the International Competitions in Switzerland two years ago.

Finally we should like to mention M. Marmol's marvellous flying of his Lunak Glider at the R.Ae. Society Garden Party at White Waltham. A couple of loops round a cloud from 10,000, a flick roll, inverted dive at 150 m.p.h., a bunt, flick half-roll at the top, a diving approach, going very fast at six feet from the ground, a left climbing turn to 300 ft. and a spot landing in front of the President's Marquee. It stole the show.

SOARING IN FRANCE

The New "CASTEL MAUBOUSSIN" SAILPLANES

By GUY BORGÉ

The Fouga works at Aire sur Adour (Landes) have just built some new Castel Mauboussin sailplanes in the C.M.8 series, each one representing a new formula :

CM 8-13 sailplane for aerobatics.

CM 8-15 high performance sailplane.

CM 8-R15 jet sailplane.*

But this nomenclature, based upon the wingspan, seems to me very complicated and I should prefer the names of birds, flowers, towns, clouds, and so on, but not numbers, which are difficult to tell and remember. The three machines, wood built, have the same fuselage, a shoulder wing, new air-brakes with a comb shape, and their differences proceed from their purposes.

The CM 8-13, destined for aerobatics, is of small dimensions : 13 metres wingspan, aspect ratio of 13, a wing area of 13 m2 (lucky 13s !). Its builders wanted to give it the qualities of a plain sailplane (the famous German "Habicht" soared with difficulties), and its performances are very interesting : maximum gliding ratio of 27, sinking speed of 4 feet/second at 62 m.p.h. The Centres possessing the CM 8-13 could then fulfill a complete programme with it : execution of altitude and distance performances, training to aerobatics, aerobatics in meetings and competitions.

The CM 8-15 is given the dimensions of the olympic sailplane, and in general appearance is similar to the 13, but its butterfly tail and its special flaps opening from 0 to 40 degrees, confine it to high performances execution.

The third machine, the CM 8-R15 is very special. Created for aerological work and wave research flights, it derives from the well known "Cyclone," the jet machine (the "Cyclone" drawings were issued in the June 1949 number of *Sailplane*). But its wing, similar to the CM 8-15, is greater than that of the "Cyclone." The jet engine is the same Turbo-méca 011 which has proved its good running and endurance (now 150 hours without any trouble).

M. Eric Nessler has become a jet pilot without difficulty with the "Cyclone," and he finds it very pleasing. These jet machines are auxiliary powered sailplanes and their handling remains very similar to a sailplane.

The following table compares the different characteristics of these machines about their dimensions and their performances :

Type	Function	Wing Span	Wing Area	Aspect ratio	Empty weight	Full weight	Glid. ratio	Minim. vertic. speed
CM 8-13	Aerobatics	42.7	140	13	495	740	27	2.62
CM 8-15	Performance	49.2	161	15	540	780	29	2.33
CM 8 R 15	Jet	49.5	161	15	850	1200		3.28

The CM 8-13 and 8-15 are very strong, calculated with a security factor of 12 ; their maximum diving speed is 170 miles/hour. One does not know whether these interesting machines will be in production. But the Fouga works have just began the construction of a small quantity (thirty) of another new sailplane, the "Castel Mauboussin" 311 P.

The 311 P is a modified version of the excellent "Castel" 310 P which has given such good results in the Centres and the Clubs. My Rhône Aéro-Club owns one C.310 that records since 1946 about 600 hours of flight in 2,200 launches and an incalculable number of cross country performances. The weak side of this machine resides in its derigging difficulties. But its good handling at the lowest speeds (with the slotted ailerons) combined with its small sink becomes very interesting in narrow thermals, and I prefer to fly a 310 in these conditions rather than an "Olympia" or "Weihe."

As the "Castel Mauboussin" 311 P has better qualities than the "Castel" 310 P, I think that it will be extremely good. The following modifications have been done in the CM 311 :

Fuselage longer, with an oval section instead being slabsided.

New air brakes with 24 sectors opening above and under the wings.

Ailerons, elevators and rudder larger.

Addition of a braked wheel as undercarriage and of an elevator trimmer.

The CM 311 P has a wingspan of 46 feet, a wing area of 158 sq. feet, an aspect ratio of 13.3, an empty weight of 346 lbs. and a full weight of 540 lbs.

The performances are similar to the "Olympia" : maximum gliding ratio of 25 at 40 m.p.h., and minimum vertical speed of 2.14 feet/second at 36 m.p.h.

I am anxious to fly the CM 311 P in order to see its general handling and its performances in comparison with its brilliant predecessor the 310 P.

*See page 131

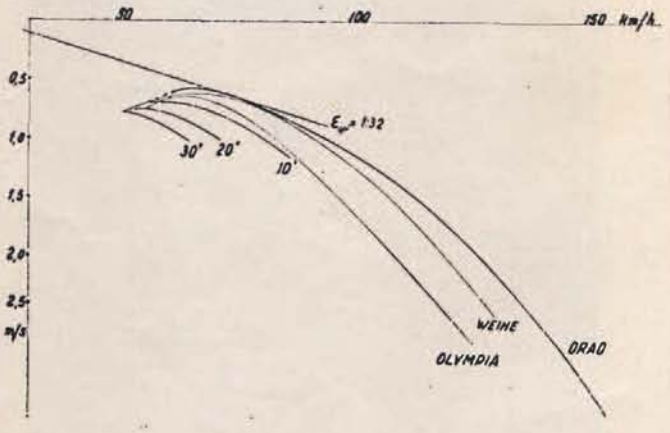
GLIDING AND SAILPLANES IN YUGOSLAVIA

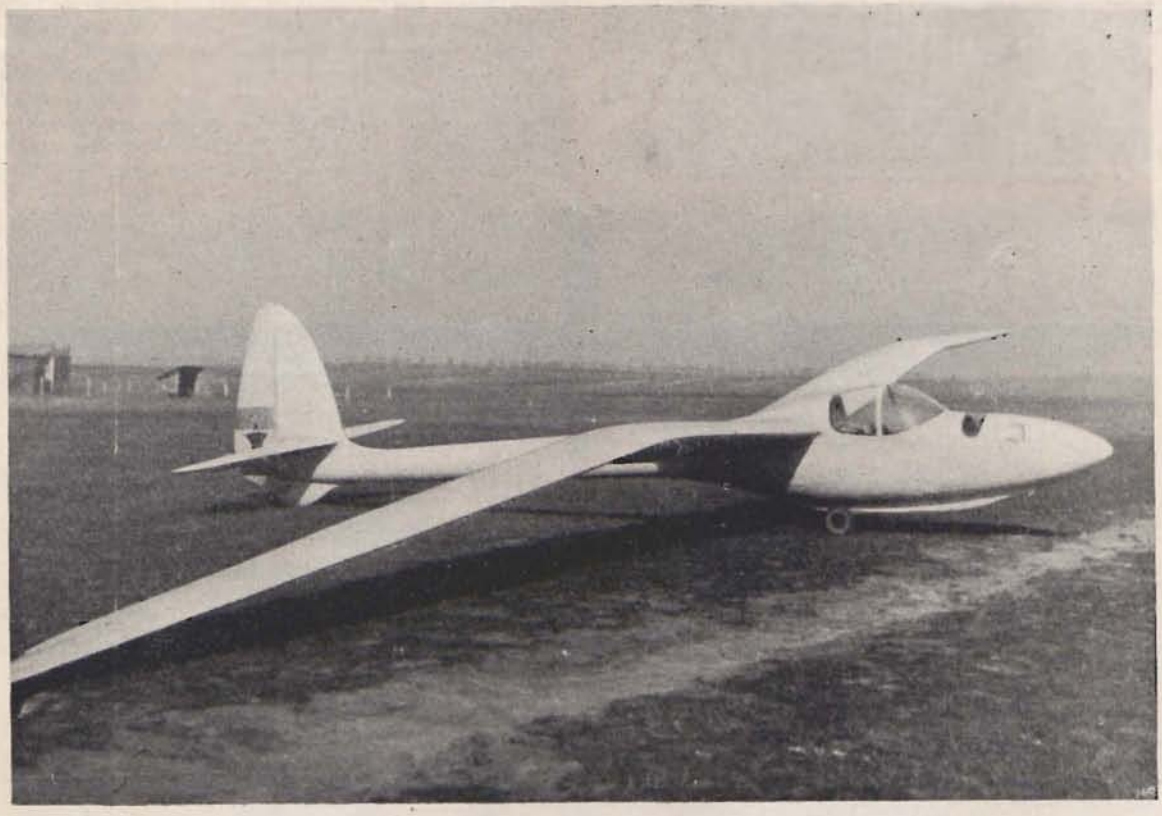
AFTER the Second World War gliding spread in an impetuous development in Yugoslavia. With the biggest possible help of the State, Air Force, and mass organisations it is possible for the Aeronautical Union of Yugoslavia to give training each year in gliding to thousands and thousands of Yugoslav youth enthusiasts.

From the beginning there was need of a large number of primary and advanced gliders. By building a series of home-designed primary " Vrabaz," two-seater " Roda," advanced " Chavka," trainer " Iastreb " and " Galeb," high-performance " Soko " (mostly designed by Ing. Ivo Shoshtarich), " Triglav," " Orao," " Udarnik " and hydroglider " Jadran," it was possible to instruct and fly at 34 Gliding schools and centres all over Yugoslavia.

In these schools teaching and training is free, as is the case with power flying too in general in Yugoslav Aero-clubs. Participation in gliding contests is also without any fee : e.g. for entry, lodging, food and other accommodation. The membership fee in the Aero-Clubs is about 10 dinars (1/-) per month. Each member may, if physically fit, become a motor- or gliding-pilot.

In post-war years, with over 200 sailplanes and tug aircraft, gliding has had great success : flying more hours and kilometres in one year than for fifteen years altogether before the War, setting up and beating all the pre-war male and female records



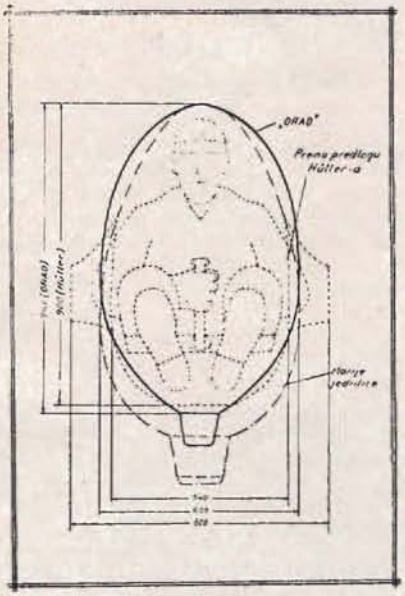


" Orao "

in one-and two-seaters, organizing two national gliding contests.

The quality of the young gliding pilots of Yugoslavia (all younger than 25) is now near that of their comrades in foreign lands. In this year they will participate in the F.A.I. International Gliding Contest at Orebro in Sweden. Also there will be a national yearly gliding contest and an Aeronautical contest (the third) involving gliding in Yugoslavia in 1950.

But not the least successes in 1949 were the new constructions of the high-performance sailplanes : " Orao," " Triglav," and " Udarnik " and the hydro-sailplane " Jadran." Below we are giving some more details and data about them.

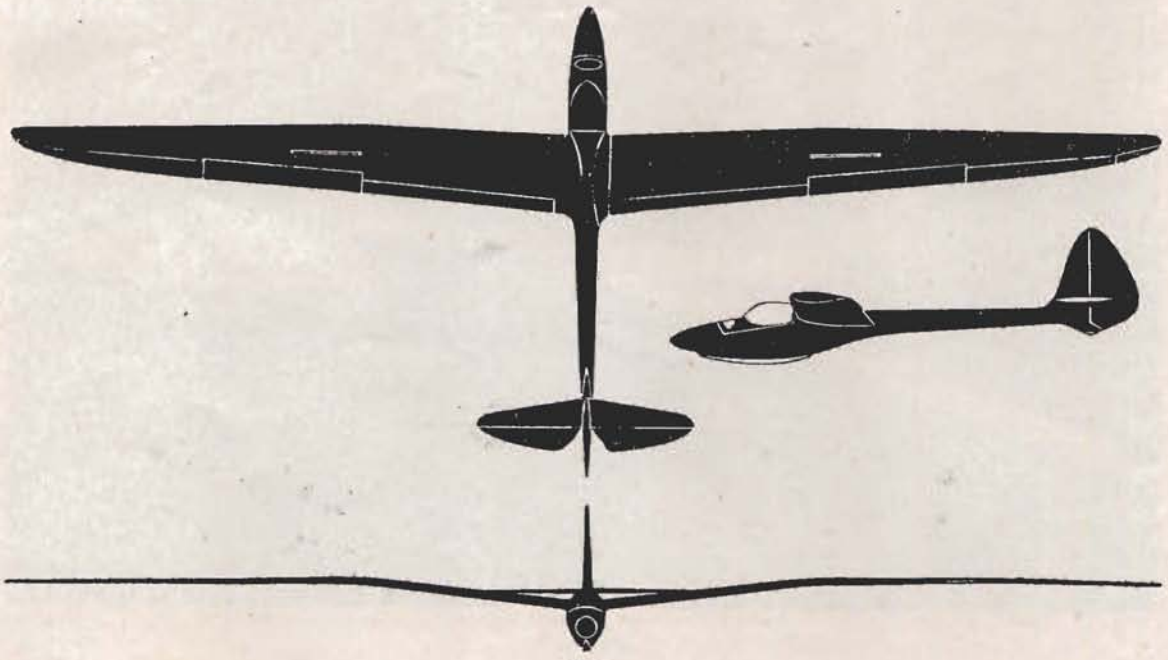


The record-sailplane " Orao " (Eagle) is a 1 : 31.7 gliding angle, 19 metre span construction designed by well-known Ing. Boris Zeian and Ing. Stanko Obad. It is a wood and fabric type with duralumin spars bonded with laminated wood.

Slightly less efficient than the German " D-30 " (Cirrus), better at speeds over 100 km.p.h. than the German " Reihe ", in the 50-60 km.p.h. range equal to " Weihe," better at the highest speeds, it is one of the outstanding contemporary sailplanes in the world, attaining $V_2 = 0.58$ m.p.s. at 65 km.p.h. with a wing loading 20.55 kg.p.m.^{2}. By polishing the surfaces it should be possible to attain better gliding angles (over 33).

" Orao " had remarkable success in the national competition in Ruma in 1949, with the best distance flight of 286 km.

Wing of the " Orao " has an aspect ratio 1 : 20-9, taper 0.43, broken form, slightly foreswept monospar with torsion box from the leading edge to the spar. Laminated wooden skin extends to the flap and aileron surfaces. In the centre section it has the modified G 549 R, on the 0.61 semi-span the G 549 R and near the wing tip (at 0.9 semi-span) the RAF-34 modified profile. The effective aerodynamic and geometric angle of twist is 6.6. degrees. Wing area, including the fuselage part is 17.79 m^2. The flaps are of the " NACA 2h " type. Then to the wing tip the ailerons are divided in three parts, first " the plain-flap " working parallel with the flaps, the " Frise " type and a special aileron part on the tip with a gap. In order to diminish the diving speed and help in landing there are standard " DFS-brakes." With the flaps open " Orao " circles with a radius of 75 metres.



Fuselage with a cross section of 0.506 m² offers minimum drag. An orthodox construction to the trailing edge of the wing, it ends in a sandwich monocoque tail. The pilot sits in a semi-lying position in the cockpit. Weight 276 kg., all-up weight in flight 366 k.g.

PERFORMANCES :

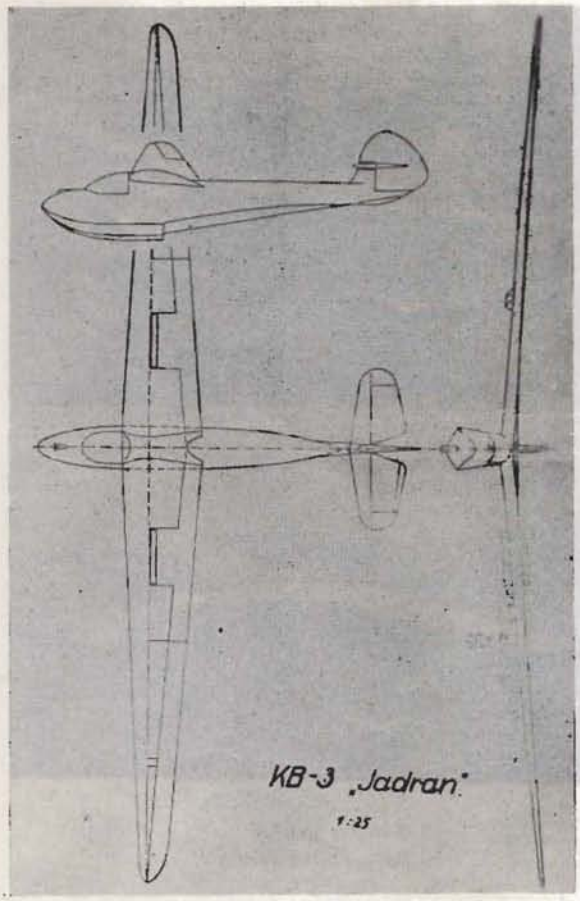
V. min.	=	48 km.p.h.	
V.	=	50 km.p.h.	Vz = 0.8 m.p.s.
V.	=	70 km.p.h.	Vz = 0.6 m.p.s.
V.	=	90 km.p.h.	Vz = 0.94 m.p.s.
V.	=	120 km.p.h.	Vz = 1.78 m.p.s.

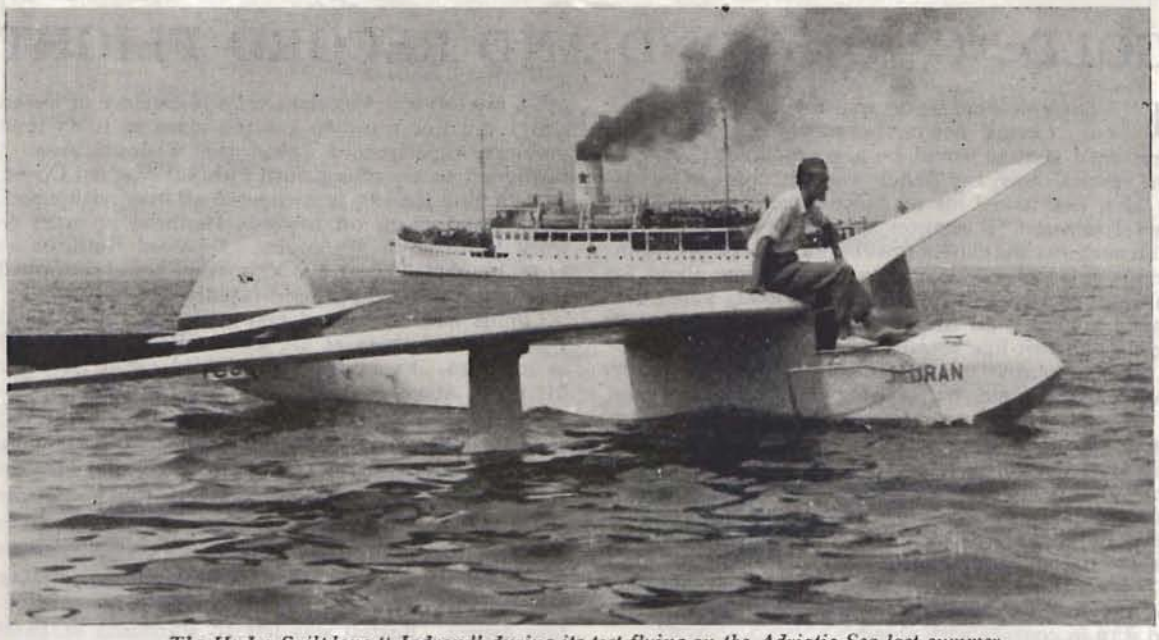
Easy for handling by the pilots, statically and dynamically stable, prepared for blind and altitude flying and permitted to enter the clouds it offers great help to the Yugoslav pilots in their competition at Orebro.

The Hydroglider " Jadran " is in fact able to land and alight on normal ground too. It is the design of a student team headed by Koser Iaroslav and Hrovat Stoian from the Construction Bureau of the Aeronautical Union of Slovenija in Liubliana. Intended for gliding along the Dalmation coast, where it has already successfully flown the past summer with good results, it was finished by the " Letov " works in Liubliana for the birthday of Marshal Tito, the 25th May, 1949.

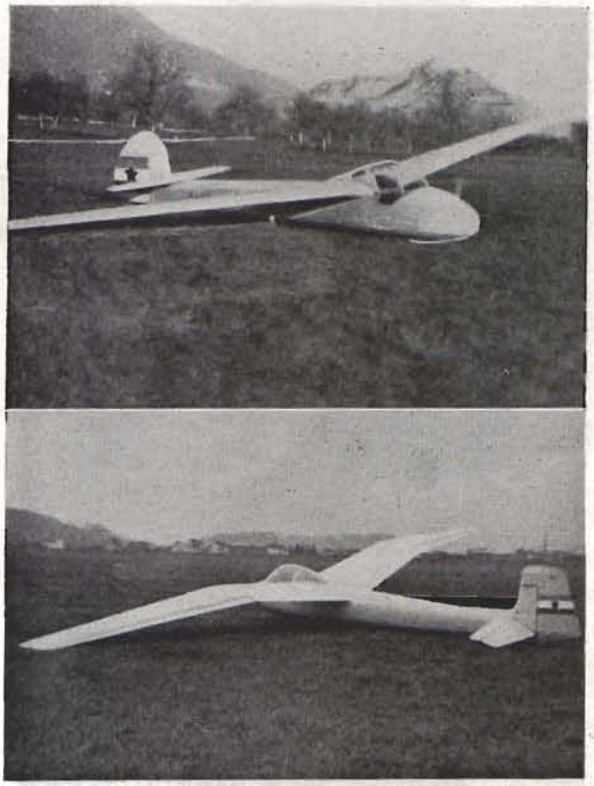
A high-performance sailplane with the wing of his predecessor " Triglav " without flaps, and with hydraulically retractable wing-floats, " Jadran " gave in the Ruma contest last year the silver " C " insignia to its designer Iaroslav Koser who flew it during the contest, with two unofficial hydroglider records : goalflight of 82 km. and gain of height 1400 m.

Mostly of wooden construction, it has orthodox wings with aerodynamic brakes, a wooden fuselage with a monocoque tail. Altogether " Jadran " has





The Hydro-Sailplane " Jadran " during its test flying on the Adriatic Sea last summer.



Top : " Triglav "
Bottom : " Udarnik "

satisfying qualities as in air, like in water, or towed by a hydroplane Data :

Span : 15 m.
Wing area : 13.25 m².
Aspect ratio : 1: 17.
Profiles : G 549 and M-6.
Twist angle : 7.2 degrees.
Weight : 195 kg.
Weight in flight : 280 kg.
Wing loading : 21.2 km.p.m².
Maximum speed : 200 km.p.h.
Towing speed : 150 km.p.h.
Landing speed on water : 120 km.p.h.
Best gliding angle : 1: 25.

The two remaining high-performance sailplanes " Triglav " (designers Koser Iaroslav and Hrovat Stoian) and " Udarnik " (design of students Zener Dushan and Slanovez Marian) are of the Olympic category. The " Triglav " is already in mass production and participated in the Ruma - contest ; " Udarnik " was finished in November, 1949. " Triglav " with a wing dihedral angle of 4 degrees and the " Udarnik " with a broken wing form are simple, cheap and easily handling machines suitable for the worst terrains, fit for mass flying.

COMPARATIVE DATAE :

	" Triglav "	*" Udarnik "*
Span	15 m.	15 m.
Wing area	13.25 m2	15 m2
Aspect Ratio	1.17	1.15
Weight	175 kg.	200 kg.
Weight in flight	265 kg.	300 kg.
Wing loading	20 kg.p.m.2	20 kg.p.m.2
Best gliding angle ..	1.27 at 75.2 km.p.h.	1.26 at 76 km.p.h.
Vz min (m.p.s.)	0.67 at 62 km.p.h.	0.72 at 58 km.p.h.
Vz at 100 km.p.h. (m.p.s.)		1.23
V min. (k.mp.h.)	42	45
V max. (km.p.h.)	300	300
Loading coefficient (nA) ..	12	12
Towing speed (km.p.h.)	130	
Profiles	G 549 (16%) and M-6	
Taper	1: 3.3	1: 2.7

" m.p.s. " means metre per second.
" kg.p.m,2." means kilograme per square meter.

GOLD "C," DIAMOND AND RECORD FLIGHT

THE day's weather report was not very encouraging, but, having flown the previous afternoon, I presumed that it would be a good Sunday, and, as the results show, my hunch was not unfounded.

Alan Bell towed me off behind the Tiger at 11.45, and I released 12 minutes later at about 1,200 feet. Estcourt was the chosen goal because of the prevailing winds and ease of navigation. It took me about ten minutes to spiral up to 9,000 feet. Clouds were about to form further to the south, and I flew cautiously in the shortest line towards them.

For the next 20 minutes I flew the "Air-100" at her best gliding angle, but, having a six-knot tail wind, I covered ground at a fair speed, and, finding two more thermals of two metres on the way to Vereeniging, I passed over the town at 13.00 hours, which indicated a fair ground speed. Clouds were forming well by now, and I found lift under every one. Cloud density was approximately six-tenths, which is pretty useful spacing when one has a little tail wind. To port, the sky was almost clear, and I continued on my way at about 30 degrees off course in order to stay in contact with cloud.

On my left was Vaaldam, a large expanse of water, and I did not want to get too close to it as from previous experience I found this a down area. I continued on my course until I almost reached Dover, and, finding the sky now covered all over with cloud, I decided to veer off towards Heilbron in order to work back on to my course. I passed Heilbron at 14.00 hours, which at 120 kms. from home confirmed that I was covering ground rapidly.

Clouds had now developed into " cu. nimb." but I kept out of them as lift under cloud was as good as in them. Every second or third cloud gave me lift up to about five metres second, and having discovered this I kept on going, unless I hit a snorter, to settle down spiralling in four to five metres. Having adopted this practice, I covered nearly 100 kms. in the ensuing hour, but unfortunately this game was not to continue. Reitz had now been passed to starboard, and I began to make out the Harrismith mountain as well as the Basutoland-Drakensberg escarpment, both very helpful points from a navigation aspect. Kestell was left to starboard at 16.00

hours, and from here one could gaze down into Natal with a completely cloudless sky.

My intention was to fly towards the Drakensberg escarpment, to sail along it and make for Pietermaritzburg, as I expected clouds along this route. Finding, however, a clear sky ahead of me, it was now the obvious answer to go straight towards my goal and trust to luck that I would find some lift on the way.

Five miles ahead of me, just short of the escarpment, I saw a rather tired-looking " cu.", and as I needed every inch of height I could get, I went into it to squeeze out the last inch of life. Having done this, I set course and left the cloud at 13,000 feet.

I settled down once more to the best gliding angle, and just hoped for the best. About 60 miles ahead of me, a large single " cu. nimb." was developing into a storm, and how I wished I could get near this good-looking animal. After a 20-minute glide, I could just make out Bergville to starboard, but by now I was getting uncomfortably low, having only 2,000 feet of air between myself and the deck. I looked for some broken ground to see whether I could raise some dry thermic, and going over a bare patch of veld I found a little lift which I eventually worked up to two metres second. This put me back to 10,000 feet, or approximately 5,000 feet above ground.

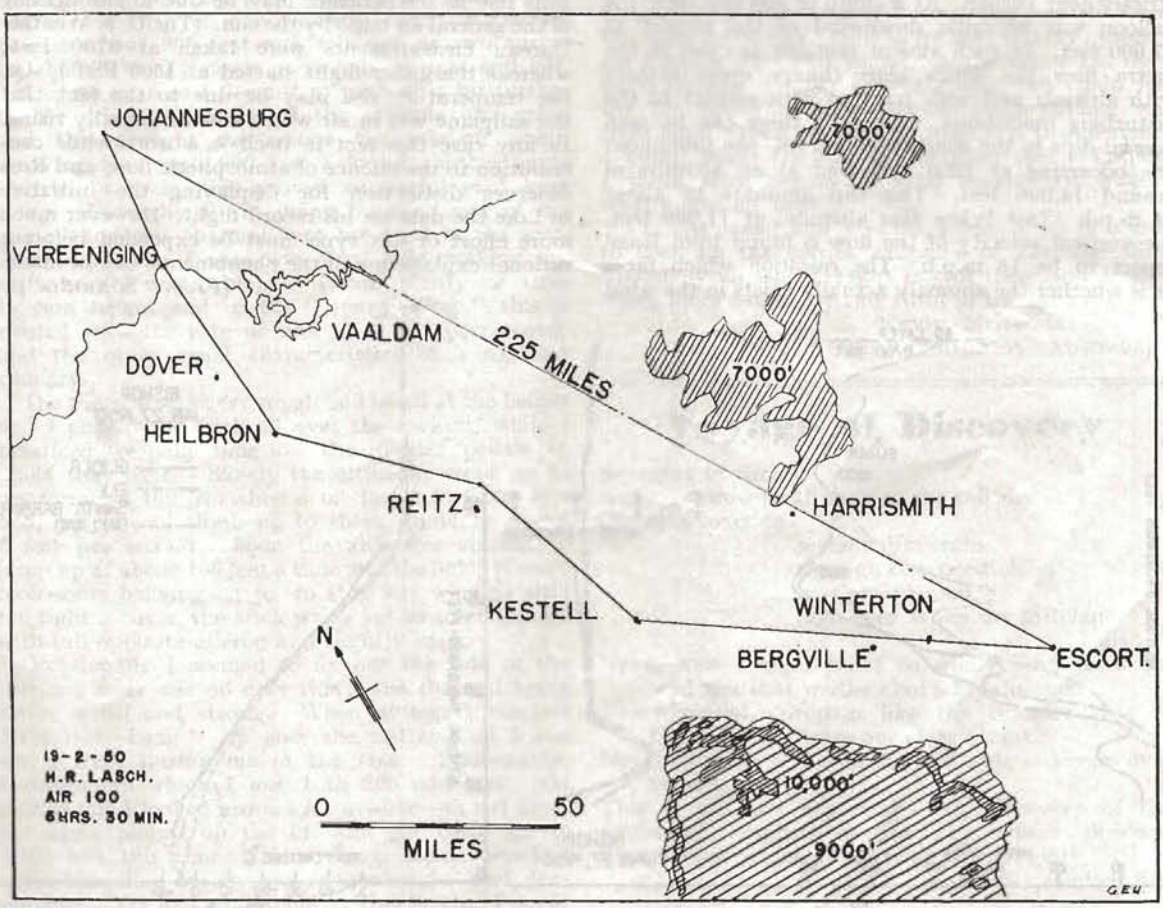
I was more than pleased because I knew that the 300 km. would be in the bag. It was out of the question to go to Estcourt from here in a straight line, but this last gain of height gave me a fair chance to reach a good-looking " cu. nimb." which had by now turned into a small storm, and was moving towards me.

Trimming the bird out at best gliding angle I sailed towards the storm to contact it just short of Winterton, and was delighted when I felt its first wave of lift. It did not take long to find its centre of lift, and with the gyro horizon buzzing merrily, I spiralled up to 14,000 feet, where icing began. As I had made up my mind to go in at Estcourt I straightened out and went on course, because I had ample height to reach my goal. In doing this I passed through the back of the storm and although I knew that this section would be more turbulent than the front, I did not expect as thorough a shaking as I got.

I arrived over Estcourt at 17.45 with 11,000 feet in hand, and tempting as it was to go on to Pietermaritzburg I decided to be a good boy and land.

I think that this is probably the most lucrative flight anybody has had the pleasure of flying, as it gave me my Gold " C," one diamond, a new South African goal record, as well as distance record.

HELLE LASCH.



TECHNICAL NOTES ON ROSS' FLIGHT TO 36,100 ft. A.S.L.

ON this flight Ross reached a higher altitude than has been achieved by any other sailplane pilot except Klochner who climbed to 37,400 feet over the Alps. Klochner, however, released at an altitude above 5,000 metres ASL and therefore could not claim the absolute altitude record for sailplanes. There is no reason why this altitude cannot be exceeded at Bishop.

The flight of Ross was exceedingly valuable in advancing the understanding of the atmospheric flow over high mountains. Ross in addition to reaching a high altitude, collected the wind data and the temperatures of the air mass at various altitudes This information is displayed in Figures. 1 and 2.

The winds aloft presented in Fig. 1 were taken with a single theodolite. In this method the rate of climb of the balloon is assumed to be that due to its bouyancy. If the balloon goes through regions of strong updrafts errors result in the horizontal wind measurements. Also, since the balloon drifts downwind, the measurement of the winds aloft is not strictly over Bishop. At a climb of 800 feet/min. the balloon was 23 miles downwind of the airport at 27,000 feet. In such violent motions as exist in the Sierra flow the winds aloft change quite rapidly with altitude and with position with respect to the disturbing mountains. In Fig. 1 there can be seen several dips in the wind speed curves, one prominent one occurring at 1200 PST and at an altitude of around 14,000 feet. This dip amounts to about 14 m.p.h. Just below this altitude, at 11,000 feet, the vertical velocity of the flow is found from Ross' report to be 16 m.p.h. The question which faces us is whether the anomaly actually exists in the wind profile or if it is merely an error resulting from the single theodolite wind measurement. Here the sailplanists who have contributed to the knowledge of these flows can contribute even more. By means of a drift sight in the rear cockpit, a sailplane observer could measure the windspeed in a region directly above the Owens Valley. From these data and the vertical speeds one could compute the true direction of the streamlines over the mountain. From this computation the question of whether the flow is actually a series of waves or a series of vortices can be solved. One wind speed measurement obtained from Ross' report is shown as a cross in the wind speed curves. This point occurred at the time he had to speed up to 60 m.p.h. to recover his position in the vertical current.

Fig. 2 of Ross' paper shows the air mass to be convectively stable; a condition usually required by the wave theories for such flows. However, it will be seen that the temperatures as measured by Ross in the glider are about 2 degrees centigrade higher than those at the other measured points. This rise in temperature may be due to the heating of the general air mass by the sun. (The U. S. Weather Bureau measurements were taken at 0700 PST, whereas the glider flight started at 1500 PST.) Or, the temperature rise may be due to the fact that the sailplane was in air which was continually rising. In any case this fact in itself is a worthwhile contribution to the science of atmospheric flow, and Ross deserves distinction for displaying the initiative to take the data on his record flight. However much more effort of this type must be expended before a rational explanation of the phenomenon can be made.

(*From* "SOARING")

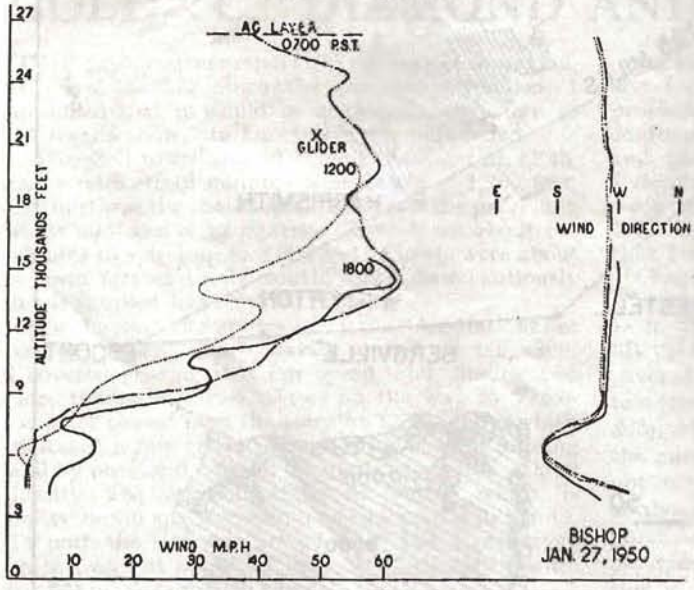


Fig. 1

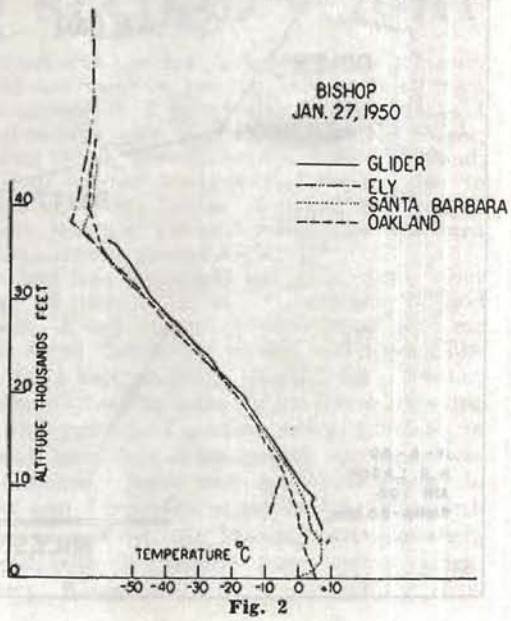


Fig. 2

3,600 feet in a "NACELLED PRIMARY" on Tuesday, 27-12-49

ONLY INSTRUMENTS BALL BANK AND ALTIMETER

Met. Report. Cloud—nil. Wind E.N.E.

HAROLD LUCKLY having just landed the "Jenny Wren" from the first flight of the day on the east-west strip with an easterly breeze blowing, informed me that on his flight there was no 'green air' but he thought it was around, so with this in mind and the fact that it was my turn for a flight, I gave the "Wren" the usual pre-flight check, did up my straps and gave the bat signals.

The take-off time 12.10, at which our best flights are usually made. On the climb I found the usual surge over the cross strips at about 600 feet, then at about 800 feet another slight surge so I was well aware that thermals were there, if one could hunt them out and make use of them. The rest of the climb was very smooth with the usual battle to get the last 50 feet odd to make up the 1,100 feet on the tow.

Away goes the line and I decide to turn to the leeward side of the strip to catch any purchanced thermals the Buick may have knocked off on the tow. Back now with nothing doing to the cross strips, which gave the same results, so I decided to head off to our sand patch, just off the gravel dispersal road joining the east-west strip to the south west-north east strip on the westerly ends. I reached this at about 900 feet and felt one or two surges in which I tried a circle or two, both right and left, but to no avail so I decided to push on a bit further to the dried up swamp as the altitude was going and this brought me nearer the take-off point. Arriving here with 800 feet I found another surge so tried a circle, this proved successful so I kept it up. Naturally I was flying by the 'seat of my pants' and this thermal kept me hard in the seat. Fortunately the breeze was very light making my drift hardly noticeable, so I had plenty of time to gain height and in the "Jenny Wren" this is needed with the rate of sink at 5 feet per second. and the other usual characteristics of a nacelled primary.

The thermal was very rough and small at the height and I chased the stick all over the cockpit, while I practiced keeping time on the rudder pedals to 'hold that tiger.' Slowly the altimeter crept up to my former 1,100 feet then a bit faster to 2,000 feet odd, my rate of climb up to there would be about 5 feet per second. Soon the altimeter started to jump up at about 100 feet a time and the old "Wren" took some hanging on to, to stop her winding into too tight a circle, the stick was a bit steadier though with full opposite aileron and slightly back.

Occasionally I seemed to fly out the side of the thermal, so it was no easy ride; the thermal being rather small and strong. When at last I reached 3,400 feet—bang! up goes the tail and all I can see is trees staring me in the face. Presumably, I stalled—in which I lost 1 to 200 odd feet. On pulling out I looked around for a while—in red air—but again picked up the lift and got back up, to 3,600 feet this time. Here things went 'wonky' again this time a spin was encountered: and does she spin! On looking around at this height, I could see over Rottnest Island and Perth, over which lay a heavy haze. I appeared to be higher than this and I knew now I was on top of the inversion (much cursing and gnashing of teeth). The air being quite cool and moist, was very pleasant after the ground temperatures.

My position was about 1 mile off the end of the strip and I could see the "Grunau" being trollied down the strip and I was calling them all kinds of things for not putting it on the truck and getting her into the air as soon as possible so I could see her shoot up for a good ride.

Halfway back I found a couple of thermals but only maintained height or perhaps gained 100 or so. Still losing height at 1,000 feet I made for my original thermal area, but to no avail. The "Grunau" was now on the tow at about 600 odd and landed a minute or so after me with nothing doing.

My time was 34 minutes 41 seconds and I felt rather pleased with my attempt, it being the first commentable flight for my two years of flying. I learnt quite a bit from the flight: The ability to fly without instruments, just by the seat of my pants (Oh! yes!—I looked at the ball and bank once, I was slightly slipping in); how to get into a thermal and stay there and what the country looks like from 3,600 feet. Having no instruments to worry me I had a good look round. Also I found the right hand circling rougher than the left, but could feel the lift better in the right so most circling was right hand. Then too I found what it is to experience a bump under the tail or one wing (my stalls etc. I think were helped by this) makes one wonder what's coming next.

I'm convinced now you can't beat a bit of a ride to keep up the spirits, sailplane or not, the thrill shared by all Glider Pilots is still there and I hope many more can enjoy this thrill in the future.

KEVIN MITCHELL.
(Gliding Club of W. Australia).

Voyage of Discovery

Swinging in circles
Singing a slow small song to the tall sky
Olympia soars on
seeking dim trails
through canyoned cloud
so, Cortez-proud,
high over Wales my sailplane
sails . . .
Never were Darien peaks so wildly jungled as the wild airs that writhe above Plynlimmon
Never roared Cotopaxi like the thunder that in High Radnor tears our skies asunder.
Never Atlantic surf so white and wide as surges over Snowdon.
This is the last exploring—this discovery of the uncharted empires of the sky—where puissant dynasties of golden storm reign in high glory
and in splendour die.

G. ALMT.

ON SAILPLANES WITH AUXILIARY PROPULSION

By A. R. WEYL, A.F.R.Ae.S.

ALTHOUGH soaring flight became an established fact about 30 years ago, the sailplane with auxiliary propulsion is still a proposition awaiting a practical solution.

Many attempts have been made, none of them entirely satisfactory. Everyone was discarded after experimentation. The reasons for failure were various: in some cases, the engines installed threatened to break the airframe up or did indeed so; in most other cases, the soaring ability was lost; in others again, the flying qualities had suffered too much; and there were solutions which were by far too expensive as to appeal to the soaring enthusiast.

First of all, let us state the problem which confronts the designer. Two distinct part problems become immediately obvious. One is that to have a modest amount of propulsion intermittingly available in flight so as to bridge over time and/or space in which no lift can be derived from the atmosphere or to help through regions of down-draught. For such purpose, only very little thrust power is required for an average sailplane, and a prime mover of, say, between 2 and 5 h.p. would do nicely. The " thrust-assisted " sailplane was the first in the mind of the enthusiast, and purists in soaring insisted that the thrust should not be greater than required to produce zero sinking speed with engine running.

More ambitious is the second part of the problem, yet it is at least as well justified as the first one. It means take-off and climb to a height useful for soaring, under own power. During this period, the sailplane becomes a real aeroplane, and all the limitations and necessities imposed by flying safety upon aeroplanes do, of course, apply. For take-off and climb, excess power is necessary, and this excess must be so that reasonable demands on safety are satisfied; in addition, the power-plant must be reliable (our first part problem would not stipulate reliability as requisite for safety). With an ordinary sailplane, the power thus required would be scarcely less than, say, 15 h.p., and in practical cases, engines of 25 h.p. have indeed been considered necessary. For practical use, a steep climb is desirable, in order to escape safely ground obstacles, whilst the rate of climb itself is of no account for the safety of flight.

A prime mover of 25 h.p. is already quite substantial and expensive. In most instances, the idea of simply adapting an existing sailplane to take such a power plant, must be given up. A two-seater sailplane might take such power-plant in lieu of the passenger, but the resulting aircraft is more expensive and a cumbersome sailplane. During the late war, two German attempts in this direction, notable that of Wolf Hirth seem to have lead to satisfactory designs, satisfactory insofar as the ability to soar was retained. Yet the expense of a two-seater sailplane will deter most enthusiasts from accepting such solution.

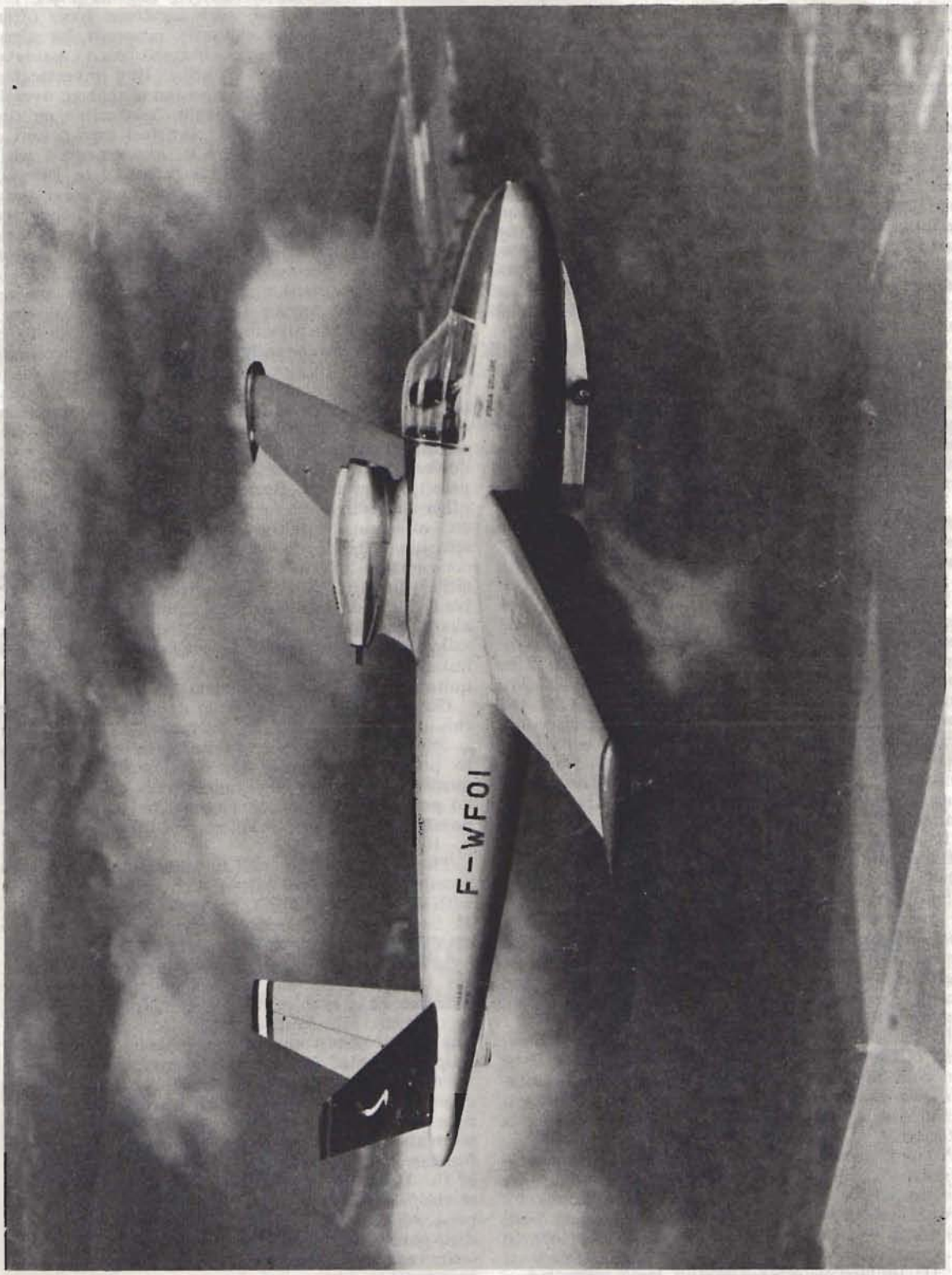
The easy way out of practically all previous attempts at auxiliary powered sailplanes has been the fitting of a piston engine driving an airscrew. Doing this, two design problems present themselves immediately, namely the airscrew drag when the propulsion is not needed, and the installation of the engine. To let the airscrew run as a windmill, would be quite out of question because of the drag, and even when the blades are feathered, the drag would be still far too high as to retain a reasonable soaring ability. Moreover, such an airscrew is dear.

One possibility which has been tried with little success, was the folding backwards of the blades; the other the complete withdrawal of the airscrew into parts of the airframe when not in use. The latter solution, however, restricts the airscrew to two blades (which is not entirely welcome in view of the engine balance); in addition, an airscrew brake with positioning of the blades is necessary.

The airscrew arrangement, too, needs careful consideration. The most desirable propeller drive, from the point of design, is, of course, the direct drive. This leads to either an engine installation in front of the pilot (normally with the result that the pilot's seat has to be shifted backwards, with sorry consequences for the field of vision; or, to an installation of the engine within the neck of the fuselage, with a pusher airscrew. Finally, there is the " power egg ", with the engine mounted on struts on top of the wing and encased in a streamline fairing.

Refined, but less simple, less reliable, and more expensive designs provide for some sort of gear drive between the propeller shaft of the submerged engine and the airscrew. On paper, such solutions always provoke favourable comments; in practice, however, few people can be persuaded of their usefulness as soon as they begin to make acquaintance with them. Accessability of the engine is one snag. But worse: when the airscrew loses its property to act as a flywheel, the engine has either to be provided with a substantial flywheel, or the designer will be sorry because of the amazing things which an engine with less than, say, four cylinders may perform within a sailplane structure. In fact, the successful gearing of even a four-cylinder engine is quite a feat. Hirth circumnavigated the trouble by adopting a four-cylinder two-stroke engine; his airscrew drive has, hence, given satisfaction in flight.

But even with direct airscrew drive and a substantial airscrew at that, a reciprocating engine in a sailplane is apt to cause a lot of worry. In spite of all elastic mountings, disconcerting vibrations are transmitted into the elastic airframe. Such induced vibrations may, indeed, become the cause of grave danger. An aircraft which shall exhibit a sinking speed of 3 ft. per second or less, must needs have a wing of a rather high aspect ratio, and in addition, reasonably slim aerofoil sections. As a result, the wing cannot be very stiff, and the engine-induced vibrations may thus easily produce serious



THE "FOUGA-CYCLONE" TURBO-JET SAILPLANE.

aero-elastic complications. Besides, most sailplanes are of wood and rely on the strength of glued joints. These, too, may greatly suffer through strains which are transmitted from the engine, and which bring about continuous elastic deformations in structural members.

Such considerations are not academic, however pessimistic they may sound. In the past, ample experience has been collected in this direction. It was nearly always invariably collected in the manner that, first of all, a good sailplane was fitted with a nice little engine (usually hailing from a motor-cycle); then the airframe was strengthened up part for part, on account of alarming flying experience, and, lo and behold, a new ultra-light aeroplane had been created which had but little resemblance to the original sailplane, and which was as unfit for soaring as the proverbial barndoor.

There are, of course, remedies to make a successful marriage between a reciprocating engine and the airframe of an ordinary sailplane. The adoption of a rotary engine (long forgotten to-day, but still the only piston engine which could be mounted on three wires) would be one, and multi-cylinder engines another remedy. Neither is likely to be realised, for economic reasons.

To-day, fortunately, we have wider fields open for the search after solutions; no longer are we restricted to the "airscrew-cum-piston-engine" power plant. Let's survey what one might do with a little bit of engineering daring!

Is the airscrew really necessary? There is, for instance, the "thermal-jet" propulsion (so termed because the airscrew and related paddle devices form a "cold-jet" propulsion, "isothermal" to you). There, too, is the rocket propulsion. (We omit the "ducted fan"). Finally, instead of the airscrew, flapping wings or similar organs could provide thrust, and this for slow aircraft even more economically than an airscrew. We will, however, omit this possibility too because of aero-elastic complications which are likely to occur when sailplanes are thus auxiliary powered.

It would seem that an airscrew is not necessary after all, and that we have a nice modern variety of other means to choose from.

Secondly, is the piston engine really necessary? Of course not! There are a number of present-day prime movers which are no piston engines, and which are not likely to produce vibrations. The turbo-jet engine is one of them, the plain ramjet another, and rockets could be designed practically free from obnoxious vibrations.

BUT—whatever other prime mover we choose, none of them would be as economical in respect to fuel consumption as the piston engine. As we are, however, considering "auxiliary" powered sailplanes, the greater cost in fuel consumed would not be a deterrent.

A good case can be made out for the *jet-propelled airscrew, i.e.*, the compounding of a prime mover with the propulsive device: the airscrew derives its torque from the reaction of gas jets emerging from the blade tips in tangential direction. The idea of jet-propelled airscrews is by no means new: a W. H. Phillips helicopter of this type using steam jets flew (as a 2-lb. model) in Regents Park 108 years ago. Since then, such airscrews have often been re-invented and seriously proposed for aeroplanes: Henri Farman obtained early patents, also Claude Dornier; Maurice Roy investigated such systems theoretically, and found that an overall efficiency of 18 per cent might be possible on the basis of the heat energy of the fuel used; and a British scientist of the R.A.E. experimented with such devices as early as 1924 (as usual in Britain, the matter was then discarded and forgotten). In more recent days, the jet-propelled helicopter rotor has become very important. Several such aircraft are now flying, and the specific design problems have become well known.

An airscrew without a separate prime mover might be ideal for an auxiliary powered sailplane, provided that the airscrew drag during soaring flight can be done away with. Hitherto, no answer has been found to this problem. Besides, the jet which reacts upon the blades, must be produced in a fairly continuous manner, in order to exclude blade flutter or other induced vibrations unfavourable to the airframe. This would seem to exclude the best device for the purpose, the 'pulse jet (as known, in principle, from the German V.1 flying bomb). Another snag might be fire danger in the plane of such an airscrew, notably during starting, because splashing about of fuel cannot be avoided. The compression of the combustible mixture may be either directly, by the ram effect of the air at the blade tips, or by centrifugal compression in ducts along the blades. For intermittent propulsion of a sailplane, the starting of the jet reaction would need initial ignition of the mixture; this, too, is not quite a simple design problem.

On the whole, there is little doubt, however, that the difficulties could be overcome. The problem is solely to find people who are enterprising enough to provide the money for development. Without means for patient experimentation and research, no practical solution can be expected (also the proposals of Jos. Reder, *Sailplane and Glider*, May 1950, p. 108).

The adoption of a small *turbo-jet engine* is another possibility. This has indeed been realised in France with all indications of a complete engineering success. M. Szydlowski (of Société Turboméca), the designer of this very clever engine, has about 30 years of solid experience with rotary compressors and exhaust gas turbines. He has applied his turbo-jet to the airframe of a high-performance sailplane (designed by Messrs. Mauboussin, Castello, and Henrat). The result has been a remarkable jet-propelled sailplane, apart from certain German experiments, the first of its kind. The engine which has a maximum diameter of only 16.5 in. and weighs 100 lb. for a maximum possible thrust of nearly 250 lb. (at more than 30,000 r.p.m.), is mounted on top of the fuselage in a fashion which resembles the installation of the Heinkel "Volksjaeger" of 1944/45. Because of the hot jet, a "Butterfly"-tail configuration has been adopted. In France, experiments with such dual-purpose tailplanes had been made about 20 years ago by Bleriot, following a Polish patent specification.

Apart from this and the power-plant, the three Fouga C.M.-8R types are ordinary sailplanes in mixed construction. The first type (C.M.-8R.-13), is a general-purpose sailplane. The bigger type (C.M.-8R.-15) has a wing of greater span and aspect ratio; otherwise the aircraft is identical. It is intended to serve research purposes, in particular the exploration of standing waves. The smaller type (C.M.-8R.-9.5) is thought suitable for aerobatics, and may be used for the training of jet pilots in general. Data concerning the two soaring types are given in the tables. Nothing is known yet how far the soaring qualities are deteriorated by the presence of the jet engine. Although the latter is streamlined, it must account for an increase in parasite drag. At least one of the three Fouga C.M.-8R. types has acquired already a full Certificate of Airworthiness. Similar designs from other sources may be expected; it has been proved that a qualified sailplane pilot may immediately fly such aircraft, without further training in power flight.

The serious disadvantage is, however, the price. The gas turbine jet engine of the Société Turboméca is said to cost not less than £1,600, and the price of the complete aircraft should be near to £3,000 at the least. This is, of course, prohibitive for the average sailplane enthusiast. and there is little hope that the costs will come down appreciably. The complete power-plant is, after all, more expensive than a normal piston engine. In addition, the engine burns up not less than 17 gallons of paraffin oil per hour, apart from about half a gallon of lubricant. Economically, hence, the whole proposition is not too attractive.

SAILPLANES WITH AUXILIARY PROPULSION

Type	Span (ft.)	Wing Area (sq. ft.)	Aspect Ratio	Length (ft.)	Weight Empty (lb.)	Weight Loaded (lb.)	Wing Loading (lb/sq.ft.)	Power Loading (lb./h.p.)	Span-Square Loading (lb/sq.ft.)	Sinking Speed (f.p.s.)	Gliding Angle	Max. Horiz. Speed power on (m.p.h.)	Rate of Climb (ft./min.)
Ksoll "Galgenvogel II" (1924)	49.2	129	18.8	18.1									
Martens "Max" (1924)	46.0	150	14.0	15.4						>3.1	~20	~30	
Messerschmitt S.15 (1924)	47.8	155	14.7	16.4	398	665	4.29	41.5	0.29			~70	
D.F.S. "Maikaefer" (1933)	42.6	188	11.2	21.0	464	705	3.75	41.6	0.39			56	
Schneider "Grunau Motor-Baby II" (1935)	44.6	157	12.7		410	630	4.01	32.3	0.318			~85	
Gruse B/G 15/1 (1935)	35.5	161	7.75	20.8	410	662	4.13	35.9	0.525	5.9		65	
"Kormoran IIa" (1935)	43.6	161	11.9	23.1	400	645	4.02	34.8	0.34				
Carden-Baynes (1935)	45.5	120	17.3	20.0		~500	4.18	55.5	0.243	2.2	24	~40	230 (est.)
"Motor-Condor" (1935)	56.8	174	18.4	25.6	575	770	4.43	41.7	0.238	3.95 (4.6)		~85	160
Elsnie "Grey Wolf" (1935)	44.2	198	9.9	22.3	442	840	4.25	30.0	0.432	4.28		~60	250
Steffanutti S.S.2 (1936)	52.1	217 (251)	12.5	20.0	490	755	3.0	42.0	0.275			63	200
Lemberg I.T.S.-8 (1937)	44.8	185	11.0	21.0	408	640	3.47	3.55	0.32	3.14		65	260
Munich "Mu.13" (1938)	52.8	178	15.5	19.7	440	685	3.85	38.0	0.246	2.5	21	83	295
Horten III-D (1943)	65.6	403	10.66		800	1000	2.48	31.3	0.233		28	70-80	400
Wunscher C.10 (1940)	41.0	129	13.0			665	5.15	36.0	0.396	2.8	22		375
Wolf Hirth (1942)	48.5	211	11.7	22.8	620	840	3.98	33.5	0.36	2.97	20	65	150
Finnish P.I.K.O. Motor-Baby""' (1949)	44.5			18.95	457	670						59	252
Fouga CM-8R-13 (1949)	42.8	140	13.0	21.4	810	1150	8.25	6.25 lb. per lb. thrust	0.63			149	800
Fouga CM-8R-15 (1950)	49.3	162	15.0	21.4	855	1200	7.42	6.5 lb. per lb. thrust	0.495			140	720

ULTRA LIGHT AIRCRAFT ASSOCIATION

EXTRACTS FROM BULLETIN. VOL. 3. No. 12.

RECENTLY the Association has come under the fire of criticism from various sources for not having a firm policy as regards our aircraft requirements. We are accused of first demanding single seater aircraft; then when the Motor-Tutor is produced and made available to our Groups by courtesy of the Kemsley Flying Trust on very easy "pay as you fly" terms, only one Group wants it. The others say they cannot afford it or, alternatively, that they want two-seaters. At the last A.G.M., we were asked to sponsor the production of an ultra light two-seater—the specification of which has since been drawn up, and design and construction started. Since then, we have been sponsoring the development of a cheap and simple elementary type of single-seater for amateur constructors to build from kits of parts. We consider that criticism of our lack of policy is somewhat unfair, as the views published in this Bulletin are those received from members and Groups of the Association whose individual requirements naturally vary under their different circumstances. We feel, however, that both single- and two-seaters are required for our movement, and we shall look forward to discussing their relative priorities at the A.G.M.

A further point of controversy which we hope to

ventilate at the A.G.M. is our attitude to those Groups who, through no fault of their own, are operating aircraft which do not fall within the ultra light category. Until recently, we have assumed that once those Groups were in a position to obtain ultra lights, they would so do and forsake the larger aircraft which are more expensive to operate and difficult to maintain. We are how beginning to realise that certain Groups have little intention to change over to ultra lights (at least until the present supply of cheap second hand light aircraft runs out). This was indicated by the failure of the Motor-Tutor scheme. Are we, therefore, justified in accepting their affiliation? There is one body of opinion which feels strongly that the Ultra Light Aircraft Association should confine itself rigidly to the interests of those operating ultra lights. Another view is that as our original aim was to cheapen the cost of flying so as to bring it within the reach of thousands who cannot afford it, we should support every means of attaining this aim whether it concerns ultra light aircraft or otherwise.

The Association was formed originally to sponsor the development and use of ultra light aircraft in order to cheapen the cost of flying, but subsequent experience has shown that other methods exist, one of which is the co-ownership Group operation scheme. Should we broaden our terms of reference to embrace all co-ownership Groups and non-proprietary Clubs whether they are operating ultra lights or not? Our main effort would, of course, still be to press for the development and use of ultra light aircraft, which we consider to be the most effective way of cheapening the cost of flying, but in addition we should adopt and encourage any and every means of attaining the same aim. We should be reluctant at this stage to alter the name of the Association, which has now become accepted by the authorities and the various aeronautical bodies. How far, then, do members feel we can broaden our function in supporting the sport of amateur flying in every way possible?

A motion on this subject, which is fundamental to the whole structure of the Association, is to be put forward for discussion at the A.G.M. We should be glad to receive views in writing from members unable to attend the meeting as early as possible before the 29th April.

DESIGN SUPPLEMENT

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

Having recently returned to this country after three months absence abroad, I have been busy picking up the threads of all the various design projects in hand, a summary of which was published in last January's Bulletin. It is with considerable pleasure that I can announce three items of real progress!

Firstly, Major W. A. Weaver, Managing Director of the Coventry Victor Motor Company has informed me that the development of our long awaited 50 h.p. engine should be finalised within a month. This engine is based on the firm's Neptune flat four, which is a well proved engine already in quantity production. Consequently, most of the expense of development and tooling up for production has been avoided. We are deeply indebted to Major Weaver for his efforts on our behalf, which he has made solely because he feels that our movement is in the national interest, and we wish him the best of luck in the forthcoming Type Test trials. Let us look forward to successful flight tests of the engine before the summer is out!

The second item of good news is that the Britten-Norman "BN-1F" elementary single-seater prototype is well on the way to completion. Mr. Britten expects it to be ready for flight tests in 5 or 6 weeks' time. It will be remembered that in our Bulletin of last November, we announced his plans for building this aircraft, which he is designing specially for the amateur constructor. He called for a co-operative effort from within the Association to help him with the detail drawings and component construction. The response from our members was most gratifying, and thanks to all concerned and to the drive and hard work put in by Mr. Britten, the first prototype will be completed in what must be record time! This is excellent news for the large number of would-be amateur constructors who have been worrying us for so long to produce a suitable design for them to build. Mr. Britten intends to make the drawings of the machine and kits of parts available to our members at very reasonable prices.

The third announcement we are glad to be able to make is that as the result of negotiations which have taken place between the Ministry of Supply and ourselves, the Ministry have agreed to make permits for raw materials available to any of our members or Groups who are proposing to build their own aircraft, providing that the aircraft is of a type that is approved by the A.R.B. for the ultra light aircraft category C. of A. and is considered suitable for the purpose by the Department of the M.o.S. concerned. In each case, this Association is to recommend that the individual or Group concerned is capable of manufacturing the type proposed, and will do so under conditions which are acceptable to the A.R.B.

We are particularly pleased with this concession of the Ministry of Supply as it indicates their support of our movement, and their acceptance of the Association as a suitable body to whom they can delegate the responsibility of making recommendations for the issue of permits for raw materials. Would-be amateur constructors can now look forward soon to be able to start building the "BN-1F" at an early date, with an assured supply of engines and raw materials available.

NEWS FROM THE CLUBS

THE VICTORIAN MOTORLESS FLIGHT GROUP

Flying Diary

Sunday, March 5th. Wind 15 m.p.h., nth. west, cloud 6/8 cu. "Coogee" 10 flights. You may recall that in our last instalment, we were having trouble with the winch. This day's flying was by courtesy of the Beaufort Gliding Club, who, with great kindliness, offered to launch "Coogee" on their winch. The offer was promptly and gratefully accepted, the crew working on the winch inter-changing with the crew out on the field, so that quite a good day was had by all. Inspired by the sight of Ron Roberts and one of the Beaufort people near cloudbase in the two-seater, Grace Roberts climbed from 700 feet to 3,300 feet for an hour. Having in mind the people lying uncomfortably under the winch, "Coogee," protesting loudly, was brought down at the end of the hour, a speed of 60 m.p.h. being found necessary to produce a sink of 3 f.p.s. Unfortunately, the good conditions moved speedily out of reach of winch-launches, though Viv Drough managed to get from 900 feet to 1,350 feet for 13 mins.

Sunday, March 13th. Wind sth., 10 m.p.h., cloud 3/8 cu. "Coogee," 21 flights. "Rhon" 5 flights. This day the Igguldens came to the rescue with their winch. Jack Iggulden had 17 mins. in "Coogee," Mike Bruce 21½ mins. (700 feet to 1,600 feet), Derek Reid 27 mins. (900 feet to 4,200 feet), Grace Roberts 16 mins. (1,000 feet to 1,600 feet). "Coogee" was again brought down at high speed, as Derek, lightly clad, found the temperature at cloudbase most uncomfortably chilly. Ron Roberts and a pupil again at 3,000 feet.

Saturday 18th and Sunday 19th March. We were ready for action again with our winch but easterly winds of 50 m.p.h. on Saturday and 30 m.p.h. on Sunday, with extreme turbulence, kept us grounded.

Sunday, March 26th. Almost a dead calm, 5/8 to 8/8 st. cu. "Rhon" 10, "Coogee" 7, nothing worth writing about.

Sunday, April 2nd. Calm conditions again, with 8/8 cloud. "Coogee" 7, "Rhon" 4.

Easter Holidays

We in Victoria seem fated never to get a reportable Easter. The week before Easter we had a great deal of rain. On Tuesday, headlines in the newspapers announced, to our dismay, "Cloudburst at Dandenong." Dandenong being a bare eight miles from Berwick, and having been flooded to a depth of four feet within an hour, we had visions of the airfield being unusable. However, the Hon. Sec. went up on Thursday and found everything all right. The Victorian Soaring Assn. had invited the Gliding Club of Victoria to be present and they were coming with two "Grunaus" and the Utility, so we looked forward to some good Soaring. (Ha, ha, ha.) (In Victoria? At Easter?)

On Easter Friday, with 5/8 cu. and a south-east wind of 5 m.p.h., we had a few flights in "Coogee." There was a vast cu. nim. formation overhead and another a few miles to the west, complete with forked lightning, bumps of thunder and heavy curtains of rain here and there. We watched conditions carefully. No lift could be contacted. (Your correspondent as usual was watching to see she didn't get any lift, having always felt that Jonah being swallowed by the whale wouldn't feel any worse than she being sucked unwillingly into a cu. nim.) There was dirty weather approaching rapidly from the west so, when Mike Bruce reported getting a distinct shock through the control column while being launched and Dave Jones reported an even more distinct one at the spreader end, we decided it was time to pack up. Half an hour later, the dirty weather arrived in the form of strong winds and many buckets of rain. One thing about having Victorian visitors—there's no need to apologise for the weather.

On Easter Saturday, there was a rather large job to be done. Mr. Casey had lined everything up—agricultural pipes, tractor, plough, gravel—in readiness for putting in a draining system under the main diagonal runway, which is the last to dry out after the winter. It was a nice, sunny day, so teams from our club and Beaufort set to with a will, also with spades and shovels and, if, occasionally, eyes were turned to the 5/8th cloud overhead, well, at least no one SAID anything about the folly of having the Minister for National Development as an Honorary Member. Never content to do things prosaically, we soon had a good system under way for laying the pipes in the furrows. About six people swung them merrily from hand to hand and finally to a sweating type down in the furrow, frantically laying them end to end. Sometimes, the man at the end of the line found himself juggling madly with three pipes and the man in the drain would have one tossed to him while he was still bending down laying the previous one, but, all in all, it worked very well, even if there was a distinct air of Gilbert and Sullivan about it. The Caseys and the Colonel (and, of course, the indispensable Bill Scanlan) were well to the fore. As Minister for National Development, R.G. had the wrong idea altogether, mostly having a spade in his hand and using it, when, of course, he should have been sitting in a large chair, writing memos and carefully binding them up with red tape. At the end of the day, hands were blistered and backs were aching but, by gum, the job was done.

Sunday came and with it a wild westerly. "Coogee" had 21, with various pilots getting 9 and 10 minutes. Derek Reid went to 2,000 feet, involving a goodish cruise away from the field and a hard upwind plug back again. Showers of rain which had been sweeping over most of the day became closer and closer together and, finally, at about 4 p.m. we had to close the field as the surface was too wet in spots to use without damaging it. Footnote: all day, the Igguldens had been working furiously, finishing off a repair job to the "Kestrel." Five minutes before Colonel Ryan asked us to close the field, the "Kestrel" crew came charging out, beaming happily at the thought of getting in a couple of hours' flying. Their cable was out and they were hooked up

waiting to go, when the field closed down. (Yer carn't 'elp larfin', can yer?) On hearing the sad story, the Colonel kindly allowed the flight to carry on. Steady rain kept the field closed on Easter Monday, too. All in all, not a very satisfactory Easter, but at least we did a really worthwhile job on the maintenance side and this draining job should show results this winter.

Saturday, 15th April. We didn't know it, but this day marked the beginning of a period of fine, warm weather which has lasted until the date this is being written. The field was re-opened but there was only one pilot on the scene to fly "Coogee." (Me! Hooray!) With the co-operation of Ron Roberts, Stewart Moyes and Beaufort types, "Coogee" was winched off, with a 10 m.p.h. north-westerly, 3/8th flat-looking cu. The variometer was u.s. and, as it showed 15 f.p.s. green, come up or down, it was rather like having the dumb Marx brother in the cockpit with one. However, weak lift was contacted and used to the extent of 1 hr. 2 mins., 3,780 feet, ten miles out and back. Very enjoyable. Alan Harley turned up later so the "Rhon" was towed out for Stewart and Alan to have low hops, Ron Roberts winching for us in between instructing in the two-seater.

Sunday, 16th April. Nth.-westerly wind, 5 m.p.h., cloud 2/8 baby cu. "Coogee" 11, "Kestrel" 7, "Rhon" 14. Derek Reid to 3,900 feet for 52 mins., Jack Iggulden to 3,000 feet from 450 feet (winched to 900 feet, sank to 450 feet before contacting lift) 12 miles out and back, Nance Iggulden 11 mins., 700 feet to 1,000 feet, Mike Bruce, 1,100 feet to 1,700 feet, 14 mins.

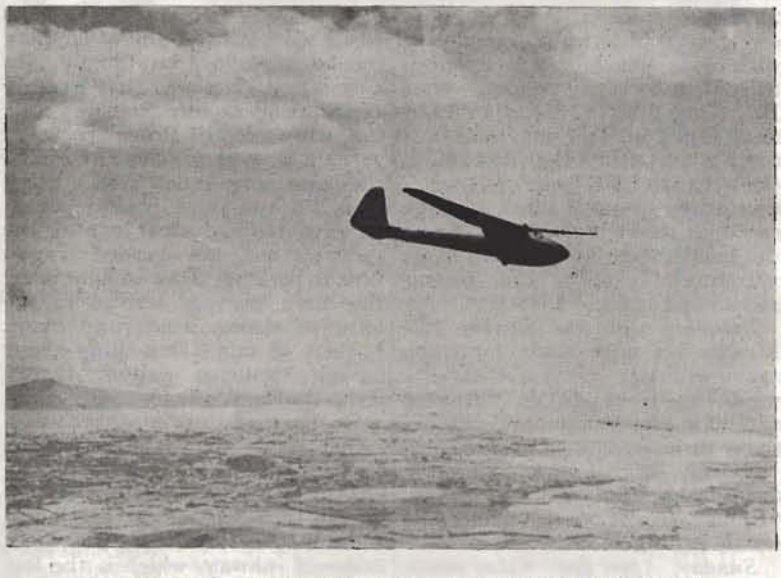
Saturday, 22nd April. Wind 10 m.p.h. south, cloud 5/10th. "Coogee" 12, "Kestrel" 4, "Rhon" 9. Nance Iggulden, 1,200 feet to 1,450 feet, 12 mins.

Sunday, 23rd April. Wind 0/5 m.p.h., sth. to sth.-east. Cloud 3/8 cu. "Coogee" 11, "Kestrel" 14, "Rhon" 10, "Heron" 2. In "Kestrel" Jack Iggulden had two flights of 27 mins and 28 mins.; in "Coogee," Ron Roberts released at 800 feet, down to 400 feet then up for 3 hrs. 7 mins., best height 3,000 feet. Whippet, which we had thought was being a model tow car recently, has merely been thinking up new sins. This day, she frightened hell out of those aboard by blowing out a tyre with a very loud noise.

Tuesday, 25th April. Calm, cloudless, hot day. At first, what little wind there was came from the south-east, but, at a height of three to four hundred feet, there was a north-west wind. Problem: where to put the winch. 26 flights—20 in "Coogee," 4 in "Rhon." Lift non-existent. Grace Roberts managed to prolong a flight for 7 minutes by joining a hovering hawk. The hawk flapped; "Coogee" tried to, but couldn't. Charlie Beswick progressed neatly to circuits in the "Rhon." In "Coogee," aerobatics became the order of the day. John Day carried out four pretty loops against a pink evening sky. While Charlie was doing one of his circuits, his instructor was alarmed to observe a spectator thoughtfully standing by with a double-barrelled shotgun.

Saturday, 29th April. Cloud 3/8 cu. Wind, warm and light, but all over the place. "Coogee" 11, "Rhon" 4, "Kestrel" 4. A most maddening day. Three cloud streets reached coyly towards us from the Dandenongs but apparently we hadn't paid our rates and taxes, for they stayed just out of reach until evening when they, decaying, drifted overhead. Hot out on the field, which perhaps accounts for the following little happening. Two instructors (husband and wife—could have had something to do with it) were busily placing the winch in position after it had been moved for the third time. One was not satisfied with the position the other had placed it in. (No prizes to wives for guessing who.) so did some more backing and filling, finally saying in a satisfied voice, "There, THAT'S how you SHOULD have put it," upon which the other instructor drove the tow-car up ready to take out the cable . . only . . to . . discover that . . the . . winch . . had . . been set . . up . . back . . to . . front. (And no prize to wives for guessing who got the blame.) At dusk, on the last flight, "Googee" stayed up for 9 minutes from a launch to 1,200 feet. The air was warm and most astonishingly buoyant; all the colour had drained from the dome of the sky and lay, veined with blood-red, low on the horizon; on the darkening earth, every creek and waterhole hoarded the daylight. Like a vast plain of mercury, the Bay shone flatly in the distance. As "Coogee" slipped down into the darkness and settled softly to rest, her pilot felt very small and very humble.

Sunday, 30th April. "Coogee" 28, "Kestrel" 12. Wind—well now let's see—north-west then south-west then south then south-east. Ho hum! Sky from 5/8 decayed cu. to completely overcast. The wind at



New Zealand's first post-war glider—an "Olympia" (R. Count and G. Hookings, owners), flying over Auckland.

ground level was never very strong but conditions of surprising turbulence prevailed up to 2,000 feet, so that no primary training could be considered until late in the day and then it was too late to be practical. Cloudbase descended steadily all day until people were occasionally being winched into the fringe of cloud, one such being Nance Iggulden, who told us all about it. Several times. Nothing but circuits all day, longest being 11 mins., others of 8 and 9 minutes. Quite pleasant, even though unspectacular.

Total flights for March and April —277.

Instructors' Panel

An Instructor and an Assistant Instructor are now rostered for duty each Sunday. The panel now consists of the following :

Instructors—Iggulden, Jack ; Iggulden, Bill ; Reid, Derek ; Richardson, Geoff.; Roberts, Ron ; Roberts, Grace ; Williams, Les.

Assistant Instructors—Bruce, Mike ; Drough, Viv. ; Patching, Alan.

Trainee Instructors — None at present.

New Arrival

To Joyce and Alex Hogan, a daughter, Judith.

Joyce and Al were two of our most promising trainees on the Heron—and will be again one of these days, we understand. An instructor's comment on the above event—" Joyce was trying to soar like a hawk, but it seems she got tankled up with the stork." Young Miss Hogan is a very entrancing little girl and a very welcome addition to our younger fry.

Developments in New Zealand

News from New Zealand continues to be good. The Wanganui Gliding Club is now reorganised and has 21 members : the Club has ordered a Kirby "Tutor" in kit form. Hon. Secretary, Owen Handley, writes that Arthur Hardinge did really sterling work by his tour of New Zealand and that the New Zealand gliding people are only just finding out how deeply he impressed the general public there. Owen's address is 38 Kawatiri Avenue, Wanganui, N.Z., if anyone feels like cheering him on. How about putting the Wanganui Club on your newsletter list, fellows ?

Ralph Court, who, with Gordon Hookings, is co-owner of the "Olympia" now flying in N.Z. has written to tell the story. Ralph spent all last summer in England and purchased the sailplane while there. During the war, he was a power pilot, ex EFTS instructor, fighter pilot Pacific Area. He was always keen on gliding and tried hard to get the movement going during the past few years. While in England, Ralph joined the London and Surrey Clubs and had about 35 hours soaring in eight months. (He adds that it was strictly a business trip. But of course.) Ralph reports that he failed miserably to get his distance leg for Silver C as a hoodoo seemed to drag him down each time he did the first 15 miles, but hopes he can finish it off now he is over his home ground. He flew in the British National Comps. as a member of the London Gliding Club team but, as his group used a "Prefect," Ralph says they were more of a fine gesture than a threat. The London club " Pundits " flew the " Gull IV " and " Olympias." Gordon Hookings did his gliding with the Cambridge University Club in post war years. He has had a fairly wide experience and also found some trouble getting the distance leg for his Silver C. On the last occasion he was so close that if the "Olympia" had been a Mk. 2 with wheel, instead of a Mk. 1 with skid, he would have rolled far enough to qualify. Since Ralph and Gordon have been flying their "Olympia" at Mangere, both have flights up to 45 mins. duration and had peaking at the 3,000 feet mark but, as yet, have not had a really good day with much cloud development. All launches are by aero-tow and cost about 6/- each.

The N.Z.G.A. has had a conference with their Civil Aviation Branch and have noted a very changed attitude. A good understanding has at last been reached and a lot of authority is to be vested in the N.Z. Gliding Assn. Although backyard designing and building will not be practicable, there will be little, it is reported, to prevent the movement getting off to a flying start in the near future, with the minimum of departmental interference. The first hurdle is obtaining aircraft.

We repeat our good wishes to the New Zealanders and assure them that, if there's any way in which we can help, then we'll most gladly do so.

Department of Congratulations

To Lorne Welch, of the Surrey Gliding Club, for his fine flight across the English Channel, news of which made the front page of the Melbourne " Herald " and cast a little reflected glory on the VMFG when a " Herald " writer learned that Derek Reid was a former clubmate of Lorne's and wrote them both up in his column.

To Derek Reid, for his radio talk over 3UZ (our Viv Drough is Continuity Manager there) which was really good publicity for the movement as a whole. (Um ! ! !)

To the Beaufort Gliding Club, eight of whose members have now reached the solo stage. To this writer's mind, no greater proof of the efficiency of two-seater training could be offered than that of the manner in which they are handling " Phoenix."

To the Gliding and Soaring Club of South Australia for the way they keep bouncing up after bad knocks. To replace the wiped-off two-seater they have now procured the late Jack Munn's two-seater " Falcon " and it is already in action, doing sterling work. A very successful Easter Camp was held by the Club with really mouth-watering facilities—washrooms, toilets, mirrors, electric power points and RADIATORS ! Fair dinkum ! At Gawler airstrip. The boys were not too busy enjoying said facilities, either, to turn in some good soaring in their " Grunau." But you'll read all about it in *Sailplane* later.

To the Gliding Club of Western Australia for their newsletter, which gets bigger and better every month, records plenty of flying and indicates that the boys in the Wild and Woolly West have gone quite mad with the cross-countries. Good hunting, lads !

GATINEAU GLIDING CLUB

Programme for 1950

At a planning meeting of the executive on April 3rd, the theme was the need of operating on a sound and an improving financial basis. The operation of the Club during 1950 calls for a programme ensuring maximum soaring, maximum safety, maximum revenue and maximum training.

No Accidents in 1950 !

Safety Advisor Jack Fleming made the following recommendations :

1. That ground classes in theory of flight be organised for the benefit of student pilots.
2. That standard instruction procedures be adopted.

Probably the most significant point brought out during the discussion related to the retraining of pilots of powered aircraft to glider flying. Power pilots habitually *reduce* airspeed on the approach circuit and landing. A glider pilot must *increase* flying speed 10 to 15 miles an hour above normal flying speed on the landing circuit.

The " Grunau "

Bill Curran reported that the " Grunau " requires some fabric and wood-work before starting the season. Arrangements are now under way to obtain the use of a workshop to carry out this work. It was recommended that the flying rates on the " Grunau " remain the same as last year.

Trailer

The Club badly needs a trailer and should plan to build or buy one as soon as possible. Brother Hormisdas has generously offered us the use of his, however, for the time being.

The " Olympia "

Non-members of the Gatineau Gliding Club are to have access to the " Olympia " in April and May at reasonable rate, if plans discussed at the meeting are approved by those who have bonds deposited on the " Olympia " loan. Briefly these plans are as follows :

1. Two or more pilots having the necessary qualifications may rent the " Olympia " at the rate of $50.00 per week for two pilots and $25.00 per week for each additional pilot, for any period between now and the end of May. The Club will insure the a/c for Public Liability and Property Damage but pilots will be required to sign a waiver holding them responsible for damage to the a/c to the extent of $500.00. After the 1st of June applications to rent the machine will be treated on an individual basis and will depend on the availability of the machine.
2. Any member of the Club having the necessary qualifications, will be able to fly the machine ; however, in lieu of posting a bond, the pilot will be required to sign a waiver accepting responsibility for damage to the a/c, due to pilot error, up to the amount of $250.00.

Training

It is hoped to work out a new system of training this year in which gliding flight and glider-type landings will be taught in light planes. Transition to gliding and aero-towing would be done in co-operation with the Buckingham Club, using their two-place glider.

Summer Operations

Arrangements are being made to use Carp Airport again this year and negotiations for a tow plane are also under way. Tentative date for the start of operations is June 1st.

General Meeting

A general meeting will be held at 8 p.m., Tuesday, April 25th, in the Governor's Hall, third floor of the Carnegie Library, corner of Metcalfe Street and Laurier Avenue. New members are particularly urged to attend as the feature of the evening will be a talk on " Basic Theory of Flight " by Bill Curran.

A cordial invitation is also extended to all interested non-members.

Incidentally

An application for membership in the Gatineau Club has been received from a " B " pilot at Chesterfield Inlet, N.W.T.

A new gliding club is being organized at Camp Borden, Ontario.

ROYAL AIR FORCE GLIDING & SOARING ASSOCIATION

Detling

Gliding has now started at Detling and all members are invited to make the fullest use of our facilities there. Please telephone the C.F.I. (Fl. Lt. R. C. Forbes, Maidstone 4501) before you visit the site to ensure that everything is laid on. It is hoped that this precaution will become unnecessary when the organisation settles down.

A new A.M.O. N.404/50 has been issued dealing with G.S.A.

Members of the Executive and Flying Committees will be " at home " at Detling during the Whitsun holiday. A limited flying programme has been arranged. It is hoped that all members and prospective members will visit Detling during the holiday to fly and to meet their Committees. During the holiday, a start will also be made on getting the clubhouse functioning. Please try to come, and bring any friends who are interested in gliding.

Sqn. Ldr. A. A. J. Sanders flew the G.S.A. " Olympia " at Detling on 30th April and reported good hill lift from the Detling ridge.

Associate Clubs

There are several units wishing to start unit gliding clubs, but they may have been held up owing to difficulties and delays in getting ex-A.T.C. and ex-enemy equipment. However, the following units have gliding clubs formed or planned, and will be pleased to hear from enthusiasts in their area :—

Linton-on-Ouse	Wg. Cdr. A. J. M. Smythe, R.A.F. Linton-on-Ouse	Fighter
Mildenhall	Flg. Offr. T. J. Page, H.Q. Bomber Bomber Command	Bomber
Boscombe Down	Fl. Lt. R. F. W. Cleaver, R.A.F. Boscombe Down	Maintenance
Warton	Fl. Lt. B. J. Owen, Q.H. Maintenance Command	Maintenance
St. Athan	Fl. Lt. W. H. Dainty, R.A.F. St. Athan (No. 32 M.U.)	Tech.Trg Maintenance
Henlow	Wg Cdr H F Bishop, H.Q. No. 90 Group	90 Op.-TechTrg
Feltwell	Fl. Lt. Campbell, R.A.F. Feltwell	Flying Training
Valley	Wg. Cdr. Hale, R.A.F. Valley	Fighter
Ballykelly	Sqn. Ldr. A. A. J. Sanders, R.A.F. Ballykelly	Coastal
Bridgnorth (Wolverhampton)	Fl. Lt. R. A. C. Dupre, H.Q. Technical Training Cmd.	Tech. Training
Newton (Not'ham)	Sgt. B. Longstaff, R.A.F. Newton, Nots.	Fighter
Hornchurch	Sqn. Ldr. W. N. Perioli R.A.F. Hornchurch	Tech. Training

Gliding and Soaring facilities for the London, Home Counties and South-East England area are provided at the Association's site at R.A.F. Detling, Nr. Maidstone, Kent. Enquiries should be addressed to Gp. Capt. L. P. Moore, Room 350, Adastral House, Kingsway, London, W.C.2. Phone Holborn 3434, Extension 111.

International Contests

Final arrangements have now been made for G.S.A. participation in the International Contests. Fl.-Lt. Forbes will be the pilot, and he will also be in charge of the team of three. The G.S.A. is subsidising this entry by a grant of more than half the estimated costs. All mem-

bers will wish Fl. Lt. Forbes and his team every success in Sweden.

National Contests

A list of possible entrants for the National Contests (Camphill, Derby, July 22nd-30th) has been compiled. Competitors will be selected by the Flying Committee, and the list of Silver Badge pilots who wish to be considered for selection to the team is still open. Each pilot will be accompanied by a team of 2-4 members selected from the G.S.A. and its Associate Clubs. Those wishing to be considered for the Contests, either as pilot or team members, should notify me as soon as possible. Notifications of those wishing to represent G.S.A. as pilots must be in my office by 30th May.

Equipment

We are still encountering difficulties in getting hold of the ex-A.T.C. and ex-enemy equipment, but hope that something will be forthcoming soon. The Association also needs another trailer which will take the new "Olympia" (and also the "T.21B" if that is possible) but the cost must be reasonable. If you know of a suitable second-hand trailer please let me know.

Training Courses

You are reminded that G.S.A. is running training courses at Detling this Summer. The courses are suitable not only for ab-initio pupils with no experience, but also for those who wish to brush up their gliding, convert from power to gliding, or increase their gliding qualifications to instructor standard. The courses will be tailored to individual requirements. Dates are: 4th-9th June, 7th-11th August, 3rd-8th September, 1st-6th October.

Details of these courses were contained in the March 1950 *Newsletter*. Applications for a course should be forwarded to me as soon as possible.

British Gliding Association News

Gp. Capt. Paul, in addition to representing G.S.A. on the B.G.A. Council, is also on the G.B.A. International Contests Committee and is Chairman of the B.G.A. Accident Analysis Panel. We hope he will not have to analyse any G.S.A. accidents. Fl. Lt. Forbes has been co-opted to the B.G.A. Instructor's Panel.

Soaring in France

Fl. Lt. Mallett has recently visited France where he had a soaring holiday. If you are interested in continental soaring please write direct to Sqn. Ldr. A. A. J. Sanders of R.A.F. Ballykelly, N.I.

General

A.M.O. N.380/50 announces A.M. Pamphlet No. 272 on the subject of flight through cumulo-nimbus clouds. Although primarily written for power pilots, this pamphlet will be of interest to soaring pilots.

Facilities at Detling will largely depend on the support which members are able to give. We have been allocated some excellent buildings as a clubhouse, and the airfield and surrounding country is most suitable for gliding and soaring. Detling is less than a couple of hours from London by coach or rail and it is hoped that those in the London and Home Counties area will give the site every possible support.

Fl. Lt. Miller and Flg. Offr. Thomas have agreed to instruct G.S.A. members at Detling. Fl. Lt. Miller was recently in the news when he became the third man in history to soar across the Channel.

If you have not sent off your membership application form, please do so as soon as possible.

G.S.A. Gliding Courses at Detling are the best value available in the country.

Do not forget the Whitsun holiday arrangements.

DEREK DUDLEY MARTIN,
Hon. Sec.

THE LONDON GLIDING CLUB

Flying News for April

Week ended April 2nd. The month started very well with strong westerly winds and good soaring. On Saturday (April 1st) there were 44 launches for over 29 hours flying, with the full range of club machines out from "Cadet" to "Gull IV," while both the two-seaters were in full use. The private machines out were the "Minimoa," the "Krajanek," the "C.O.A. Tutor" and Philip Wills' "Weihe" on one of its nowadays rare visits. Sunday, however was a real red letter day. Just after lunch the wind veered and strengthened to such a degree that no fewer than four machines were forced down. The first report was that they were all in the Zoo, but fortunately it turned out that only one was inside, the other three littering the countryside roundabout. No damage was done, but most of the club spent the rest of the day retrieving. The "Gull IV" and the "T21" came back normally by road, the "Prefect" was manhandled for what seemed miles to a suitable spot to give Wheatcroft the rare treat of a bunjie off the top, but the "Dragonfly" retrieving team broke the retrieving record. They got the wings in the trailer but trundled the fuselage all the way back from the middle of the Zoo, along the top road and down the hillside track. So far as we can find this does not count for any national or international records, but we consider it worthy of honourable recognition. As regards the wind strength in the squall we thought we heard Charles Ellis, who piloted the "Dragonfly," saying something about "brakes full out, ninety on the clock and still going up," but our hearing is a little doubtful nowadays. However, in order to get the occasion on proper record we have asked the four pilots for a joint account, which should be extremely interesting. Because of these happenings the total flying for the day was only twenty-four hours. Among the less familiar faces on the field was Bira, who flew the "Minimoa" when Lawrence, Tony and Tudor were not using it, which was not for long.

Week ended April 9th. It was soarable again on Monday, and Pereira in particular took advantage of it by flying the "Gull IV" for two and three-quarter hours. Leech flew a "Tutor" for an hour and twenty minutes, and several others had shorter flights, including Jack Hanks in the "Camel."

It was good again on Wednesday, and a dozen or so members got in a fair amount of flying, Lawrence Wright (back to his old habits) doing over four hours in "Mini." Huggett, Smith and Bleasdale each did over two hours in "Tutors." Thursday and Good Friday were limited to circuits, but on the latter Tudor Edmunds set up something of a record in non-stop circuiting of the "T21," by doing twenty-four of them. Last thing in the evening Jack Rice in his "Tiger" successfully took Steve up for an areo-tow in the "Prefect," thus proving that it can be done. Easter Saturday was better, and several people had cross-country ambitions, but no one got enough height except Steve. He got to 5,800

feet in his "Olympia," but did not attempt to go away. Cooper in the Cranfield "Olympia" unfortunately damaged the fuselage on landing. Sunday was even better, and members turned out in fairly full force to give nearly 51 hours flying. The wind was too strong to allow much circling, though the thermals were at times quite powerful, and it was largely a case of simply heading or weaving into wind. Again, no one went away. Frank Foster had a bungy launch from the field in the "Buzzard" and looked as if he could have climbed the hill and soared.

Week ended April 16th. Easter Monday was disappointing. A passing front brought heavy rain for a good part of the day, and as this was the day arranged for the outside broadcast we were afraid that this would be a flop. But the met. people promised that it would pass in time, and so it did, though it left a very strong wind and very heavy bumps in its wake. Anson, who flew the "G.B." on the last of the few launches before the rain reported the bumpiest flying he had ever had, and Robinson gave the same report on the first launch after it. Though flying at 55 to 60 knots he was thrown up to over 2,000 feet almost off the launch and it was all the "G.B." could do to keep in front of the hill. It was under these conditions that John Hurry took John Ellison of the B.B.C. up twice in the two-seater for the broadcast. Ellison appeared to accept our assurances that it really was rougher than usual, but he must have got a rather biassed impression of the pleasures of soaring. It was a pity that Broadcasting House decided to cut the broadcast rather abruptly, but at least some of it got over. Clarke, Fletcher and Erdman also flew the "G.B." and Peter Rivers flew the "Prefect," Phelps the "Krajanek" and Dodd the A.T.C. "G.B." but that was all.

By Tuesday the wind had moderated, and amongst other flying it was possible to do some more aero-tows with Jack Rice's "Tiger," Cleaver in the "Prefect" and Cadman in the "G.B." being the guinea-pigs. Jack Hanks soared the "Camel" for nearly three and a half hours, while Rogers and Huggett in club "Tutors" and Hulme in the A.T.C. "G.B." each flew for more than an hour. The good conditions continued on Wednesday, and Pereira was tempted to go away in the "G.B." though he did not manage his Silver C distance as he landed at Ayot St. Lawrence. Ellis had an hour and a half in the "Prefect" as a change from instructional flying in the "T21," and a number of others flew for shorter periods. Ruck was back again with the Kite.

For the rest of the week there was some flying every day, but practically nothing but circuits.

Week ended 23rd. An unusually poor week until Friday, the 21st when the first flying was done—three circuits in the "Prefect" plus two attempts accompanied by cable troubles. Saturday was better, nearly twenty hours being totalled. by forty or so members in a dozen machines. Sunday was better still, thirty-seven hours being done though the wind was northerly. The "Dragonfly" and the "T21" were kept busy on instruction. Steve reached 5,000 feet in the "Blue Olympia," and Dan Smith in the same machine, taking a little time off for a change from instruction, enjoyed himself by wandering around the countryside for an hour and a half at substantial height. Anson also reached 5,000 feet in the Gull LV. Fozard, flying the C.O.A. "Tutor" got his C amply with twenty-three minutes on the hill. The day was marred by a little damage to the port wing spar of the "Red Dagling," the kind of incident which we have fortunately been fairly free of for some time.

Week ended 30th. Periera turned "Gull" practice, though now he has to put up with the "Gull IV" in the absence of the "Gull I," and got in two and a half hours, sharing the hill with Tapp, Hanks and Pollard all flying the "Prefect." Tuesday was good enough to tempt Hanks in the "Gull IV" and Land in the "Buzzard" away from the safety of the home ridge; but thermals proved elusive and the "Buzzard" came down at Stevenage and the "Gull" at South Mimms. Fozard followed up his Sunday C with an hour and a half soaring practice in the C.O.A. "Tutor," and in the same machine Harper also got his C with a flight of eleven minutes. On Wednesday it was soarable for a while. Reeves, Joan Price and Frank Foster in the "Prefect," "Olympia" and "Buzzard" respectively, were in the air together but were also forced down together. Thursday again was tempting enough for cross-country attempts, and this time it was Anson, who got as far as Ruislip Reservoir in the "Gull IV." Huggett got in two hours twenty minutes "Tutor" practice, Bilham fifty minutes in the same machine, Hughes, Wheatcroft, Hands and Sands shared the "Prefect" for 5½ hours, whilst Harper and Fozard continued soaring in the C.O.A. "Tutor." Haigh was fortunate enough to get in nearly two and a quarter hours in the "T21" with Hanks and Reid as Pl, demonstrating the advantage of mid-week attendance on the right day. Friday was another tempting day, and Hanks once more fell for it, only this time the thermals were even more coy, and in spite of 5,000 feet he only got to Luton. Who said that the gliding angle of the "Gull IV" is one in twenty-five? Audrey Battlebury had a taste of freedom from hill-bondage by taking the "Red Tutor" to 2,100 feet on her first circling practice. Congratulations, Audrey! Wheatcroft also flew the "Gull IV" and Pinkerton the "Tutor," Ruck brought out his "Kite I" again for three hours flying, Fozard and Harper put in still another four hours in the "C.O.A. Tutor" (they have been lucky since they got their C's) and Dodd had an hour and a half in the A.T.C. "G.B." That was the finish of good conditions for the month. On Saturday the best time was 36 minutes by Peter Rivers in the "Prefect," and on Sunday although Lawrence Wright managed to keep the "Silver Olympia" in the air for three quarters of an hour little else was done but circuits.

Summary for April. Taken all round it was not a bad month. The total was 290 hours 36 minutes, in 645 launches. There were one A, one B, four C's and one Silver C height, and there were five cross-countries totalling 72½ miles. This of course is only flying at Dunstable, but the month also included Steve's out and return record of 126 miles, which was done from Redhill.

CAMBRIDGE UNIVERSITY GLIDING CLUB

Our camp at the Longmynd during the last fortnight of March provided a good start to this year's

soaring. By ingenious trailer packing we managed to take four aircraft, the "Kranich," "Cambridge," "Prefect," and "Olympia." About twenty members attended, and all those without previous soaring experience obtained their "C's". In addition, some of our country members came for a few days.

Chief interest centred upon the projected attempt by John Free and Sid Park on the British two-seater duration record. Careful preparations had been made for this flight, but, as so often happens in these circumstances, the attempt was prevented by unsuitable weather. However, everybody derived some amusement from watching the two pilots trying to evade the hordes of reporters who invaded the Mynd. In between interviews Sid Park managed to fit in a 5 hour duration leg in the "Prefect."

Altogether over 100 hours soaring was obtained, much of it in combined hill and thermal lift. Dave Martlew and Basil Bell completed their Silver "C"s with 5 hour flights in the "Olympia, Basil squeezing home by a few minutes in deteriorating thermal lift.

During the last week of the camp, when there was a period of east winds a small party took the "Olympia" to the Malverns, Dave Clayton completing his Silver "C" with a 5 hour flight.

At the close of the camp Jimmy Grantham and Dave Martlew attempted a 125 mile goal flight to Cambridge, but excessive North in the wind made conditions difficult and they were forced down 90 miles from the Mynd.

So far this year members have flown over 600 miles of cross-countries. The longest was a flight of 96 miles from Cambridge to Hastings by Pete Sullivan in the Olympia; this flight also qualified for the Silver "C" duration. On the next day, 23rd April, Gil Phillips and Dave Carrow flew 88 miles to Canterbury in the "Kranich," a good deal of the flight being in cloud. Alexander also achieved Silver "C" distance in the "Olympia" shortly before the beginning of term.

Finally, we are glad to say that the Marconi V.H.F. set, described in the April Sailplane, was completely successful under practical operating conditions. Simplicity and compactness make it suitable for use by "un-Boffins."

BRISTOL GLIDING CLUB

Now that the major part of our maintenance programme is completed, we have been able to get down to some soaring. A west wind on 1st April enabled the first "C's" to be obtained at Roundway, by A. F. Gotch, G. N. Derrett and J. M. F. Parker.

A west wind also blew for most of the Easter Camp. A total of 36 hours was flown over the Saturday and Sunday and "C's" were obtained by K. Thomas and S. Smith, while N. D. Batstone and R. H. Perrott did their five hours duraton flights. The club "Olympia" and "Tutor" and our two privately owned "Olympias" were joined by Philip Will's "Weihe" and the Surrey Club's "Cream O."

On the Monday, though the wind was west, it was too strong to fly and even overturned one of the trailers. On Tuesday, however, it had died down to such an extent that soaring was barely possible and the "Tutor" went to the bottom.

Roundway also shows promise of being a good thermal site, though at present we haven't enough run to give high winch launches. A 20 min. flight from a 350 ft. launch shows what we can expect. On the same day at Lulsgate 6 mins. was all that could be done from 1,000 ft. auto-tows.

A few thermals have caught at Lulsgate however, and J. Allen got his "C" with a flight of 20 minutes in the "Grunau." The two seater has also been to 3,000 ft.

DERBYSHIRE AND LANCASHIRE CLUB NOTES

Saturday, Feb. 18. Wind W.S.W., 15 m.p.h. Both 2-seaters, a "Cadet," a "Tutor" and private owners put in about 20 hours hill-soaring between them, finishing up with "C" flights by Frecheville and MacIntosh. In the evening Jack Saunders gave a second meteorological lecture, this time with emphasis on Tephigrams and Standing Waves, and the subsequent discussion quickly demonstrated the full extent of our knowledge on both these subjects.

Sunday, Feb. 19*th.* Wind S., 10 m.p.h. Insufficient for hill-soaring. However, training circuits were in progress most of the day, and Derek Woolhouse completed his first Solo, followed by "A" and "B" certificate flights.

Saturday, Feb. 25*th.* Wind N.E., 20 m.p.h. Snow. No flying. The Annual General Meeting of the Club was held this evening, when only the real enthusiasts could be expected to brave the elements and attend. The Club seems to make a point of holding its A.G.M. on the worst possible day in February, and this year was no exception.

Sunday, Feb. 26*th.* Wind N.N.E., 15 m.p.h. A nice, sunny day, with the snow still on the ground. "T-31" training had first priority, but rides in the "T-21" to take snow photographs were also in great demand.

Saturday, March 4*th.* Wind W., but cloud at 100 ft. and rain all day. Phillip Wills visited us to lecture on "Cross-Country Planning," and discussion widened the scope of the lecture to include "Blind Flying" and "Variometer Interpretation."

Sunday, March 5*th.* Wind W., 15 m.p.h. Poor visibility and very rough hill-soaring. However, a total of 11½ hours was completed, chiefly by private owners.

Saturday, March 11*th.* Wind N.W., 60 m.p.h. on the edge and approximately 40 m.p.h. above 2,000 feet. George Thompson made a "Gold C" climb and Club height record of 14,250 feet in his "Viking," confounding the wave theorists by taking the temperatures all the way up, which showed highly *un*stable conditions above 5,000 feet. Conditions were typical of "Camphill Wave Days." Surface wind stronger than the forecast or average surface wind. About half cover of medium cloud between 2,000 and 3,000 feet, this cloud gradually thickening to full cover (see below). Very little or no high cloud. George's figures agreed very well with the day's tephigram, which showed an inversion up to about 5,000 feet with wet adiabatic conditions above this height. Breakfast table answer, 5,000 feet; George's answer, 14,250 feet. Good show! Gerry Smith, trying to follow him about an hour later, could only reach 5,600 feet, although flying in the same place. He and Tony Dolan, while searching for further lift, got cut off from the ground by the thickening medium cloud, and both landed away from

the Club, fortunately without damage, in the very strong wind.

The "Winter Social Season" ended with quite a good party, organised by the ladies, at which the guest of honour was Wynford Vaughan Thomas, of the B.B.C.; present on a little recording job,—subsequently broadcast on Wednesday, March 29th.

Sunday, March 12th. Wind N.N.W., 5 to 10 m.p.h. Circuits and bumps most of the day in Club machines, while a few private owners tried to catch thermals off the winch. Only John Tweedy, in his "G.B. II," succeeded, and he eventually found himself at cloud base at 4,000 feet about 4 miles down-wind from the Club. From here he needed two more thermals for "Silver C" distance, but unfortunately he could only find one and had to land after 25 miles. A good try, on none too good a day.

Saturday, March 18th. Wind S., 20 m.p.h. A good direction for circuit practice, as one can take off from the middle of the field and land on the same spot again—sometimes. Circuits fast and furious by "Cadet," "Tutor" and "T-31," while some private owners had trips along the hill to Eyam and back.

Sunday, March 19. Wind W., 25 m.p.h. Moderating. "Tutor" and upwards flying all day. In the evening it calmed down enough for Derek Woolhouse to complete his "C" in the "Cadet."

Tail-piece. Small son of a well-known Instructor, on being given a ride in the "T-21": "Daddy, why does the wind come in at the side?"

THE PORTSMOUTH GLIDING CLUB

Our thermal season started off on the 5th of March when Fripp in "Ventura" had a brief fumble at 1,200 feet for 14 minutes, finishing up with aerobatics to celebrate.

The following Sunday Alan Hillyer managed 1,400 feet for 15 minutes over the Ordinance Works and later in the afternoon Bert Parslow flew for 47 minutes reaching 3,200 feet in the club "Grunau." The sky didn't look very promising in this area and lift was found only in the sunny spots. Some Alto Stratus came over later and spoiled the fun.

The "Grunau" has now been fitted with a nice new instrument panel, including a Slater-Cobb which carries on a constant argument with the Horn variometer; but our affection for the latter remains unshaken.

At the A.G.M. it was disclosed that our two sources of income, namely, subscriptions and flying fees, were actually showing a profit and it was decided to purchase some reliable means of transport to enable us to send a party out to our soaring sites without having to impose on the generosity of members and their long suffering cars.

This led to the acquisition of "Laminar Flo," a genuine London Taxi. We fell in love with her at first sight, her classy chassis and well upholstered body were just what we had been looking for, so we paid cash on the spot and drove her home. A towing hitch and trafficators were nailed on, the electrical equipment was overhauled and now she stands ready to dash off at a moments notice to the hills or retrieve a cross country pilot.

On the 7th of April Audrey Johnson, Terry Townsend and Jack Willard were promoted to the "Grunau," much to their delight. Over forty flights were made, not bad considering the wind direction

started off from the East, veered to south east and finally to south west. Bert Parslow had "Ventura" out for an airing and put in five flights, but there were no thermals about. The rest of the Easter holidays were a washout as far as flying was concerned, but we had an enjoyable trip to see our good friends at Friston. They seemed pleased to see us and our new vehicle was much admired.

Sunday, 23rd April. Wind north, 10-15 m.p.h. A convoy set out for Kithurst Hill consisting of Bert Parslow towing the "Ventura," Frank Costin from the London Gliding Club with his "Scud I" and "Flo," on her first fully operational trip, loaded with six bods, bungees, parachutes etc., and the "Grunau" lashed on the club open trailer, which has once again been soled and heeled, although the welt is now looking a trifle dodgy. Altogether there were seventeen people present so that rigging was completed quickly.

Johnny Pears steadfastly refused to accompany us on the expedition and carried on working on the Nacelled "Dagling," which is enjoying its annual overhaul and C. of A. renewal.

After tossing up with Bert Parslow, Ken Fripp was bunjied off and after several excursions to 1,500 feet in thermal he caught a strong one and rose rapidly, entering cloudbase at 4,000 feet. From closer inspection it was evident that the clouds were obstructed by an inversion as they were flat and insipid looking and lift petered out at 4,300 feet.

Meanwhile a dog had trodden on the "Grunau" aileron, necessitating a fabric repair and unfortunately Gordon Dollery was delayed from starting until some forty minutes after the "Ventura." This probably cost "Dolly" his Silver C height as conditions rapidly deteriorated and although he found weak thermal lift the wind dropped and backed and both aircraft were soon skimming along just above the ridge. After one or two anxious moments the machines landed on top near the launching point.

Although we whistled for a wind all the afternoon it failed to arrive and the aircraft were de-rigged in the evening and we pub-crawled home. Flying times were "Ventura" 1½ hours, "Grunau" 33 minutes.

Sunday, 30th April. Everyone worked frantically to get the "Dagling" into the air again and this was accomplished when Bert Parslow test flew it in the late afternoon. In spite of the very late start 28 flights were made including five in the "Grunau," three of them being thermal flights. Times of these flights were as follows :—Parslow 17 minutes, Hillyer 20 minutes and Dollery 33 minutes. Maximum heights were in the region of 2,000 feet.

Our holiday camp this year will be spent at Friston with the Southdown Gliding Club. If the weather is anything like last year we should do bags of flying, but the weather is very fickle, so we shall just have to hope for the best. However we can be sure of a warm welcome and the good comradeship which exists between the two clubs.

K.F.

Letter to the Editor

DEAR SIR,

Your Editorial in the May issue raises clearly a question which has been forming for some time—has the Golden "C" any value as an international standard ?

To gain a Silver "C", even with current British Sailplanes, requires something of the skill and airmanship which the Silver "C" was established to prove—in short you must be able to fly a sailplane to get it.

If you can fly a sailplane to this standard and can afford the time and money to take it far enough away where cloud bases are high and standing waves or super thermals operate you need only luck, the day and the met to qualify as a Golden "C."

"Steve's" case only outlines the issue more sharply and if the present argument draws attention to the fantasy value of the Golden "C," and the more fantastic Diamond "C," a service will have been done for gliding.

Yours faithfully,
C. A. KAYE.

P.S. How many Golden "C's" would there be if aero-tows were barred ?

CONTRIBUTIONS TO "SAILPLANE"

We are frequently asked why certain important contributions to Skysailing literature are printed in other British Journals not primarily devoted to Soaring. The reason is one of pure finance. Whilst our rich contemporaries are so short of interesting matter they are willing to pay high fees for Sailflying articles and photos. These we cannot afford or only indeed very little indeed. Nor can we reproduce these articles without cost in some way or other. Occasionally we have been able to print simultaneously with our good friends *Aeronautics*, articles which they have accepted and paid for without cost to ourselves.

But we have been reminded that if contributors have typed the simple words "First British Serial Rights only" on the flypage of their MSS, authors are then free to offer the second rights of printing, which operates as soon as the first impression of the first rights is published and distributed. These rights could be placed at our disposal gratis or for a nominal fee by arrangement. We commend this to our budding authors, and those who have flowered as well.

We are always interested to print good photos. Those for the cover should have the axis vertical or be capable of cutting so as to leave a vertical axis subject. Fee for copyright one guinea. For other photos we will pay 2/6 for each one used, one reproduction only. Glossy prints please but if the objects are small please be prepared to send the negative if required. Photos of people should be reasonably close up, and sky and sailplane photos are usually better if made through a yellow filter. Photos should always tell a story.

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