Sailplane and Glider

The First Journal devoted to Soaring and Gliding

JUNE 1952

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CONTENTS

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Editorial

IN the April issue of *Sailplane* we speculated on the effect on the result of the entry for the U.S. Championships of Robert Kronfeld's ' Horten IV ' sailplane, now owned by Hollis Button. Now we hear that the issue of the all-wing *versus* the traditional design is to be decided at the forthcoming International Gliding Competitions in Spain next month. The Argentinians are bringing Dr. Horten's latest derivation of the ' Horten IV '—L'Ala Volante—with them. This we believe to be a two-seater version, but when it first flew in the Argentine it was reported to have a better performance than even the single-seater. We shall see if this claim is valid in Spain. As we go to Press we are not quite sure whether Dick Johnson and his ' RJ-5 ' will be in Spain, but if they are we may see and compare the ultimate in the traditional style of development with the latest in the all-wing design. It is noticeable that the German newly designed and built gliders are on traditional lines. Dr. Horten is also German, and in effect the Contest will bear upon it the stamp of the German idea.

This is no reflection on other nationalities. Gliding, like the sciences on which it is founded, is International, and there is no room for Nationalism in pure sciences, although they are sometimes mis-applied for reasons of National advantage. We want to keep Gliding as a sport, in which we have our rivalries, just as we have in our Clubs and in our own countries, but, at this, the greatest International Contest which has so far occurred, we hope, most sincerely, that the spirit of good fellowship which Gliding people the world over show to the wearers of the little badges with wings, whether one, two, three, silver or gold, will animate all those occupied in the business of running and taking part in the Competitions.

Weather records show that the first two weeks of July are ideal for soaring, with winds from North to East, heated by the land mass of the North Mediterranean, and helped to higher altitudes by the orographic effect of the Cordilleras Thermals, begin early in the day, and the 11.0 a.m. starts of Orebro, may be anticipated by two hours. The Spanish custom is to dine late too—9.30 to 11.30 ' punctually '—as my host of twenty-five years ago—the late Conde de Terra Soto de Briviesca—remarked to me after a game of polo in Sevilla in which my team included the two sons of the late Primo de Rivera—one of whom has since been beatified and the other is now the Spanish Ambassador in London. There will be some tired and hungry teams before the end of the get-together, although the use of radio between pilot and retriever will largely reduce the waiting time and the fatigue and should obviate the need for all night driving and the consequent strain on pilots and crews alike. Spain is a beautiful country, its people are both comely and friendly, and their hospitality is a byword. We are sure that the 1952 Contests will go down in Gliding history as the best ever, and we wish the best of luck to all those who participate, and freedom from those unfortunate events which might have been avoided with a little more care, not the least of which is the necessity of arriving there in one piece and intact.

AUSTRALIAN NATIONAL GLIDING COMPETITIONS

The Hinkler Soaring Club at the Australian National Gliding Competitions—N.S.W. Section—Narromine, N.S.W., Australia.

DECEMBER 16th, 1951. At Camden Airfield, near Sydney, the members of the Hinkler Soaring Club wheeled the ' Olympia ' and ' Grunau ' and the ' Tiger Moth ' towplane ' Brolga ' back into the hangar. Weariness forgotten in the joy and relief of successfully completed tests and preparations.

In a week the 280-mile road and 200 air-mile trip to Narromine would commence. The newly bought but ancient tow-truck had been hastily renovated and performed well. The ' TG-3 ' trailer had been modified to carry the ' Olympia ' or ' Grunau ' if needed. Camping equipment checked, personal timetables in order.

Most important of all, ' Brolga ' had successfully lifted the two gliders together in the first double tow ever attempted in Australia. It was asking a lot of one little ' Tiger Moth ' to lift about 1,100 pounds of gliders and pilots from sea level to 6,000 feet and carry them 180 miles non-stop, but ' Brolga ' is a mighty Moth, her special large diameter, fine pitch propellor giving her climbing and pulling powers above the ordinary.

' Brolga ' had justified our faith, the critics were subdued if not silenced. I believed and the members agreed that the air-tow was safer than the crowded roads, narrow and overburdened with heavy trucks, winding over many miles of mountains and valleys. It's much safer in the air.

THE DOUBLE TOW.

Saturday—22nd. We had camped overnight in our clubhouse at Camden. A perfect dawn found us lining up the three aircraft, after a hasty breakfast.

6.15 a.m. We're off In the still calm air, ' Brolga ' climbed smoothly and without incident, at a steady 150 feet per minute. One circuit, always within gliding distance of the airfield—our invariable and profitable precaution—and I set course for Penrith, at the foot of the Blue Mountains. 150 feet behind me, Kevin Moloney held the ' Grunau ' above and to the right of the slipstream, while Bob Krick relaxed in the ' Olympia,' below and to the left, on a 220 foot rope. Both rudders were spring loaded.

DANGER BELOW.

We crossed the beautiful Hawkesbury River, and still climbing, changed course for Katoomba, following the comforting string of small towns along the road and railway that crossed the range. Why ? Brother, you follow that trail or else, in these parts. The range is forty miles wide, jagged and hostile, heavily timbered with a rocky—mostly vertical—base, and valleys 5,000 feet deep to hide you for ever from search parties. So, with the responsibility of two motorless types and no desire to lose my own beloved ' Brolga,' we followed the rails, road, golf courses, cricket grounds and parks, and made detours of safety throughout the whole flight.

Our Department of Civil Aviation, which grants complete freedom and a small subsidy to the gliding movement, had been fully informed, and with their usual cheerful co-operation its officers had given us every assistance, allowing us to travel above the free air space, a concession usually applying only when radio is carried. We had no radio.

We crossed the main Divide and followed a reasonably safe valley, then cut across another spur into the last valley, over Tarana to the high plains of Bathurst, 2,500 feet above sea level.

EASIER GOING.

Over Raglan Airfield at 6,000 feet above sea level, then past the nearby city of Bathurst, again we followed the safe course to Orange, a city at 3,000 feet on the slopes of Mt. Canobolas. Here we turned north to Wellington, to keep near the main road in case the trailer should be needed.

Below us thermals were popping, but we were comfortably at inversion level, and quite determined to stay there as far as possible. Air speed was a steady 65, wind nil, visibility unlimited.

The Dubbo Gliding Club had pleaded with us to land and demonstrate all phases of soaring to the Dubbo citizens, and inspect the ' Venture ' two-seater and ' Grunau ' which the club is building.

We had accepted the invitation, so now began letting down to a moderate height to let the townsfolk see the double tow. This involved a little discomfort for the ' pure pilots ' who for once had more thermals than they wanted. They hung on grimly while I completed a demonstration circuit over the town, then at the signal both peeled off outwards and looped and spun and stall-turned all over the sky, like falcons freed and full of fun.

I dropped the twin rope on the airfield and landed, and half-an-hour later the boys fought their way down beside me. No kidding, those thermals were terrific. The Dubbo boys were hugely delighted. The citizens were most impressed. So THAT was gliding ? ? ? They had regarded the club indulgently in the past, now they were full of respect. We had achieved our purpose. Gliding was now On The Map in Dubbo.

A BROKEN TOWROPE.

After lunch we cautiously attempted another double tow take-off on the long runway, and made it, but while circling the town, a sudden violent thermal kicked the ' Grunau ' in the pants, and the rope snapped at the junction, leaving me with the short ten-foot section, and both gliders adrift at 1,500 feet. They released and the rope was speedily found and returned to the airfield, after the local radio station had broadcast an appeal and the local club had supplied a spare rope.

The Australian National Radio News service had been kept informed and played up the whole flight from Camden and all progress reports, and gliding was on the air all day, and very well and favourably reported all over the nation.

Both gliders now returned to the airfield, but Kevin Moloney did not land the ' Grunau.' Why bother, he thought ? He just whizzed up to 8,000 feet and pushed off to Narromine, 22 miles away.

Bob Krick landed the ' Olympia ' and suggested

that I have a pleasure flight in it while waiting for smoother air. Bill Taylor, C.F.I. for Parkes Aero Club, was present and he flew ' Brolga ' for the launch. I released low, centred the thermal, and levelled off at 8,000 feet. Just like that. Then I had a little fun and landed and sent Bob up again with instructions to glide to Narromine, which he did with ease, finding Kevin already there. They 'phoned back to let me know and I joined them.

THE GROUNDLINGS.

At Narromine we met members of the Sydney Soaring Club, who had air-towed their ' Olympia ' from Bankstown (Sydney), and the Narromine Aero Club, who laid on the hospitality in true flying style, as well as escorting us to our hangar home. As almost all members of our club are non-drinkers, we must have been a sad disappointment to the Narromine boys.

About 9 p.m. my wife Grace arrived with the car, plus F.D.H. junior (Ricky), and Dave Wilkinson and Allan Ash, but our old tow-truck didn't quite make it. It blew a cylinder head gasket 20 miles short of Narromine, and thereby hangs a tale of woe for me.

Don Matts and Frans van der Kreek got a lift and joined us. Most of us retired early leaving our two Anonymous Alcoholics to represent us at the revels. Next day we found them. One had slept somewhere in the airfield, the other in a heavy ground roller. They seemed quite comfortable.

Sunday was a very promising day, but I had to rescue the truck, and we had no other tow-pilot. I took the car, found the truck, diagnozed the trouble, and decreed that it must be towed in. So I towed it in, went back and towed the trailer in, then we opened up the truck engine. Being the only car expert in the party as well as the only towplane pilot had its drawbacks. Everybody needed a rest, so nobody minded the lost day. All garages were closed. We couldn't get a new gasket.

THE COMPETITIONS.

Tuesday the 25th dawned a glorious day, with a sky full of just-right cumulus clouds. The Sydney Soaring Club launched Keith Colyer in their ' Olympia,' and he went on to break my 221-mile distance record with 259 miles to Jerilderie.

The Hinkler boys (myself excluded) balloted for the two gliders and Bob Slusarev in the ' Grunau ' and Ray Ash in the ' Olympia ' were launched, both declaring short goals as both were on their first cross-country flight. Until the tow truck was repaired, there could be no gliding for me, as all retrieving had to be done with the plane, and there was no relief pilot.

While waiting for our boys to report back, we tried to fix the truck, but were dismayed to find that no gasket was procurable. We made one from a substitute material but it was too weak and blew out again. We ordered one from Sydney, but it arrived too late for me, and I missed the whole competitions.

Bob Slusarev 'phoned back. He had missed his goal, but made a similar distance and then filled in his five hours and landed, 60 miles away. As it was his first try, and in a ' Grunau,' that wasn't too bad. We accepted an offer from the Dubbo Club for the loan of a truck, and Bob was retrieved by trailer next day.

Then Ray Ash reported. Ray also had declared a goal, and this was most unfortunate, as he could have kept going all day, and had been instructed to go beyond his goal if the prospects were good. Ray reached his goal, 86 miles away, quite early, but did not go on, and finished his five hours before landing.

After this, I discouraged the practice of naming a goal each flight, unless the pilot was willing to name a Gold distance. But it was too late. The good day was not repeated.

The reason that the ' Grunau ' was retrieved by road was that Bob Slusarev had landed in what looked like an excellent field, but turned out to be an explosives dump. The Army C.O. in charge wasn't amused, and I didn't ask him for permission to land the ' Tiger ' there.

On Wednesday the 26th I retrieved the ' Olympia ' and launched Bob Krick in a doubtful cloudless sky. Bob tried for speed, on his first attempt, and came down at Mareeba, 45 miles. I brought him back the same day.

Thursday—27th. Allan Ash in the ' Grunau ' and Frans van der Kreek in the ' Olympia ' set off. Both tried to reach Tullamore, 50 miles away, and they landed in adjoining fields at Trundle, 60 miles. Both were airsick, which accounted for the navigation trouble. I retrieved Allan that day, and Frans next morning.

From then on, the ' Grunau ' was withdrawn, as it was too strenuous retrieving both gliders with only one towplane.

On Saturday the 29th, Allan Ash did 90 miles in the ' Olympia ' to complete his Silver ' C,' and reached 11,000 feet for a Gold height leg. The same day Bob Krick in a local flight in the ' Grunau,' reached 12,500 feet for Gold height, but his barograph failed.

The next few days were not soarable, but on Tuesday the 1st of January, we all moved across to Dubbo to stage a full-day Glider Pageant for the Dubbo Club. This was a great success and was featured in newspapers and broadcasts. All members of the Hinkler Club did aero towed take-offs, soaring and aerobatics, and ' Brolga ' and I did our smoke-trailed aerobatic act, but the star performer was Grace on the public address system. She and three-months-old Ricky (who kept her grounded) scooped eight inches of the very enthusiastic press report. That night the Dubbo Gliding Club put on a barbecue for us, and it really was a good one.

Next morning the thermals seemed promising, though cloudless, so Bob Muller was launched in the ' Olympia,' and as the tow truck seemed to be behaving well on another home-made gasket, we risked the ' Grunau ' too, with Ray Ash aboard.

Bob forget to mark his map before starting, and this cost him a Gold ' C,' but he completed his Silver ' C,' with a spectacular flight to Walgett airfield, 155 miles at 40 miles per hour. The unmarked map tricked him, and he thought he had covered only 120 miles, and decided not to go beyond the large and last available airfield as he thought he did not have enough time to complete gold distance (187 miles). He therefore spent an hour over Walgett

to complete his five hours, and landed. Bob got a pat on the back for doing the longest flight of the tour, and another—slightly lower down and more emphatic—for not getting every possible mile.

Ray Ash reached Gular, about 60 miles, in the ' Grunau,' and the truck set off with the trailer to get him. Alas, the gasket blew again, and it was two days before we saw Ray and the truck crew back at Narromine again.

On Thursday the 3rd, I flew to Walgett with Bob Krick, making a brief stop by the roadside to inspect the truck and make sympathetic noises. There wasn't much more we could do to help. Arrived at Walgett we found Bob Muller being very well looked after by the Daley family, and Bruce Daley took us all home and gave us a wonderful meal of river fish. He was a mighty fisherman, and showed us a deep-freeze unit full to the brim with enormous river cod, and gave us one to take back. It took two days to thaw out and made two meals for the whole club.

Back at Walgett airfield, still helped by Bruce, we decided to let Bob Krick try to soar back past Narromine to Parkes, a goal of about 210 miles. Conditions seemed about the same as the previous day, and we were optimistic, but it turned out that the cloudless ceiling was very much lower, and Bob made his flight at an average height of only 3,000 feet.

We gave him two hours start and followed. 100 miles out, we overtook him, and were alarmed to see him very low over a very large and smooth paddock, obviously making his approach to land. I throttled off and circled him, and landed ready to tow him home. He tricked me. As I switched off and stepped out, he caught a thermal at a very low height, and slowly struggled back into the sky. We stood there, sweating with the effort of watching him, and watched him disappear into the south.

We went on to Gilgandra airfield and re-fuelled, then spent a pleasant hour with our good friend Dr. Trevor Williams, expecting to see Bob fly over. He didn't, and as no message came through, we flew back to Narromine, and were astonished to see the ' Olympia ' in front of the hangar. Bob had completed the 152 mile flight under very weak conditions, never above 5,000 feet, and on passing Narromine, had found lift so scarce that he abandoned his goal and landed back home.

This completed Bob Krick's Silver ' C,' and like Bob Muller, took him very close to Gold ' C ' performance.

On Friday the 4th, Bob Slusarev got a local height to complete his Silver ' C.' Frans van der Kreek did some good local heights in cloud, one to over 8,000 feet from the base of 5,000.

On Wednesday the 9th, Ray Ash flew 60 miles to Trundle in the ' Grunau,' and Allan Ash in the ' Olympia ' found such turbulence that severe air-sickness brought him down prematurely at Alectown, about 50 miles. We heard from Allan first, so I flew south to retrieve him, but we had to wait for the calm evening air while Allan recovered. This caused Ray to spend the night at Trundle, and delayed the start of the ' Grunau ' next day.

I launched Bob Krick in the ' Olympia ' at 10.30 a.m. on the 10th, and then set off to retrieve the ' Grunau,' returning about 1 p.m. Conditions still looked good, although three good soaring hours had gone, so, as the tour was over, I decided to attempt a goal flight back to Bankstown, near our home field. This would not involve a retrieve, as I would be roughly following the road all the way home, and the ' Grunau ' could be picked up by the trailer at any point. The new gasket had arrived and the truck was serviceable again. I named Bankstown as my goal and set out at 1.30 p.m., a highly optimistic but not impossible task. The distance was 197 miles.

The story of that flight has already been published. I failed, but was not disgraced by the 132 miles I covered in the ' Grunau ' in five hours.

Bob Krick reached Bathurst, 115 miles, where the high ground (2,500 feet) is a trap for all pilots, I nearly came down there too, but fluked a last thermal and climbed again to scrape another 17 miles before landing.

While I returned by train—a ten hour trip—to Narromine to pick up ' Brolga,' Bob Krick collected the ' Grunau ' and took it back on a hired truck to Bathurst. Next day I flew ' Brolga ' to Bathurst, where all the club members met again, and at the request of the Bathurst Aero Club, we staged another Glider Pageant on the 12th. It proved as popular as the Dubbo show, and on the 13th we started early and I double-towed the two gliders back to Camden without incident—Bob Krick in the ' Olympia ' and Ray Ash in the ' Grunau.'

So ended a long and arduous but fruitful tour. The Club gained five Silver ' C's,' the winners being Allan Ash, Ray Ash, Bob Krick, Bob Muller, and Bob Slusarev. Fatigue alone prevented Frans from completing his five hours although he did his height and distance, and Allan Ash got an official gold height leg.

Members who had no previous cross-country experience put up many fine flights and gained a wealth of experience. Although no records were broken, it was the most successful ' first tour ' ever.

FRED HOINVILLE,
C.F.I., Hinkler Soaring Club,
37, Flinders St.,
Sydney, N.S.W.
Australia.

A NOTE ABOUT FRED HOINVILLE

FRED was the second British pilot to gain a Gold ' C,' holds Australian Gold ' C ' No. 1, the date being January, 1949. He has done gold distance twice, height three times, time four times. The 132 mile ' Grunau ' flight mentioned in this article is the longest ever done in a ' Grunau ' in Australia. It is interesting to know that Fred can claim that distinction for every type of glider he has flown cross-country. In the ' Gull I,' he flew 221 miles; in the ' Gull IV ' he flew 191 miles; both Australian records for those types. From an auto-tow to 400 feet, he recently climbed a ' Grunau ' to 14,000 feet, the last 5,000 feet in cloud. Present cross-country average is 138 miles; of Fred's cross-country flights only one has been made in a medium high-performance sailplane, the rest being flown in ' Grunau's ' and ' Gull I.' He is also one of Australia's outstanding light plane pilots and acknowledged aerobatic champion of Australia.

PRONE FLYING

By

Fritz von Hermann

1. HISTORY.

REFERRING to the position of the pilot, the term ' prone flying ' usually denotes that the pilot lies prone with his front facing the ground in the normal flying attitude and his head pointing in the direction of flight. It is less important whether his legs are stretched or drawn up.

Floating in the air in this attitude seems to meet the primitive human urge to fly. When a great number of ' aeronautically uneducated ' people were questioned it was found that their conception of flying was linked with the prone attitude.

According to the above definition Otto Lilienthal's gliding was already prone flying, although he was almost standing upright. At the beginning of the century, however, the Wright brothers flew in a really prone position, i.e. lying flat on a canvas. During the following years quite a few gliders with the almost horizontal position of the pilot were built and also flown, which was not the necessary consequence of building in those days. In the end, however, the sitting arrangement was generally adopted and the prone position fell into oblivion.

The ' Fledermaus ' (1933) was an example of lying down ' the other way round,' i.e. with the pilot on his back. The fuselage of this sailplane was only 32 inches high, and the stick was mounted above the pilot's head. This arrangement once saved the life of a pilot who struck a moving cable on landing. The cable cut clean through the hood and half way through the stick, level with the pilot's throat.

In 1937 the Department for Aeronautics at the Technical University of Stuttgart designed the ' FS-17 ' in order to carry out research on the prone position. The following advantages were expected :—

1. A reduced cross-sectional area of the fuselage. It was found that the gain was only small. Determined by the shoulders, the width remained the same. A height of 28 inches was necessary, because the pilot had to be placed either above or below the mainspar. A sitting pilot can already manage with 37 inches.
2. Less discomfort of the pilot through acceleration.

The ' FS-17 ' was the first aircraft to be constructed for research on prone flying. The first object was to find out whether it was at all possible to fly with sensibility and endurance in this attitude. There was a great divergence of opinion amongst the experts, but after a few flights the test pilots gave a positive answer without hesitation. The ' FS-17 ' was later transferred to the University of Berlin where the twin-engined aeroplane ' B-9 ' with a prone cockpit arrangement was developed from it.

In 1939 the idea was picked up by the Horten brothers. Lying prone, the human body can be fitted quite well into the contours of a wing section. It was therefore possible to give the centre section of the tailless sailplane ' Ho-IV ' a very favourable shape, both from the aerodynamic and structural point of view. The advantage which was not convincing with the ' FS-17 ' was fully exploited with the ' Ho-IV.' The legs of the pilot were placed in the fairing of the rear skid. Other remarkable features of this design were the special stick control and the lid with a pocket for the parachute.

As there was no room for the stick to have sufficient leverage, it was replaced by a handlebar which could slide fore and aft on a tube and thus work the elevator. Turning the bar about the tube moved the ailerons.

In emergency the lid could be jettisoned by pulling the same handle which released the harness. The slipstream would then blow the lid off, and the parachute would slip out of its pocket.

All supports, including the chin-rest and the thigh and shin padding, were adjustable to the size of the pilot.

This cockpit arrangement was so successful that the Horten brothers reconstructed their ' Ho-III ' for prone flying. The following Horten types were therefore piloted in this manner :—' Ho-III f,' ' Ho-IV,' ' Ho-IV b ' and ' Ho-VI.'

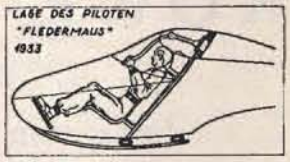
In 1943 at Trebbin, several sailplanes of the ' Kranich ' design had their front cockpit reconstructed for a lying pilot, while the rear seat remained unchanged. The main idea was to find the limits of acceleration with a safety-pilot in the rear seat, and to gather experience for the training of pilots in the lying position. The good results obtained were confirmed by similar tests on a reconstructed ' Habicht ' sailplane.

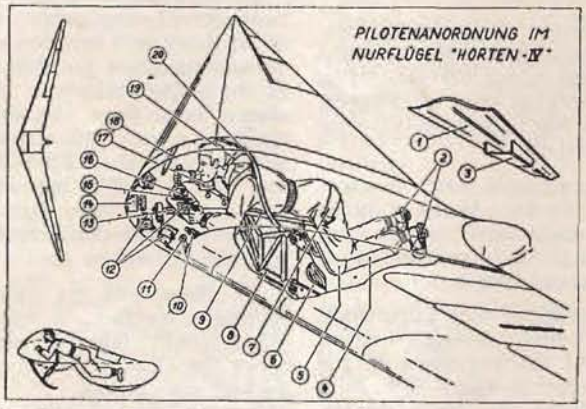
A long series of experiments showed that acceleration could be doubled before the dreaded black-out in the dive and high speed turn occurred. With the ' Kranich ' an undesirable effect was observed. Owing to the relatively great distance of the pilot's head from the centre of gravity of the aircraft, an uncomfortable pressure of the head onto the chin-rest was experienced at high radial accelerations. After several improvements a small series of this variation of the ' Kranich ' was built at Grunau in 1944.

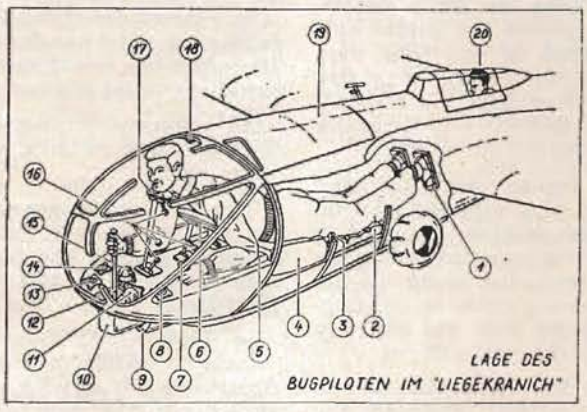
2. PILOTS' EXPERIENCE.

K. Baur (' *FS*-17,' ' *B*-9 ').—' With both aircraft there were no serious difficulties due to the horizontal

(continued on page 7)







ILLUSTRATIONS.

January.—1937, cockpit arrangement in the ' FS-17 ': (1) Instruments, (2) Chin-rest, (3) Strap for release of harness, (4) Parachute, (5) Harness, (6) Cushion, (7) Rudder cable with rungs.

January.—Position of pilot, ' Fledermaus,' 1933.

February.—' Ho-III f ' with lying arrangement of pilot.

February.—Cockpit arrangement in the tailless sailplane ' Horten-IV ' : (1) Lid, (2) Rudderpedal, (3) Parachute box, (4) Shin support, (5) Thigh support, (6) Wooden spar, (7) Harness strap, (8) Spar (steel tubing), (9) Adjustable body support, (10) Dive brake lever, (11) Release handle for lid and harness, (12) Instruments, (13) Slide-bearing for elevator control, (14) Tow-hook with release handle, (15) Cross-piece of aileron control, (16) Trimmer, (17) Adjustable chin-rest, (18) Skid retracting lever, (19) Shoulderstraps, (20) Bar serving as crash pylon.

February.—Position of the pilot in the modified ' Kranich ' : (1) Rudder pedal, (2) Cushion as knee support, (3) Harness fitting, (4) Parachute as body support, (5) Arm padding, (6) Chest support, (7) Dive brake, (8) A.S.I., (9) Tow-hook, (10) Fairing over stick pivot, (11) Turn and bank indicator, (12) Stick, (13) Variometer, (14) Altimeter, (15) Compass, (16) Adjusting levers for chest and chin supports, (17) Chin-rest, (18) Panel release, (19) Detachable panel, (20) Sitting pilot.

PRONE FLYING—*continued from page 5*

arrangement. Flights of more than three hours could be carried out without any trouble.'

K. Katzner.—' I arrived at the conclusion that man in his desire to imitate bird flight has made considerable progress by turning from the sitting to the lying position. I found with certainty that the so-called ' sense of flying ' responds far better in the horizontal attitude than it does in the vertical.'

H. Scheidhauer.—' Having thoroughly tested the lying arrangement on all corresponding Horten types in about 1,000 flying hours as well as on the twin-engined experimental aircraft ' B-9 ' in a few flights, I am firmly convinced that prone flying will make its way in both high performance and speed flight. I discovered no serious disadvantages of this positioning of the pilot during any of these flights. An attitude between kneeling and lying prone with the upper part of the body inclined at 30° to the horizontal proved to be the best arrangement. This position caused hardly any physical strain and afforded the best visibility for the pilot. During many flights of 6 to 10 hours' duration I experienced no fatigue worth mentioning, and after a goal and return flight of almost 10 hours on the ' Ho-IV ' I was fresh enough to go out in the evening. The range of vision is considerably wider than with the sitting position. By turning the head sideways it is possible to look above and also behind. Only a small patch situated ahead and 45° above, remains at the verge of vision with all positions of the head, and in this direction all objects appear rather indistinct. This interferes a little with the search for lift on aiming at a cloud, but one soon gets used to it. The view towards the ground amply compensates for this deficiency. As far as aerobatics go in a 20-metre-sailplane, I found them particularly comfortable. For aerobatics it is essential that the centre of gravity of the pilot coincides approximately with that of the aircraft as in the case of the ' Ho-IV.' For altitude flying the lying arrangement has the disadvantage that the oxygen mask does not fit very well because of the chin resting on a support. Perhaps this hint will encourage designers to develop an improved mask.'

E. G. Haase.—' I also had the idea that the prone position provides the real pleasure of flying. As a boy I always rode my toboggan lying flat, and from the diving board I found the header more comfortable. My first flight on the converted ' Kranich ' and especially my flights on the ' Habicht ' were a disappointment. Of course, the thing is feasible, as has been proved meanwhile, and there will certainly be pilots who can stick it for days on end (I'm sure I couldn't). Also, the reduced sensitivity to accelerations is quite evident. But there are two things that I do not like at all. In the first place the location of the pilot's head far in front of the centre of gravity of the aircraft entails motions which differ from those of the centre of gravity, and which render aerobatics on the ' Habicht ' utterly unpleasant. The short distance from the nose of the sailplane also annoys me because it makes flying by horizon more difficult. Secondly, I do not like the limited range of vision. One cannot see anything vertically above at all. In my opinion, the better view of the ground does not make up for this. I do not think prone flying will be a success. It may be preferred in special cases, but for ordinary purposes a comfortable seat is the right thing, as long as it is really comfortable which has not always been the case.'

The author.—When I was a boy, all my dreams of bird-like flying were based on the prone attitude. I was almost disappointed when I discovered that the pilot sits in an aeroplane. After I started flying myself, I got used to the sitting arrangement simply because there was no alternative. Although the idea of prone flying remained in my mind, I did not venture to put it forward, because I already had several other ' crazy ideas ' to my credit.

On my first flight in the converted ' Kranich,' I felt at home. Throughout the launch, cable and winch remain in full view. The sensation of being hoisted up like a kite, almost standing upright in the steeply inclined aircraft, seemed quite natural and physically correct to me, whilst a winch launch in the sitting position does not create this impression at all. The optimum point of release can be judged more accurately, and the whole launch no longer appears an act of violence to me.

I think there is no special ' sense of flying ' ; this is only a combination of several functions and reactions which are fully understood. However, I believe that in the prone position the response of the sense of balance which we know to be in the ear, is much more subtle and precise, though weaker. My explanation for this is as follows :—The sitting pilot has his head at some distance from the longitudinal axis, i.e. the axis about which the aircraft rolls. A disturbance in roll will therefore result in a greater radial acceleration of the ear than it would if the head were placed closer to this axis. The sense of balance will thus receive a rather rough impulse. Now, the prone pilot has his head very close to the longitudinal axis of the aircraft, and his sense of balance will receive weaker signals, but register them more accurately since the organ in the ear will take less time to settle down after each upheaval.

It cheers the pilot and raises his self-confidence when he can gain more control over his aircraft and fly with greater sensitivity. This becomes most apparent in prone flying where man is able, and justified, to feel like a bird.

There is no need to go into the details of the undesirable effects caused by the relatively great distance of the pilot's head from the centre of gravity of the aircraft. These effects are negligible in pure soaring flight and tolerable, though unpleasant, in aerobatics.

At present there are hardly sufficient results available to pass a definite judgment on the forward lying down arrangement. Prone flying may well have a future in pure soaring flight under certain circumstances.

Condensed translation from *Thermik*,
Jan.. Feb., March, 1952.

International Gliding Competitions, 1952

Programme of O.S.T.I.V. Meeting and Gliding Competition

Monday, June 30th. 20 hrs.—Formal opening of the World Championships Contest on the Carabanchel Alto Airfield.

Tuesday, July 1st. 9 hrs.—Start of the Competition for the World Gliding Championships.

Wednesday, July 2nd. 9 hrs.—Competition.

Thursday, July 3rd. 9 hrs.—Competition. 10.30 hrs.—Meeting of the Board of O.S.T.I.V.

Friday, July 4th. 9 hrs.—Competition. 10.30 hrs.—Meeting of the Board and of the sections of O.S.T.I.V.

Saturday, July 5th. 11 hrs.—Formal opening of the 4th Congress of the O.S.T.I.V. After an address of welcome by the Spanish Authorities and the President of the O.S.T.I.V., Dr. A. Raspet, (Chairman of the Technical Section) will read a paper entitled *The Potential of Motorless Flight.* 17.30–20 hrs.—Reading of the papers in the air-conditioned rooms of the Royal Aero Club of Spain at Carabanchel Alto Airfield.

Sunday, July 6th. 9 hrs.—Competition. 9.30 hrs.—Excursion to Toledo presented by the Royal Aero Club of Spain to the Members of the Congress.

Monday, July 7th. 9 hrs.—Competition. 10.30–13 hrs., 17.30–20 hrs.—Reading of papers.

Tuesday, July 8th. 9 hrs.—Competition. 10.30–13 hrs., 17.30–20 hrs.—Reading of papers.

Wednesday, July 9th. 9 hrs.—Competition. 10.30–13 hrs.—Reading of papers. 17.30–20 hrs.—Meeting of the Sections.

Thursday, July 10th. 9.30 hrs.—Excursion to San Lorenzo del Escorial, presented by the Royal Aero Club of Spain to the contestants in the world championships.

Friday, July 11th. 9.30–13 hrs., 17.30–20 hrs.—Reading of papers of a general tendency for both the members of the Congress and the Competition.

Saturday, July 12th. 9.30–11 hrs.—Same as Friday, 11th. 11.15–13 hrs.—General Meeting (first part). 17.30–21 hrs.—General Meeting (second part).

Sunday, July 13th. 19.30 hrs.—Closing of the World Gliding Championships and of the O.S.T.I.V. Congress at Carabanchel Alto Airfield. (Dinner, prize giving and festival in real Spanish style).

The members of the Congress as well as those taking part in the Gliding Competition are requested to bring with them a dark suit for the closing of the Congress (evening clothes are not required).

Monday, June 30th. Morning.—Arrival of teams at the Royal Aero Club of Spain airfield. Accommodation. Afternoon.—Revision of documents, pilots and machines. Insurance.

Tuesday, July 1st. Morning and afternoon.—Trial flights and practice.

Wednesday, July 2nd. Morning and afternoon.—Ditto.

Thursday, July 3rd to Saturday, July 12th.—Competition.

Sunday, July 13th.—Prize giving.

THE BRITISH INTERNATIONAL TEAM AND CREW MEMBERS

F/L R. C. FORBES.—British National Champion, 1951, Gold 'C' with Diamond distance.—C. J. Herold, S. E. Emberley, Cpl. Gough.

G. H. STEPHENSON.—The 'Bleriot' of Gliding. He was the first pilot to cross the Channel in free flight from a ground launch in a glider in 1938. Second in the British National Championship, 1951. A specialist in out-and-return flights.—Mrs. G. H. Stephenson, H. Latto, A. Pratt.

LORNE WELCH.—Gold 'C.' Flew the Channel from aero-tow start in 1950.—Frank Irving, M. Neale, G. Gregory.

PHILIP WILLS.—Gold 'C' No. 3 International one Diamond distance. Chairman British Gliding Association. For long the holder of the British height and distance records. Specialist in flying in unfavourable conditions.—Mrs. Wills, Robin Fender, A. N. Other.

FRANK FOSTER.—B.E.A. Pilot.—P. A. Lang, Mrs. Lang, David Ince.

Top : Some of the Professors of the Gliding School at Carro del Telégrafo, Madrid
Bottom : Fitting our Assistant Editor into a 'Kranich.' She says it gets more difficult every year

CANADIAN TEAM

THINGS are simmering down gradually after a great wallop in the posterior of the committee in the form of a deadline for entries into the contests. The deadline was April 1st and the notice was received on March 20th. Mr. Ordovas, chairman of the International Contest, wrote hurriedly as soon as he received the first Canadian communication and forwarded application forms. Telegrams, airmail letters, and 'phone calls were rushed between England, London, Winnipeg, and California, with the result that a team was submitted as follows :—

C. B. Jeffery	..	(Two place event).
F. A. Woodward	..	(Co-pilot, two place event).
F. H. Brame	..	(Single place event).
R. Noonan	..	(Single place event).
A. M. Pow	..	(Alternative, Single place event).

Since the entries were submitted Frank Brame has written to say it is very unlikely that he will be able to take part. Albie Pow will be able to go if a low-cost trip can be found somewhere, and would be able to take Brame's place (The Spanish will supply 3 sets of equipment for an overseas team). Dick Noonan is to complete his Silver ' C ' and is planning to travel by air. Jeffery and Woodward have obtained passage on the *Sumaria* on June 18th. Peter Riedel and Ron Claudi have expressed an interest in going as observers. Cris Falconar, at present in Calgary, is the first (and very welcome) volunteer for ground crew. Word received from England, however, indicates that Blodwen Thomas is busy rounding up more Canadian ground crew. Canada will be well represented in Spain this year!

ARGENTINE

SELECTION OF THE GLIDER FLYING TEAM FOR THE WORLD CONTEST

THE Superior Council of the Argentine Federation of Glider Flying (Federation Argentina de Vuelo a Vela) has selected the group of glider pilots which will represent Argentine at the World Contest of Glider Flying to be held in Spain in July next. The team is constituted by the following persons :—Mr. Carlos A. Maurin (President of the Argentine Federation of Glider Flying) ; Members : Mr. Walter Giorgi (Chief of the Argentine Institute of Glider Flying) and Mr. Heintz Eischeshauer (Special Advisor), and, (as announced in last month's *Sailplane*) Jose Cuadrado, Jose Ortner and Ricardo Bazet, single-seat pilots, plus Marcelo Garcia, Francisco Rossi and Claus Haberle as co-pilots for the two-seater. Accompanying them are Reinaldo H. Picchio of the Cordoba Club and Rodolfo Patallo, ' Albatros ' Club, Dario Lestani, Bolivar Club, and Carkos White of the Tucuman Club.

The Federation will procure two gliders of Slingsby ' Sky ' type in England and will further send an Argentine constructed ' Ala Volante ' by sea.

The chosen group of glider pilots have now begun their training at Merlo (Provincia Buenos Aires) using gliders as ' Ala Volante,' ' Kranich ' and ' Meise.'

NEWS FROM FRANCE

THE French team for the International Competitions in Spain has just been nominated. It consists of three professionals :—

Max Gasnier, Inspector-General of Gliding in France, who will use in Madrid, the ' Arsenal 4111 ' in which he has already made many trips.

Guy de Lassagees, Chief-pilot of the Montagne Noire, in an ' Air 100.'

Jean Brunswyck in an ' Air 100.' He holds the International record for duration flight with Carraz.

And two amateur pilots :—

Gerard Pierre, the holder of the ' Diamond C,' who will use in Madrid the new glider ' Fouga CM8-15,' or perhaps, an ' Air 100.'

Marbleu who was classed among the first at the regional competition of Beynes last year, and will use a ' Bregnet 900.'

Two substitute pilots have been nominated : Landi, instructor at the Fayence centre ; and Guy Borgé.

The training of the seven pilots began on the 5th May, at Pont St. Vincent, under the direction of M. Aubert, who will be the head of the French team in Madrid.

The first tests have yielded the following results :—

Sunday, 4th May.—Speed Contest, Pont St. Vincent to Haguenau—130 k.

First :	Borgé	2 hours 39 minutes.
Second :	Pierre	2 ,, 59 ,,

Other pilots could not cross the Vosges and reach Haguenau.

Friday, 9th May.—Altitude Test, above ground.

First :	Pierre	2,015 metres.
Second :	Borgé	2,000 ,,
Third :	Landi	1,709 ,,

Saturday, 10th May.—Speed Contest to Pont a St. Dizier and back—150 km.

First :	de Lassagees	4 hours 20 minutes.
Second :	Gasnier	5 ,, 29 ,,

Monday, 12th May.—Speed Contest, Pont to Sarrebourg—75 km.

First :	Pierre	52 minutes.
Second :	Landi	57 ,,
Third :	de Lassagees	1 hour 6 minutes.
Fourth :	Borgé	1 ,, 25 ,,
Fifth :	Gasnier	1 ,, 48 ,,

Wednesday, 14th May.—Triangular Race—100 km.

First :	Pierre	Average 50 km. an hour.
Second :	Gasnier	,, 20 ,, ,, ,,

Thursday, 15th May.—Fixed distance from Pont to Beynes.

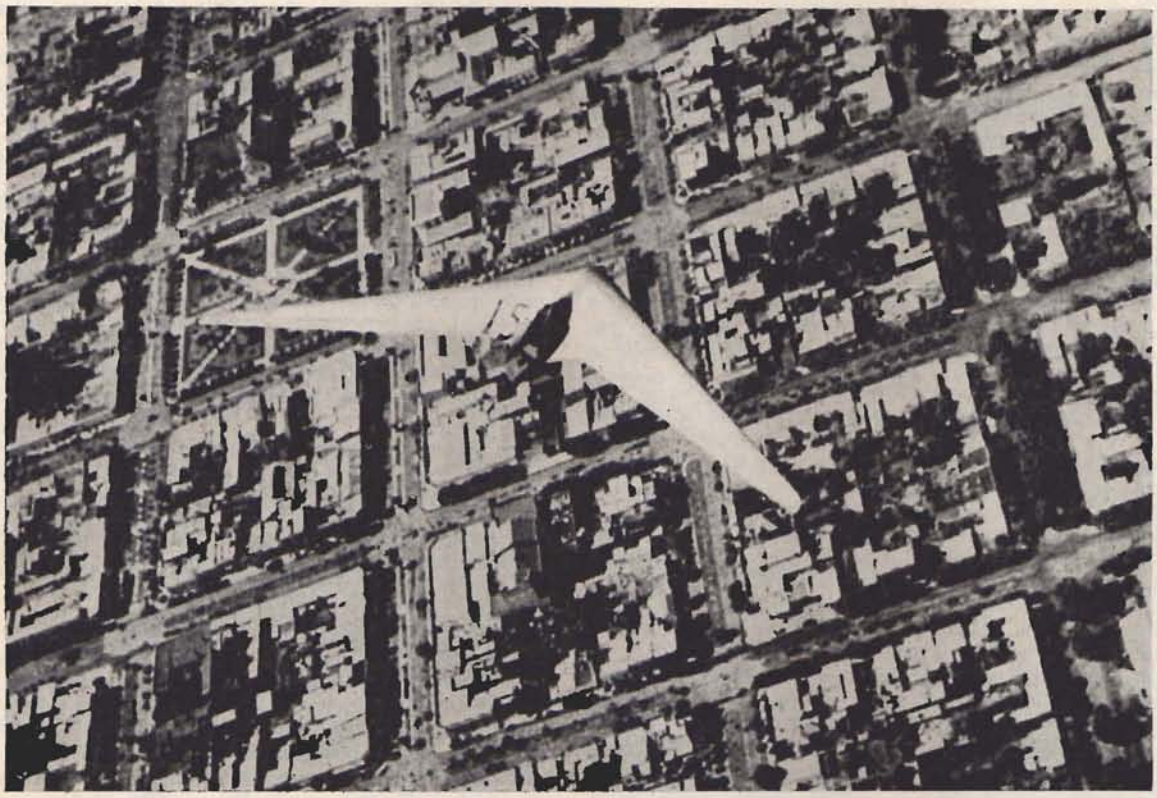
No-one arrived.

First :	Pierre	153 km.
	Brunswyck	153 ,,
Second :	Gasnier	133 ,,
Third :	Landi	113 ,,
Fourth :	Borgé	105 ,,

Saturday, 17th May.—Speed Contest, Pont to Troyes (153 km.) and distance goal.

First :	de Lassagees	3 hours. Grounded at Montargis (250 km.).
Second :	Borgé	3 hours. Grounded at Troyes.
Third :	Landi	3 hours 30 minutes. Grounded at Troyes.
Fourth :	Gasnier	4 hours. Grounded at Troyes.

Our readers will join with us in congratulating our friend and contributor Guy Borgé in his selection as substitute pilot for the French team.



The Argentine ' Flying Wing '

AUSTRALIA WILL BE THERE!

SPAIN ALLOCATES TWO SAILPLANES FOR AUSTRALIA

Four-Word Cable Brings Awaited News

IN a four-word cable, Spanish authorities have agreed to lend Australia two sailplanes for use in the World Gliding Championships.

At the same time G.F.A. President Bill Iggulden, on behalf of the International Contest Selection Committee, has announced Australia's full team for the competitions.

The team is : M. M. Waghorn, F. D. Hoinville, and E. Desmond.

In his statement from Melbourne in which the team was announced, G.F.A. President Iggulden said the Selection Committee found extreme difficulty in selecting the finalists, and particularly in settling the final order in which they should be placed.

In Sydney, Dr. G. A. M. Heydon announced receipt of news that gliders had been made available for Australian pilots.

He said the aircraft that the Spanish Government would lend were one ' Weihe ' and one ' Kranich ' two-seater.

The cable from Spain had said : ' Lend 'Weihe' and 'Kranich'.'

Dr. Heydon said : ' Now that they have allotted the sailplanes to us, we must send at least two pilots.'

APPEAL FOR FUNDS FOR INTERNATIONAL TEAM

Members of Australian gliding clubs are faced with the challenge of collecting a large sum of money in a very short time, to pay the fares to Spain of our contestants.

The only way it can be done is by every club and club member doing his utmost to raise money immediately. It is suggested all Australian clubs should immediately contact businessmen and firms for donations, seek donations from within the clubs, and arrange functions.

Dr. Heydon has outlined the present financial outlook. He said that he was guaranteeing £500. Fred Hoinville had guaranteed £300 towards his fare.

He said a further £175 had been promised from Sydney gliding people, clubs, and business houses.

In addition further appeals would be made, and money-raising functions promoted.

Dr. Heydon said : ' Waghorn's fare is covered, with a little to spare. If Hoinville is to go we must still raise about £350. If Desmond is to go, it will require about a further £700. To send the full team we have to raise over £1,000.'

He said any money raised would go into a central G.F.A. fund.

THE GERMAN TEAM FOR THE WORLD CHAMPIONSHIPS

ERNST GUNTHER HAASE, HANNA REITSCH, (Team Captain), SEFF KUNZ, Dr. ERNST FROWEIN, HEINZ KENSCHE and MAX BECK.

ERNST GUNTHER HAASE.—Gliding since 1931, took part in Rhön Soaring Competitions since 1934 (second-best single-seater pilot in 1937), Silver ' C ' No. 61, Gold ' C ' No. 17, now in charge of the sailplane test group of the German Aero Club.

HANNA REITSCH.—Successful lady pilot, gliding since 1931, in Rhön Competitions since 1934, holder of several records, winner of the Goal Flight Competition in 1938, Silver ' C ' No. 25, holder of most civil flying licences.

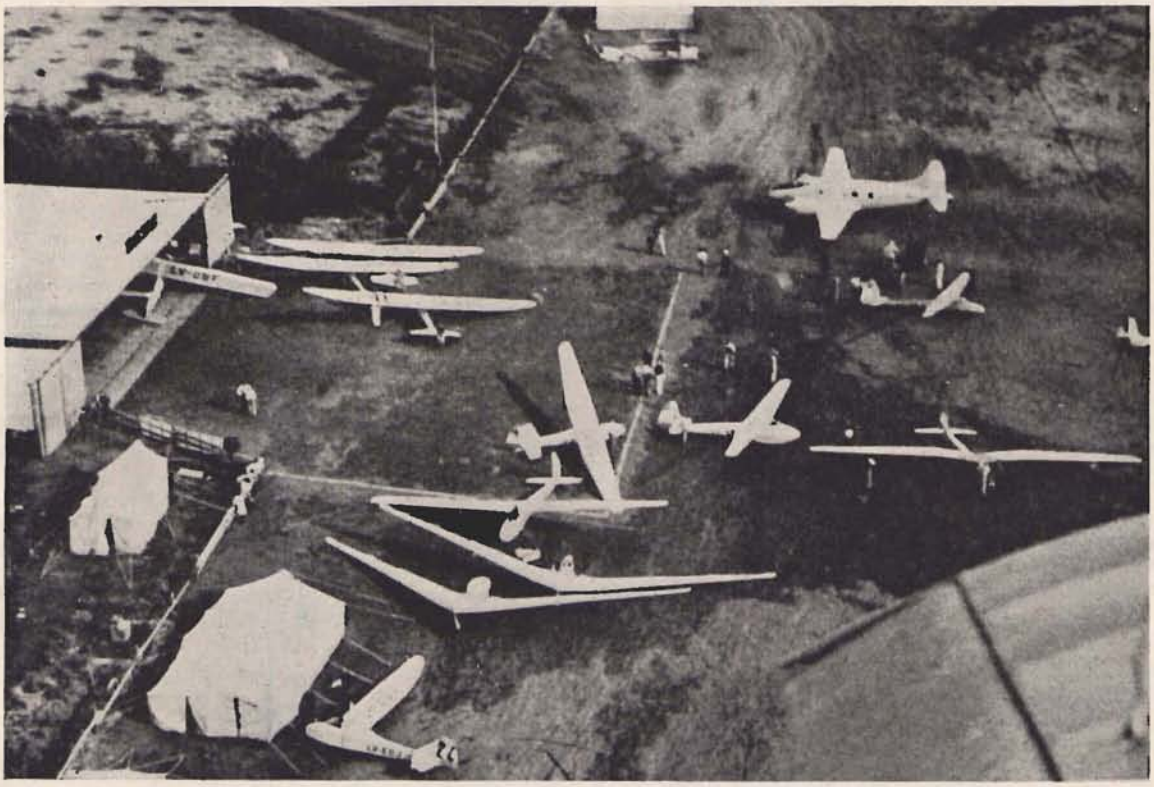
SEFF KUNZ.—Gliding since 1928, excellent organiser, holder of the German record in Goal Flight (346 km.), Silver ' C,' member of the German Olympic Committee, chairman of the Gliding Committee.

DR. ERNST FROWEIN.—Gliding since 1931, head of the department ' Applied Aeronautics and Research on Soaring Flight ' at the University of Freiburg, Silver ' C ' No. 104.

HEINZ KENSCHE.—Gliding since 1928, on the Aircraft Inspection Board since 1931, took part in Rhön Competitions, Silver ' C ' No. 16, Chairman of the Technical Committee of the German Aero Club.

MAX BECK.—Gliding since 1929, in Rhön Competitions since 1935, best single-seater pilot in 1938, third place in Goal Flight Competition in 1938, total cross-country mileage of 4,600 (7,500 km.), now Honorary Chairman of the Instructors' Training Board of the German Aero Club.

From *Welluftfahrt.*



Trenque Lavquen, Argentine
Note two ' Flying Wing ' gliders

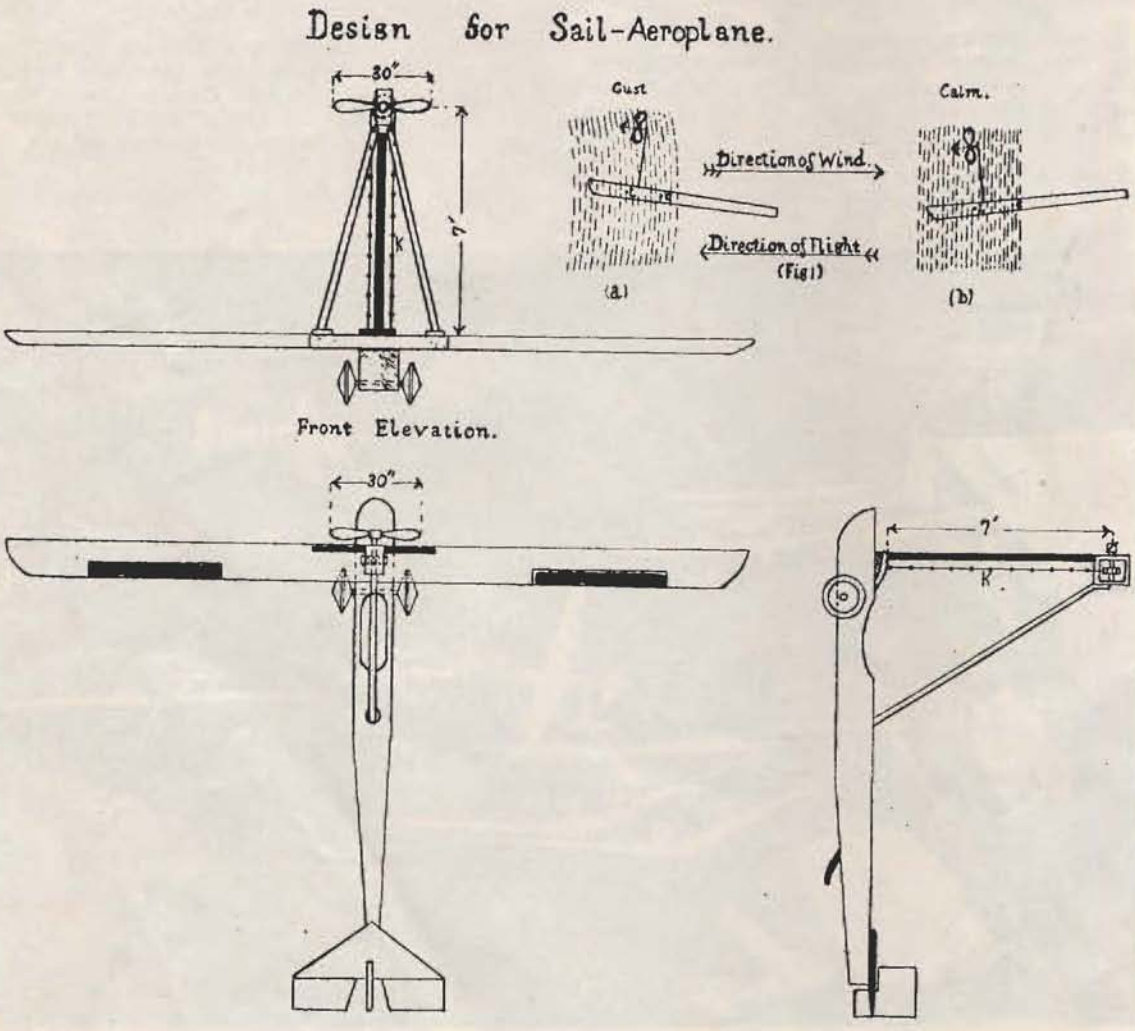
DESIGN FOR SAIL-AEROPLANE

THE accompanying drawing illustrates a design for a new type of Sailplane or rather Aeroplane with Sailplane features; a type from which the Author hopes that in time a practical slow flying plane, more suitable for a personnel plane than any at present offered to the public, may be developed. Such a machine could fly with much smaller engine power and be manufactured at lower cost than those at present available. It would also be much better adapted, on account of its slow speed, to local pleasure flying, as well as being easier to learn to fly and take care of, than other machines.

In attempting to apply motive power to Sailplanes, I think it has not been generally realized that since the Sailplane depends, in common with the soaring birds, upon the fluctuating or pulsating local currents of the atmosphere for support, and the ordinary high speed does not; the point of application of the propellor thrust required for maximum efficiency in a Sailplane, might be quite different from that required in an ordinary plane.

I believe the point of application should be well above the ' Drag ' plain in a Soaring Machine. The height is important; two or even three feet would probably give little or no advantage, and I believe it will be found that seven feet or perhaps a little more for a single-seater Soaring plane will be found the point of maximum efficiency; still higher for heavier Soaring planes.

Now if the air currents were absolutely uniform in flow, no advantage would be obtained from this arrangement, but rather a disadvantage; for since



the moments of the propellor thrust and the centre of gravity of the machine, when loaded, about the centre of lift must necessarily be equalized, in order that the plane may be in balance about the centre of lift without the use of the elevators; the net result would be an additional load on the wings approximately equal to that of the propellor thrust. But the air currents, both horizontal and vertical, are far from uniform, but are constantly varying in velocity; it is this fact which must be kept in mind, in order to evaluate the possible benefits resulting from a high propellor thrust; the benefits will probably be found to far outweigh the disadvantages due to the increased loading of the wings by the propellor thrust and the increased 'Drag' due to the superstructure carrying the propellor shaft. The matter can only be settled by actual test.

REFERRING TO THE DRAWING.

The chain drive, ' K,' to the propellor shaft, is driven through a flywheel clutch on the motor shaft, so arranged that the pilot can through a foot treadle instantly vary the speed of the propellor to suit varying atmospheric conditions encountered in flight; the clutch also enables the motor to be easier cranked, if it should stall while in flight. The propellor should be of especially light construction, both in order that it may quickly respond to variations in clutch speed and also to avoid gyroscopic trouble as far as possible; an ordinary wooden propellor might not do.

The probable action of the propellor thrust is illustrated in inset (Fig. 1), (the movements of the machine being exaggerated for clearness).

When the machine is flying against the wind and encounters a gust or pulsation of the air current, the front would be deflected upward and retarded; the propellor thrust being free to rotate about the centre of lift would tend to level the plane off, thus enabling it to enter the gust at a more efficient angle ((a) Fig. 1). The reverse phenomenon would take place on leaving the gust and entering a region of comparative calm ((b) Fig. 1), thus gaining energy on the downward glide, enabling it to soar on the next gust.

When thermal soaring, the machine is also passing through air of varying densities as well as upward velocities, so it is probable that a similar action, though possibly not so pronounced, would take place. Whether these things would be so or not, can only be decided by actual test. An ordinary Sailplane could no doubt be used for a test; but the area of the stabilizer and elevators would have to be increased to offset the displacement of the weight to the rear and the ' Drag ' of the superstructure in order that the plane might glide or soar to a safe landing, in case of failure of the motive power.

HENRY STRONG.

COMMENT

"AT first sight, Mr. Strong's suggestion would seem to present nothing else than disadvantages, and indeed, if ordinary flying and common soaring flight is considered, no advantage can be seen in an airscrew arrangement which places the propellor uncommonly high above the rest of the aircraft.

' If, however, the old (and perfectly correct) conception of ' dynamic ' soaring flight is taken into account, the arrangement might have potential advantages. " Dynamic " soaring means the direct exploitation for lift (i.e. for altitude) of local fluctuations of the wind in respect to direction and strength, i.e. gust soaring (this should not be confused with ' wave-soaring ' in the now commonly accepted sense). Formerly, it has always been held, on the strength of the (experimentally established) Knoller-Betz effect, that for dynamic soaring, a ' pulsating ' wing, i.e. a wing which automatically adjusts its aerodynamic incidence to that of the best gliding angle or to that of minimum sinking speed, without a rotation of the aircraft itself, was a necessity (Finsterwalder, v.Loessl, e.a.). The principle is similar to that of modern gust-relief devices (as, e.g., planned for the " Bristol Brabazon "). During the early years of soaring flight, a number of serious flying experimentation has been made in order to achieve dynamic soaring in gusts, but no evidence has been forthcoming of any genuinely dynamic soaring flight.

' It would seem that Mr. Strong's proposal for a sailplane with auxiliary propulsion might be, in intention and in effect, a solution comparable to the pulsating-wing principle. At equal propulsive power, the thrust of an airscrew is inversely proportional to the velocity of propagation of the airscrew. Hence, if the airscrew is rotated about the centre-of-gravity of the aircraft, the thrust, and thus also the pitching moment produced by the thrust would vary in accordance.

' In design, of course, it would be more profitable to adopt the airscrew arrangement preferred with the Haessler-Villinger muscle-power aircraft, instead of the head-wind producing ' open-air ' installation which is indicated in Mr. Strong's drawing."

NEW BRITISH GOLD ' C ' AND DIAMOND

CONGRATULATIONS to Lt.-Cdr. ' Nick ' Goodhart on achieving his Gold ' C ' and Diamond. He had previously earned a possible Diamond with a 300 km. goal flight in France, and in April of this year determined to get the height leg in England. He and his brother Tony, went to Lasham, where ' Nick ' gave Tony two aero tows, but he did not contact on either occasion, and the attempt proved abortive.

On April 23rd, however, Tony gave ' Nick ' four tows from Odiham and on the fourth he reached 13,000 feet. A previous flight had reached 11,000 feet but as the height gained was not sufficient it did not count and so another attempt was made.

In our April issue we mentioned that the Portsmouth Naval Gliding and Soaring Club was suffering from ' postingitis ' as Tony Goodhart and the C.F.I. had been posted elsewhere. However, the symptoms have been cured and Martin Smith of the submarine service has become deputy chairman, and on the opening week-end, the last in April, some 100 two-seater trips were given to all ranks.

THE HIGH PERFORMANCE SAILPLANE 'SPATZ'

By E. SCHEIBE

THE 'Spatz' is meant to be a small and simple single-seater for advanced soaring and training flights. The design is an attempt to combine small dimensions with a good performance, without making the construction complicated and expensive.

It seemed essential to give the wing a high aspect ratio similar to that of an ordinary high performance sailplane. An aspect ratio of 16 was chosen. With a small wing span (43 ft.) this entailed a rather small wing area (117 sq. ft.).

With these dimensions a high wing loading could only be avoided by keeping the dead weight down. An empty weight of 238 lbs. was obtained. Allowing for a load of 200 lbs., this gave an all-up weight of about 440 lbs.

The 'Spatz' is a shoulder wing aircraft of the single-spar cantilever type, the leading edge serving as a torsion box. The inner wing is rectangular. The wing section was taken from the 'Mu 13 E' and has a thickness of 14%. There is no wash-out. The wings have a dihedral angle of 2.5 degrees. The rectangular port of the wing contains the air-brakes which can be used as dive-brakes and for adjusting the angle of glide. The type of brake was used which had proved very efficient with the 'Mu 13 D' and 'Mu 13 E.' The ailerons are comparatively large and fully covered with plywood; the turning axis lies in the upper contour of the section. They are worked by means of push rods, and the movements are differentiated in the ratio 1:3.

The fuselage is made of steel tubing and covered with fabric. The stressed frame is quadrangular at the front and becomes triangular towards the tail. The cockpit is quite spacious and is covered by a hood which opens backwards. The rudder pedals are adjustable.

The main skid is fitted with two coil springs, and the tail skid is a laminated spring. A nose-hook is provided for aero-towing, apart from the centre-of-gravity hook.

The tail unit is made of wood. The tailplane is easily detachable; the rudder fin is rigidly fixed to the fuselage. The elevator is moved by push rods and the rudder by cables.

Rigging is simple and can be done in a short time. The wings are attached to the fuselage by means of fixed pins. First the port wing is connected to the fuselage in two places and fixed in position by a third pin. The starboard wing is then attached and at the same time the main spar fittings joined together. The brake controls lock automatically, and the aileron rods are connected up with pins and secured with split pins.

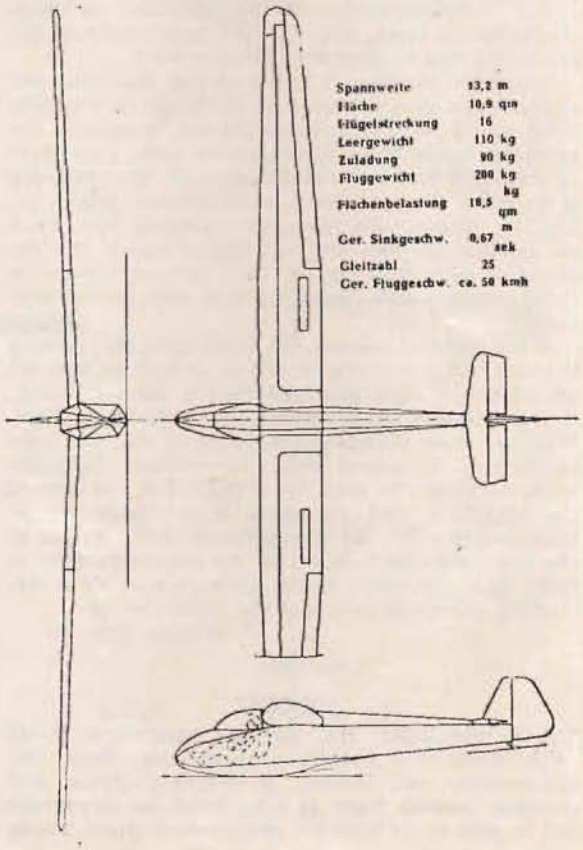
With a view to performance and low weight, a landing wheel was not installed. For transport on the ground an undercarriage is provided which can be attached to the fuselage in a position slightly behind the C.G. of the empty aircraft, so that no lifting of the tail is necessary on pushing the sailplane.

The prototype of the 'Spatz' was first flown at Dachau on the 12th March. The results of these first flights indicate that the calculated performance of the aircraft will be reached, i.e. about 2.2 ft./sec. minimum sink and a best glide of 26 to 28. A good rate of roll was observed. There appears to be no need for major modifications. After testing and technical examination the 'Spatz' is to be manufactured by 'Scheibe Flugzeugbau G.m.b.H., Dachau.' The price will be about 6,000DM. It is intended to make blueprints available for clubs or groups who wish to build the sailplane. Certain units like the frame of the fuselage or the main fittings will probably be supplied.

Translated from *Weltluftfahrt*

DATA.

Span, 43 ft.; Wing area, 117 sq. ft.; Aspect ratio, 16; Weight empty, 240 lbs.; Load, 200 lbs.; Weight loaded, 440 lbs.; Wing loading, 3.8 lbs./sq. ft.; Minimum sink, 2.2 ft./sec.; Gliding angle, 1 in 25; Minimum flying speed, approx. 31 m.p.h.



TWO NEW POLISH SAILPLANES

By R. A. G. Stuart, M.A. (Cantab.)

DESIGN work on the first of two new Polish sailplanes, the SZD-8 ' Jaskólka ' (Swallow), was started in May, 1950, at the Szybowniczy Zaklad Doswiadczalny (Experimental Gliding Establishment). It is a high-performance single-seat sailplane incorporating many innovations. The ' Jaskólka ' is intended chiefly for long-distance cross-country flights and is to become the standard equipment of the aeroclubs.

The SZD-8 ' Jaskólka ' is a cantilever mid-wing monoplane with high aspect ratio wings and is suitable for high-altitude flights on a standing wave or bad weather flights as well as for the cross-country flights for which it was primarily designed. The wings are of plywood monocoque construction and are half the weight of normal wings of corresponding size. They have only 14 ribs each, as compared with the usual 30 or so of wings of similar span. The whole wing forms a torsion box closed at the rear by the rear spar. The slotted flaps and ailerons, the latter being of divided type in two sections so as to give better control efficiency, are attached to this spar and these are the only elements of the wing to have fabric covering. The result of the constructional system adopted for the ' Jaskólka's wings is that they are both strong and light, a combination not always easy to achieve. There are leading edge and trailing edge fillets at the junction with the fuselage to minimise aerodynamic disturbances. Double spoilers are fitted to upper and lower wing surfaces. The fuselage is of elliptical section and has plywood monocoque construction similar to that of the wing, forming a torsion-resistant tube with internal bulkheads reduced to a minimum to save weight. In both fuselage and wings the joints between the individual plywood sheets have strips of fabric glued over them to give greater strength. The cockpit is fitted with a moulded one-piece tear-drop hood which is much deeper towards the front, where the fuselage sides are cut away at an angle to give greater visibility. The windscreen is also in one piece with great depth at the sides. As a result the visibility is excellent and is probably unequalled by any other type of sailplane. Although the cabin appears narrow at first sight, it is really very comfortable. The designers took great trouble to ensure that it would be so, because this lessens pilot fatigue on long flights. They have even gone to the length of fitting a special harness release lever, enabling the pilot to stretch himself when he feels cramped, without the bother of having to undo all the belts. There are, of course, the adjustable rudder pedals which one would expect in an aircraft of this type, the pedals being adjusted by means of a handy lever.

Another innovation on the ' Jaskólka ' is the provision of a control-locking lever in the cabin. This is particularly useful when the pilot is making a landing in a strong wind and the controls and ailerons are exposed to damage after the pilot has left the cockpit. The locking of the controls prevents such damage in these cases. There is a balancing device to maintain trim and this is operated by turning a knob on the end of the control column. Other cabin equipment includes full instrumentation and oxygen apparatus, the latter being conveniently located on the instrument panel, cable release, flap position regulator, etc.

The tail unit is of orthodox construction, all surfaces having plywood covering forward and fabric aft. One interesting feature is the fact that the tailplane folds upwards, as in the ' IS-3 ABC ' primary glider, to save hangar space. As in the case of the wings, assembly is semi-automatic, with the result that assembly takes only five minutes to complete. The attachment of the wings to the fuselage only requires two movements of the hand, while dismantling of the fin requires only one. The landing gear consists of a ventral skid with a single wheel mounted in it and an auxiliary tail skid.

After the prototype ' Jaskólka ' had been ceremonially handed over to the SZD test pilot Adam Zientek for flight testing, a second version took its place in the workshops. This will have a better profiled cabin, a folding drawbar in the rear fuselage to facilitate transport, several internal improvements, etc. There is also a version with butterfly tail unit contemplated. It will be interesting to compare this with the original version with orthodox tail.

The second new sailplane from the SZD is the SZD-9 ' Bocian ' (Stork), Poland's first post-war two-seater, which is to replace the ' Zuraw ' (Kranich) as the standard two-seat type. It will be used for day and night duration flights and for high-altitude and cross-country flights too. It will later also be used for intermediate training and blind-flying training. The seating arrangement is rather unusual. Although the two pilots are in tandem as in the 'Zuraw ' (Kranich) it was felt that communication between the two pilots in the latter type was far from good enough. To overcome this difficulty while retaining the tandem layout, it was decided that the front pilot should be in a semi-prone position, while the rear pilot would be seated normally, above and slightly behind the front pilot. This unusual arrangement permits finer aerodynamic lines and at the same time gives both pilots an excellent view. It also saves weight by permitting the installation of only one instrument panel, situated in front of the front pilot. Owing to his position, the rear pilot is able to see the front pilot's instrument panel without difficulty and therefore a second panel would be superfluous. Another advantage of the one panel is that it eliminates the possibility of different readings on the two panels, as sometimes happens in the 'Zuraw.'

The ' Bocian ' is a cantilever mid-wing monoplane, similar in construction to the ' Jaskólka.' However, its wings are rather unusual in being swept forward. Another difference is that the ' Jaskólka ' has the entire trailing edge inboard of the ailerons occupied by landing flaps. On the ' Bocian ' these are missing and there are only the divided ailerons of slotted

(*Continued on page* 17)

THEORY AND TECHNIQUE OF SOARING

By John Kukuski

(PITMAN, 25s.)

IN this month's postbag we have at last a new book on soaring, well printed, well illustrated, and well indexed. The beginner should not let himself be put off by the formidable list of symbols or by the mathematics, for there is quite enough elementary stuff as well—though it is sometimes curiously mixed in with the advanced technique and might be difficult to understand without rather more experience. In other words, it is not a kind of ' teach yourself to soar,' but rather a reference book, as Kukuski is careful to explain in his preface.

There is a full fifty pages of meteorology. Astonishingly enough in view of the last five or six years' study, we find no mention at all of standing waves under this section or in the index or chapter headings, but they do finally appear on page 145 in a rather casual form. No idea of the sensational heights obtainable or of the problems to be encountered is hinted at, which seems a pity. There is an immense amount of experimental work going on all over the world on this subject at this time, both in the laboratory and on the field, so that a new book which ignores these discoveries appears curiously old-fashioned.

It seems ungrateful to criticise when a great deal of work has been put into a book for which the public is so limited, for try as we will to popularise it, gliding does apparently appeal only to a very small minority of the world's population; and of these probably less than half even speak English, let alone understand the written language. But since it *is* written for these favoured few, my personal feeling is that the easy part is made to appear too difficult, whereas the difficulties are smoothed over. All the same, it is well worth buying and much of it is very helpful to us all.—V.P.

Review.

AIRPLANE FLIGHT

By A. York Bramble, M.R.S.T., F.R.Met.S., A.R.Ae.S.

(PITMAN, 35s.)

AS we on the staff of *Sailplane* have constantly to bear in mind, the people who are interested in gliding, and some of those who are interested in flying also (especially in the U.S.), are of two main types : those who want to know why a thing happens and the reasons behind the phenomenon, and those who, to begin with, at any rate, only want to know *how* it happens. A great many of the latter, when their interest is stimulated, join the ranks of the former. Our evidence is that most of our readers are more interested in practical things than in theory, are more interested in a plain objective account of a cross-country or height flight and the technique of it, then in tephigrams and those d . . . graphs and Chinese looking formulae. Most gliding people fly by ' feel ' and the more obvious deductions from blatant facts. For example, it was years before the Camphill ' Wave ' was recognised for what it is, although several pilots had experienced it and soared in it. Now it is a well understood phenomenon of which advantage is regularly taken. So that a little scientific knowledge, if its practical implications are realised, can lead on to higher and better things. Those graphs, those formulae and those hieroglyphics, if they are understood, can help any glider pilot to fly with more certainty and safety.

But how to teach this understanding simply to those people who are not mathematically minded.

For nearly a quarter of a century our contributor York Bramble, has been interested in gliding and flying. Twenty-one years ago he held the gliding right of Balsdean, a centre of British Gliding, and was writing for *Sailplane*.

Now he has written, in a most painstaking, clear and simple fashion, about the most practical book on the theory and practice of gliding and flying we have ever seen. Starting with the simplest analogies and by means of almost boyish experiments he has explained gliding and flying, and the principal formulae connected therewith so clearly that anyone capable of a primary deduction can follow, understand and digest them. It is a book for beginner as well as the serious student, bringing back to mind much that one had forgotten and casting a new light on several problems and phenomena so that their meaning becomes clear.

The first half of the book is devoted to flight, its problems and the way they have been overcome, stability, the modern thrust unit, the complete aeroplane in flight, and how to fly it. The latter half is concerned on getting from here to there, and starts with the weather which is perforce briefly explained.

Instruments and aids to flight are next described and explained even to the directional gyro and ' George.' There are chapters on airfields and airways, even down to such information as what to do if you wish to fly to and across the Continent. There are clear details as to routine flying, maintenance, instrument flying and navigation.

All instructors where English is read, and some in places where it is not, will welcome this book which should become the handbook of all flying schools and institutions where flying is taught. I know of no better all-round book for flying people, be they beginners or old hands. V.B.

PYE RADIO EQUIPMENT FOR BRITISH AND ARGENTINE TEAMS

The equipment consists of one of the new 8 lb. Pye ' Walkie-Phones ' (walkie-talkies) fitted into each of the five gliders while the six Vanguard attendant cars will be equipped with Pye 15-watt mobile radio-telephone units—similar to those used in taxis, police cars, etc.

Normally, the ' Walkie-Phone ' is worn on the chest like a service respirator with a strap round the neck and another round the waist holding the equipment firmly to the body. The microphone is built-in mouth-level on top of the set and operation requires the use of one hand—and that to manipulate the press-to-talk switch when transmitting. The detachable aerial is fitted to the top of the set to which the single earpiece is connected by means of a thin lead and a plug.

For the purposes of the Championships, the earpiece lead has been lengthened to allow the set to be installed in the fuselage behind the pilot; the built-in microphone disconnected and replaced by a lead and hand microphone in which is incorporated a press-to-talk switch. This way, the pilot does not suffer the inconvenience of having the ' walkie-phone,' despite its small dimensions, and it is only $3\frac{1}{2}'' \times 6\frac{7}{8}'' \times 8''$, in the cockpit with him. All he has, are the earpiece and hand microphone. The ' Walkie-phone ' is powered by dry batteries with a life of more than 15 hours continuous operation.

Installation of the mobile units in the cars is the same as in any radio-equipped vehicle. A control box, roughly $5'' \times 3'' \times 2\frac{1}{2}''$, is fitted under the dashboard within easy reach of the driver. It contains a small but powerful loudspeaker, an on/off switch and a volume control. A fixed handset, just like that of any telephone but with a press-to-talk switch incorporated in the grip, is lightly clipped next to the control box. Powered by the car's own battery, the transmitter and receiver power units are fitted in an accessible spot just inside the luggage compartment.

The equipment works on a crystal-controlled spot frequency providing a private conversation channel between ground and air units. It would not be advisable to mention the frequency on which the team will work.

Close contact between pilots and ground crews is essential. In the past, communication between the two was always a problem. The answer to this problem, it has been decided, is the radio-telephone. The British team is not the only one to think that for, after reports and photographs of the British team using Pye equipment at Lasham, had appeared in the national press, the Argentine team ordered similar Pye equipment.

TWO NEW POLISH SAILPLANES—*contd. from page 15*

type. As no details of its performance on test are yet available, owing to the fact that it was still under construction in December, 1951, when the above information was released, the figures quoted are the design office's estimated performance for this type.

Data of SZD-8 ' Jaskolka.' Span, 16 m. (52 ft. 6 in.); length, 6.74 m. (22 ft. 1¼ in.); wing area, 13.6 sq. m. (146.39 sq. ft.); aspect ratio, 18.8. All-up weight, 340 kg. (749 lbs.); wing loading, 25 kg./sq. m. (5.125 lb./sq. ft.). Finesse 28 at 82 km./h. (51 m.p.h.); diving speed, 250 km./h. (155¾ m.p.h.); minimum speed with flaps, 45 km./h. (28 m.p.h.); rate of sink, 0.74 m./sec. (2.427 ft./sec.) at 65 km./h. (40¼ m.p.h.).

Design data of ' Bocian ' SZD-9.' Span 18 m. (59 ft. ¾ in.); wing area, 20 sq. m. (215.28 sq. ft.); aspect ratio, 16.2. All-up weight, 450 kg. (992 lbs.); wing loading, 22.5 kg./sq. m. (4.613 lb./sq. ft.). Finesse, 22-26 at 75 km./h. (46½ m.p.h.); minimum rate of sink (2 up), 0.75 m./sec. (2.46 ft./sec.) at 65 km./h. (40¼ m.p.h.); minimum rate of sink (1 up), 0.65 m./sec. (2.132 ft./sec.) at 65 km./h. (40¼ m.p.h.); maximum diving speed, 220 km./h. (136½ m.p.h.).

As a consequence of two of the ' IS-2 Muchater ' sailplanes being struck by lightning at the National Gliding Championships at Inowroclaw last year, it was decided to instal lightning conductors in the wingtips of the ' Jaskólka.' All metal parts inside the ' Jaskólka ' are also joined by connecting strips so that they form one mass, thus safeguarding the pilot against electricity in the atmosphere.

FROM *SAILPLANE* 21 YEARS AGO (May 29th, 1931)

'I NEARLY GOT AN 'A''

NOW then, laddie,' said the Instructor, ' this is the first time you've been off as high as this, and you ought to get an ' A ' quite easily. No funny stuff, remember—just a perfectly straight, steady flight, and if you should get off your course—remember—Push right to go right.'

I nodded without speaking—my mouth was rather dry, and I was having a little trouble with my Adam's apple. The field in which I had to land seemed incredibly distant and far below. The sunlight glinted on the Channel—just visible on the horizon. I swallowed hard. For an instant I toyed with the idea of merely undoing the belt and getting out of the ' Zogling.' I would simply walk to my car and drive home for a quiet potter in the garden. Nobody could stop me—after all you don't *have* to do this incredibly rash gliding business. Then my eyes rested on our youngest lady member, in the act of picking up the launching rope. She looked bored—she got her ' A ' months ago—might get a ' B ' today they said. I set my jaw firmly. ' If a young girl can do it— ' but anyway you've got to go through with it now—they're walking. The ' Zogling ' shifted a little under the strain—anxious to be off.

' Run.' I gripped the seat.

' *Re*lease ! '

Gr-wheeeeeeewww—!

My hat! I'm off! After the first breath-taking rush, it wasn't so bad—in fact I began to like it and soon to think consciously.

' Now,' I thought aloud—'how about the good old flying speed.' I listened to the hum of the wires. 'A trifle flat,' I murmured, easing back the stick. The note sank from D Flat to C Natural—a much more pleasing sound.

I really could not believe that I was the same timorous *ab initio* who had only a few short seconds ago contemplated doubtfully the prospect of this utterly exhilarating hop.

I lost height, but not too rapidly. Everything was jake, and the ' A ' was surely mine. Suddenly, at about 50 ft., things began to happen.

A gusty up-draught caught under my left wing-tip and tilted me over to the right, at the same time turning me forcibly off my course to the left. ' Push right to go right,' flashed through my brain. I did it. At the same time I put my stick hard over to the left to correct the tilt.

Hi! what was happening? I seemed to be rushing sideways to the ground at an incredible speed. Not going forward at all! Ww! I woggled all the controls in a desperate effort to get straight . . . . nothing happened ; the rudder flapped aimlessly.

A haystack loomed on the port bow. Now for the zonk. I shut my eyes tight, consternation in my very soul.

Nothing happened.

Had I hit? I seemed to have heard a splintering crash and to have felt a severe jolt—but no—I was still airborne ; the crash must have been anticipatory imagination. I opened my eyes.

I had full control of the machine! The haystack was disappearing beneath me.

Was I soaring?

Up-current from haystack?

Line squall? Thermal up-current?

Well!—well!—well!—that *was* a wizard bit of work—the way I avoided that haystack! Still gaining height, I looked behind. The hill from which I had taken off looked a mile away. I eased back the stick. ' My hat! how the old ' Zogling ' can soar when she likes! ' I thought. ' I'll make for that cumulus on the coast-line.'

Piloting the glider now with faultless ease, I reached the cumulus and made a spiral climb with the aid of the powerful up-currents which I found beneath it. As I entered the billowing fog of cloud I was struck by the big idea.

' Why not polish off the Channel crossing whilst I was about it? ! '

' Of course—why not? '

I could see the headlines in *The Sailplane* :

''ZOGLING' FLIES CHANNEL!'

' WIZARD WORK OF MIDDLE-AGED AB! '

Ruminating thus I emerged from the top of the cloud and looked round for my bearings. I judged my height at two thousand. The coast of France lay clear before me on the horizon—a bare twenty miles away.

I felt equal to anything—full of *joie de vivre*. Executing a perfectly-timed slow roll, during which the pieces of bootlace with which the belt was fastened to the kingpost creaked audibly, I chuckled to myself to think how easy it all was. This grave pretence on the part of the instructors of getting you on step by step—a foot higher at a time—all bluff! If everybody knew it was as easy as this—the instructors would lose all prestige. Hence the heavy stuff! I did a vertically-banked turn with consummate ease and put the nose down for the cross-Channel glide. Beneath me I could see the Boulogne boat trudging along at about twenty knots. I overtook and passed her.

A humming filled the air. I soon perceived its origin—the Imperial Airways liner bound for Croydon. As I flashed past her I dipped in salute and raised the bowler hat which was on my head, although I could not remember, curiously enough, putting it on before my start.

The pilot waved courteously and the passengers smiled encouragingly, with one exception. This was a man whom I recognised instantly as our Club Captain. His expression was distinctly unfriendly. As he flashed past I seemed to catch, above the roar of the engine, hostile, and even rude expressions. Why was he a passenger, anyway? Dismissing the whole thing as petty jealousy, I soared on. Soon I could see beneath me the cliffs of France. Should I land here or carry on to Paris? Deciding on the latter with a view to breaking the English duration record whilst I was about it, I pushed on in what I took to be the direction of the French metropolis, taking advantage with great intelligence and skill of every possible up-current (*continued on page* 23)

GREAT GERMAN GLIDING PROGRESS

IN the nine months since the Allies lifted the ban on gliding in Germany, though not in the western zone of Berlin, astonishing progress has been made in the revival of the great German Gliding Movement.

There are now 750 gliding clubs, with a membership of 35,000 and four firms, including such well known names as Wolff Hirth and Focke Wulf, are manufacturing gliders. Thirty-seven gliding fields have been laid out and there are plans for 200 more. Some 150 gliders are now in use, but those building and expected to fly this year number another 500. Next year there will be several thousands.

As usual, the gliding clubs being short of cash, in spite of a State subsidy, are making their own machines, the cost ranging from £125 for a primary to £670 for a high performance model.

There is most concentrated activity in the Ruhr, where the club members pay as little as 3s. 4d. a month, and the State Subsidy of £13,000 is used for the provision of gliding sites. There are 170 Gliding Clubs in North Rhine Westphalia which are affiliated with the German Aero Club, and some 60 other independent groups. The Bonn Gliding Club has nearly 400 members. There are 40 gliders in the Ruhr alone, with plans for delivery of a further 120 this summer. The main centres will be Hangelar, between Cologne and Bonn, Essen, Mulheim and Oerlinghausen, scene of a famous B.A.F.O. Club.

The Hangelaar Centre is to be developed as a gliding centre with about 1,000 pre-war pilots as members and who are returning for refresher courses.

Prominent in the revival of gliding in Germany is Hanna Reitsch, German pilot, a pro-Hitlerite, who hedge hopped into a Berlin street in a baby plane in an attempt to help Hitler to escape. She was one of the last people to see him alive. She is Captain of the German Team which is competing in Spain this year.

The requirements of the German Aero Club for certificates are interesting. The first stage requires a total glider flying time of two hours, with five flights of at least 10 minutes' duration, and the completion of two flights from a gained height of 1,500 feet with figure of 8 landing into a marked square. This does not prevent the pilot from taking the F.A.I. Badge if he desires, and the Silver and Gold 'C's' are left as they were.

It is interesting to recall that in 1930 the German Gliding Association (Luftfahrt Verband) announced that it had 44,800 members. But this body was absorbed in 1933 into the N.S.F.K. and left the F.A.I

LETTER

68, Bitterne Road,
Southampton, Hants.

DEAR SIRS, 16/5/52.

Last year while proceeding south by road to Nice, we called at a hotel called 'The Auberge Napoleon' for tea, and as soon as one of the staff saw my Gliding Badge, rushed off to fetch the owner who welcomed me like a long-lost brother.

A good deal of time was then spent by going through his Album of photographs relating to gliding, and although he could speak as much English as I could French, which is about four words, we had a very enjoyable hour.

I would certainly recommend anyone going this way to call on Mons. Roger Huart at the above address, which is in Escragnolles in the Alpes, Maritimes, where there is also some lovely scenery, the altitude being over 3,000 feet.

Above all, my advice to anyone touring the Continent is to wear your badge.

Yours faithfully,
P. H. BASTER.

GLIDER PILOT, 16, KILLED IN FRANCE

A SIXTEEN-YEAR-OLD glider pilot, Ernest Virot, was killed near Moulin, France, on April 14th, when a wing of his glider fell off at 650 feet.

CANADA—Repairs and Maintenance

A MIRACLE has occurred. When we needed them most, some expert Austrian glider builders have arrived on the scene and have stirred up the club into great activity in repairing the 'Olympia' and 'Grunau.' Sparked by Leo Schober, reconstruction is progressing rapidly at the Ottawa Flying Club. The 'Grunau' wing will be finished ready for covering by the time this is printed, and work is to start on the fuselage this week. The 'Olympia' is marking time until Leo can be sure of a large number of helpers for a few nights in succession. Leo is on the job three nights a week from five to ten p.m., and on Saturdays and Sundays.

Elvie Smith is co-ordination man for the work and volunteers should 'phone 6-1135.

The club has found it possible and propitious to dispense with Johnny Johnston's help. A bouquet is due him for his patient and obliging help under difficult conditions.

NO GLIDERS FOR WEST BERLIN

THE Western Allies have rejected a German request for the right to revive gliding in Russian-surrounded West Berlin.

The F.D.J. Communist East German Youth organisation has started to train members as glider pilots. Only members of the Communist Organisation are allowed to glide.

GLIDER PILOT INJURED IN TAKE-OFF WHEN TOW-ROPE SNAPS

BRISTOL CLUB HARD HIT

JIM ALLEN, a Bristol University student and Bristol Gliding Club instructor, was injured when the ' Olympia ' which he was flying on Friday, April 11th, crashed into the side of Beacon Hill, between Calne and Devizes.

Mr. Allen's glider was being towed off Roundway Hill and was not far off the ground when the tow-line snapped. He tried to maintain flying speed but the machine stalled. He was taken to Bristol Royal Infirmary suffering from concussion and fractured legs.

' OLYMPIA ' WRECKED

The aircraft was totally wrecked and its loss is a serious blow to the Bristol Club who will have to suspend or severely curtail their summer soaring programmes. This £750 ' Olympia ' was the best machine the club possessed.

BIRMINGHAM SCHOOLBOYS WILL LEARN TO GLIDE

SOON after they re-assembled for the summer term this month, boys in the Air Training Corps at King Edward's School, Birmingham, were able to take gliding lessons.

The school has received an ' Eon ' Eton primary glider for training purposes. F/L W. Traynor, O.C. of the school air section, has attended another course at Detling, so that he may become fully qualified to give instruction.

DEESIDE GLIDING CLUB

DEESIDE Gliding Club, which started at the U.S.A.F. Station, Sealand, about eighteen months ago, now has a membership of 35. Soaring at present, is only at week-ends, but it is hoped that during the summer evenings members will be able to meet.

Applications for membership should be made to Mr. W. Crease, Clwyd Gate Cafe, near Ruthin. Annual subscription is four guineas.

G. L. Davies, a member of the Deeside Gliding Club, died from his injuries received when his glider crashed at Sealand on Saturday, May 10th.

ULSTER GLIDING CLUB

22nd May.—We were greatly honoured by a visit from Dudley Hiscox and drove him to see our soaring site. We are pleased to know that he was duly impressed. He had no idea that the five mile soaring ridge was so extensive.

24th May.—First official visit of our Club by members of Short's Gliding Club. Circuits were flown by Bill Erwin who is Hon. Secretary, also by Ian King, C.F.I. While we were at lunch who should walk in but Lieut. Hayes, R.N., who flew with us four years ago. His present ' residence ' is temporarily parked in Derry. The value of the *Sailplane and Glider* is that it has kept him in touch with our activities this year.

25th May.—At last a N.W. wind and the tide suitable. Flying continued until the tide came in around 8 p.m. Times being as follows :—

In ' Tutor ' :—King, 2 flights, 2¼ hours ; Erwin, 3 flights, 1 hour 15 minutes ; Hayes, 1 flight, 55 minutes ; Beck, 1 flight, 50 minutes.

In ' Gull ' :—Liddell, 2½ hours.

All day grey flat overcast at 2,500 feet. Sometimes the sun broke through but the sky soon covered again. Erwin took his ' C ' on a 25 minute flight and flew well in extremely bumpy conditions. King is a most practised flyer of London G.C. vintage. After 4 p.m. the wind veered to due North and when Beck launched he flew along the West face losing height rapidly. Confidentially, we believe he came over the ' Umbra ' to the North face on the landing wheel. He said it was ' exciting,' but once on the North cliff he soared in his usual immaculate way. Hayes ended a glorious day by flying while we had late tea.

Liddell visited Binevenagh but so rough was the reception he nearly got thrown on his nose and beat a hasty retreat to Eagle Hill. Conditions were peculiar. Thermals at 20 ft./sec. up to cloud base and then the glider would be bounced up and down like a fly on the ceiling. Probably an inversion through which the thermals could not penetrate. The baragraph record looks like the silhouette of a pin-cushion.

Lastly, don't ask Ian King why he made the Ulster members wash their feet.

THE BLACKPOOL & FYLDE GLIDING CLUB

We purchased our first glider, a nacelle ' Dagling,' and commenced ground slides early in November, 1951. The first ' course ' consisted of seven members —one a girl—and none of them had any previous experience of flying. Six of these members have qualified for Cert. ' A,' the seventh is on high hops. Qualifying flights for the Cert. ' B ' are the order of the day now, but there is a second ' course ' who have practically completed ground slides in the ' Dagling ' and are more or less ready for conversion to the ' Kirby Cadet '—this machine was purchased last January.

We use auto-towing and find it most satisfactory, much more economical than winch launching, and we intend to continue with this method even when we are fortunate enough to find a suitable winch for training pupils (solo) up to the Cert. ' B '—' S ' turns, and *not* L.H. and R.H. circuits respectively.

Auto-towing for circuits is not too good on our site unless weather conditions are ideal.

The cost to members of gliding is kept very low indeed on account of the useful financial assistance given by our successful ' Social Side of the Club,' where the Ordinary Members meet many times during the week and particularly at week-ends and make good use of the well stocked and tastefully furnished bar, etc.

We christened the building ' The Kite ' (at least, I did, in memory of my 5 hours and height in a ' Kirby Kite '—J.S.A.). It is by this short name that it is known to nearly all the 375 members.

Gliding types visiting Blackpool and District will be welcomed at our Club, providing they are introduced in the correct name.

JACK S. AKED.

Special Stop Press Supplement

TEXT OF PRESIDENT'S ANNOUNCEMENT ON AUSTRALIA'S TEAM

URGES CHANGES IN NATIONAL COMPETITIONS

Under the heading ' World Gliding Championships Team,' the President of the Gliding Federation of Australia (Mr. W. P. Iggulden) issued the following announcement on the selection of an Australian team for Spain:

' It was suggested by the New South Wales Gliding Association that a selection committee to consist of Dr. Heydon, Mr. John Wotherspoon, and myself, should be set up to select an Australian team for possible participation in the World Gliding Championships to be held in Spain.

' The G.F.A. adopted this proposal.

' On behalf of this selection committee I now report that the team chosen consists of Mr. M. M. Waghorn, Mr. F. D. Hoinville, and Mr. E. Desmond. The nominal grading of the team is in that order.

' Normally selection committees do not make public the circumstances governing their choice, nor are they expected to do so ; but in this present case the committee wishes to make some observations.

' Firstly, we wish to emphasise the extreme difficulty found both in selecting the finalists, and, particularly, in settling their final order. Had it been possible the committee would have preferred to avoid making a grading, due to the close balance between candidates, and the impossibility of making a clear cut comparison between them ; as it was the final grading was influenced to some extent by the toss of a coin.

' The selection committee was up against the same obstacle which led to its appointment : namely, the complete lack of any possible fixed basis for selection. At its meeting in Melbourne it considered all facts open to it, including national contest results, past performances, and many other factors. Despite this, the task was found to be an invidious and difficult one.

' We therefore feel very strongly that future national contests should, if possible, be treated in such a way (both by the G.F.A. and contestants), that the choice of future international representatives will become automatic, or at least simpler.

' Finally, I extend to the members of the team the congratulations of the selection committee, and express our hope that it will be possible for all three to take part in the championship.'

(Signed) W. P. IGGULDEN,
On behalf of the Selection Committee.

HINKLER AND SYDNEY CLUBS PLAN AIR PAGEANT

When news of the allocation of sailplanes reached Sydney the Hinkler Soaring Club was already arranging an air pageant to raise money for any Australian competitor.

With the aid of the Sydney Soaring Club they planned to present a pageant to be mainly comprised of gliding ' acts.' They also hoped to enlist the aid of the Illawarra Gliding Club, who would fly a ' Primary.'

In addition to the usual gliding displays, Fred Hoinville had promised to give a display of aerobatics with smoke-writing Tiger ' Brolga.'

It is hoped to enlist the aid of the Camden Rotary Club in arranging the show at Camden airfield. If it can be organised quickly, such a pageant is one way in which other clubs might help raise funds to send our team overseas.

MODEL GLIDER FLEW 18 MILES

FLYING in an area glider contest at Rufforth, near York, recently, a member of the Barnsley and District Model Aircraft Club launched his model glider from a tow line. Forty minutes later it landed at the top of Garrowby Hill, between York and Driffield, a distance of about eighteen miles.

R.A.F. TO MOVE IN AT BALADO

BALADO Bridge Airfield, Kinross, constructed during the Second World War, is to be taken over by the Royal Air Force as a glider training ground. Since the war part of the airfield has been used by the Scottish Gliding Union.

INTER-CLUB CONTESTS

THE Derby and Lancs. Club are hoping to stage three inter-club competitions this summer.

The first, held at Camphill, was with the London Gliding Club. This will be followed by a return ' friendly ' on August Bank Holiday at Dunstable.

Third competition it is hoped will be with the Midland Gliding Club.

A CAMBRIDGE RECORD

TONY BACK, a South African visitor to Cambridge, joined the C.U.G.C. at the end of gliding at the end of January as an ' ab initio.' He completed his Silver ' C ' on May 7th with a flight in the Club's 'Slingsby Prefect.' He flew 48 miles to East Raynham, with a maximum height of 6,400 feet.

LETTER
TRANSPORT TO LASHAM

DEAR SIR,

Getting to Lasham is not quite as difficult as your correspondent imagines. There is a good train service from Waterloo to Alton (from Staines one would pick this up at Aldershot). A bus service runs from Alton to Basingstoke via Herriard (our nearest stop). At times when buses are infrequent it is often possible to get a lift by ringing up the club—Herriard 270.

In due course we hope to organise transport from London. Meanwhile, a number of members who live in the London area have cars, and will give lifts down by arrangement.

If any would-be visitor will get in touch with me I may be able to give further help.

P. H. BLANCHARD.

WANTED

High performance Sailplane, ' Olympia ' or similar, with instruments and preferably trailer. Please quote F.O.B. price nearest port and estimated freight and insurance charges to Durban. Replies to Rand Flying Club, Rand Airport, Germiston, Transvaal, South Africa.

THE YORKSHIRE GLIDING CLUB

THOUGH little has been written of the activities of the Yorkshire Gliding Club, this does not mean that there are none.

Take Easter Week-end, for instance. In spite of unfavourable soaring conditions, activities ceased not by day nor by night.

On the Saturday, volunteer fatigue parties carried out much needed clearing up and running repair operations around the Club House; then, following a roast chicken supper chez Allatini at the Hambleton Guest House, the company returned to the Club House for square dancing. Unperturbed by mere details such as lack of gramophone, in fine voice, Messrs. Pratt and Slater of the Slingsby Group provided 'Music,' 'Calling,' 'Instruction to Novices,' and generally led the dancing until the Virginia Reel at midnight put the entire company into a spin.

Did sleep descend on the Club House? Not yet!

Henry in the dark wandered around trying to find a borrowed sleeping bag. Not sure what it looked like anyway, he eventually crawled in between mattress and mattress-cover. Peace reigned for a time. At intervals until dawn, footsteps pattered around. Not that footsteps bothered anyone, or should I say any *but* one, who anxiously queried each fresh set of footsteps with a staccato 'Oh Hello!' to determine whether the footsteps had a voice, or were, as he fancied, disembodied. The 'Oh Hello!' without fail roused the entire dormitory.

At 4 a.m., in a pale grey dawn, Henry, who strange to relate had come for the weekend with the intention of *Flying*, arose, and to some purpose. A few yards from the Club House he started up the Beaverette, revved it until all back-firing ceased, ditto with the winch, and finally, just to warm up, drove the whole outfit in circles. Instead of a bevy of keen winch-drivers, wing-tippers, and signallers, one pyjama clad figure appeared in the doorway, and in a volume of under-statement shouted: 'Henry, behave yourself!'

Seizing a spade, Henry embarked on some silent digging . . . a border along the hangar wall, and a magnificent, diamond-shaped ('Grave of the Unknown Glider Pilot' surmounted by golden pussy-willows) garden plot in the centre of the 'Lawn.'

By this time, the dormitory had subsided into uneasy sleep.

Looking for something else he might do for the common good, Henry spent the next three-quarters of an hour pumping water into the kitchen tank. The pump handle needs more than a drop of oil. Sheer exhaustion prevented further remonstrance by the dormitory, but still no volunteer winch driver appeared.

Over the next ten hours of daylight, let us draw a veil. Of the wind that never materialised . . . the Beaverette that broke down . . . the petrol that ran out, and the search for a car able to make the return trip plus petrol *up* Sutton Bank . . . let us merely hint. Suffice it to say, that Henry, having arisen at 4 a.m. became airborne at 4 p.m. when, looking like a Man from Mars, he made circuit after circuit in the 'Primary' at dizzy height over Sutton Bank.

Before dark, he had been promoted to the 'Tutor,' with permission to try for his 'C' on the morrow. Alas! Monday was again unsoarable. 'What do we insure machines for, anyway!': snorted Henry, as instructors shook heads at the dicy conditions. Next week-end, however, in a soaring flight of 35 minutes, Henry got his 'C.' The first post-war 'C' of the Yorkshire Gliding Club.

The twilight calm of Sutton Bank has been shattered . . . We hope to keep it that way. During the two soarable week-ends in April, a total of 38 hours was flown (24 by the Y.G.C., 14 by the Newcastle Club). The Slingsby Group has a virile training scheme in full swing . . . Yours Truly can now fly sideways and backwards (if not forwards), at an altitude of some ten feet. A number of potential members are awaiting the inauguration of a training scheme (week-ends only, at the moment), at Sutton Bank.

To members of all clubs, we extend a hearty welcome. Bring a west wind (and a packed lunch) with you.

ROYAL AERO CLUB CERTIFICATES

(Issued under delegation by the B.G.A.) APRIL, 1952

CERTIFICATES 'A' .. 128 (14471-14598 inc.)
'B' .. 115
'C' .. 37
Silver 'C' —4
Gold 'C' —

'B' CERTIFICATES

No.	Name.	A.T.C. School or Gliding Club.	Date taken.
2621	G. D. Murrell	London G.C.	12. 4.52
3119	J. C. Beecham	R.A.F. G.S.A.	6. 4.52
10760	K. C. Eastall	No. 92 G.S.	27. 4.52
12688	P. J. McNamarn	No. 143 G.S.	14. 4.52
12716	B. Masters	No. 84 G S	20. 4.52
12775	J. V. Thorne	No. 143 G S	23. 3.52
12960	R. R. Hambridge	No. 166 G.S.	23. 3.52
13451	L. B. Lewis	No. 68 G.S.	13. 4.52
13454	D. J. Franklin	No. 68 G.S.	6. 4.52
13623	P. S. Bowey	No. 31 G.S.	6. 4.52
13643	C. Buck	No. 26 G.S.	13. 4.52
13647	G. Murtha	No. 31 G.S.	20. 4.52
13885	J. M. E. Hayes	No. 49 G.S.	23. 3.52
13896	J. G. S. Temple	No. 31 G.S.	6. 4.52
13931	E. Lake	No. 31 G.S.	20. 4.52
14200	J. B. Hall	No. 183 G.S.	23. 3.52
14231	P. R. Hall	No. 183 G.S.	23. 3.52
14235	R. Clitheron	No. 186 GIs.	20. 4.52
14250	D. R. Mills	Derby & Lancs. G.C.	26.12.51
14367	G. Twiggs	No. 92 G.S.	27. 4.52
14396	G. E. Broad	No. 82 G.S.	20. 4.52
14470	F. J. Orrin	No. 146 G.S.	1. 3.52
14471	N. E. Rains	No. 49 G.S.	20. 1.52
14472	D. N. Simmons	No. 23 G.S.	23. 3.52
14473	G. R. Fortune	No. 23 G.S.	23. 3.52
14475	M. J. Drury	No. 168 G.S.	23. 3.52
14477	C. H. Mitchell	R.E. Hameln	30.10.51
14478	F. H. Williams	No. 68 G.S.	2. 3.52
14479	D. A. Barnham	Bristol G.C.	6. 8.49
14482	M. C. Ginn	No. 125 G.S.	23. 3.52
14483	M. C. Harries	Cambridge U.G.C.	18. 3.52
14484	B. D. Goodfellow	No. 168 G.S.	23. 3.52
14485	E. H. Hawkins	No. 24 G.S.	3. 2.52
14487	C. R. Milne	Army G.C.	1. 3.52
14488	J. R. Wright	Coll. of Aeronautics	10. 2.52
14490	I. R. Edwards	Gutersloh	7. 4.51
14489	J. F. Hyde	Gutersloh	7. 4.51
14491	K. A. Saunders	Kabrit G.C.	30. 9.51
14493	J. H. Fortune	No. 1 S. of T.T.	23. 3.52
14495	C. Marshall	Celle G.C.	2. 2.52
14496	J. Noakes	No. 186 G.S.	17. 3.52
14497	A. H. Back	Cambridge U.G.C.	22 2.52
14498	T. M. Wills	Dartmouth Cadets G.C.	20. 8.51
14499	C. G. Burden	Wahnerheide	23. 3.52
14500	B. C. Smoker	No. 168 G.C.	21. 3.52
14501	J. Lilley	No. 42 G.S.	23. 3.52
14502	G. E. W. Baxter	No. 68 G.S.	6. 4.52
14503	A. J. Adair	Army G.C.	23. 3.52
14506	J. Mitchell	No. 146 G.S.	23. 2.52
14508	E. E. Richardson	London G.C.	29. 2.52
14509	J. L. Morton	No. 122 G.S.	23. 3.52
14514	B. A. Clayton	Gutersloh	23. 4.50
14515	A. R. Martin	Celle G.C.	25. 4.51
14516	R. A. Woolgar	Luneburg	27.10.51
14517	D. M. Ostell	No. 183 G.S.	23. 3.52
14520	D. Adams	Thornhill G. & S.C.	16. 3.52
14522	J. P. H. Gresham	Derby & Lancs G.C.	11. 4.52
14523	J. M. Cartwright	No. 125 G.S.	14. 4.52
14524	D. F. Easton	No. 105 G.S.	14. 4.52
14525	M. W. Fitzgerald	No. 84 G S	12. 4.52
14526	I. M. Mackenzie	No. 186 G.S.	16. 4.52
14527	S. Phillips	No. 42 G.S.	13. 4.52
14528	T. J. Carter	No. 42 G.S.	23. 3.52
14529	T. G. Doe	Coll. of Aeronautics	15. 3.52
14530	C. R. S. Solomon	No. 126 G.S.	13. 4.52
14531	D. B. Johns	No. 125 G.S.	12. 4.52
14534	I. H. Agutter	Surrey G.C.	12. 4.52
14535	D. S. Welsh	No. 31 G.S.	13. 4.52
14539	J. Chamberlain	No. 47 G.S.	6. 7.47
14541	D. N. Alcock	No. 22 G.S.	16. 4.52
14542	B. Gell	No. 22 G.S.	17. 4.52
14543	S. R. Weir	No. 22 G.S.	16. 4.52
14544	J. R. Bamford	No. 22 G.S.	16. 4.52
14545	D. F. Morfill	No. 22 G.S.	17. 4.52
14547	T. J. Andrews	Portsmouth N.G.C.	20. 4.52
14548	R. Barrie	No. 2. G.S.	13. 4.52
14549	D. B. Fletcher	No. 104 G.S.	19. 4.52
14550	A. J. Gibson	No. 168 G.S.	16. 4.52
14551	R. Routledge	No. 31 G.S.	14. 4.52
14552	R. L. Shadbolt	No. 105 G.S.	20. 4.52
14554	D. R. Anderson	No. 146 G.S.	20. 4.52
14561	C. N. Hall	Celle G.C.	2. 3.52
14562	D. L. Contostavlos	No. 126 G.S.	14. 4.52
14563	D. M. Gampell	No. 126 G.S.	14. 4.52
14564	J. H. Burge	No. 105 G.S.	20. 4.52
14565	R. Lowrence	Wahn G.C.	13. 4.52

'I NEARLY GOT AN 'A'"—

continued from page 18.

from buildings, hills and clouds. I will not describe the scenes of enthusiasm which my passage overhead evoked amongst the inhabitants.

Let it suffice to say that with my left arm quite aching from continually raising my bowler hat in acknowledgment of the cheers, I made a perfect landing at dusk in the Champ d'Elysees.

I was immediately surrounded by crowds of cheering men and women. Cries of '*Vive le Zogleur*' and '*Vive le* ' *du commencement*'!' (French for long live the *ab initio*!) rent the air.

I felt myself lifted from the ground by willing hands, shoulder high. All around the populace surged and acclaimed me. I raised my hat repeatedly. '*Pas du tout*!' I said, '*Pas du tout*!'

A girl of surpassing loveliness pressed towards me through the throng. She was carrying a bottle and a wineglass.

'Drink this,' she said in English surprisingly, and in a deep husky contralto. I accepted the glass she had filled for me—raised it on high and gazing deep into her shining eyes, I began to drink.

As I drank, the most curious thing happened. Her beautiful face melted gradually away and in its place slowly there formed the mild and amiable countenance of Dr. Binks, a member of the Club, bending solicitously over me.

'Drink this,' he croaked.

I blinked furiously—where was I? The enthusiastic French had become ordinary Club members, obviously and definitely unenthusiastic.

As clear vision returned I was conscious of the written-off remains of a 'Zogling' festooned about a haystack.

I took another sip of the now nauseatingly unromantic brandy.

'What did I do wrong?' I said.

'Side slipped—you mutt.'

'How long did I do before it happened?'

'Oh—about fifteen seconds.'

'Uh-huh,' I murmured noncommittally, and closing my eyes I lay back on the battered wing which was my improvised stretcher.

WHOOZIS.

'B' CERTIFICATES

No.	Name.	A.T.C. School or Gliding Club.	Date taken
14566	E. M. Biske	Deeside G.A.	20. 4.52
14569	J. N. Cozens	Celle G.C.	2. 3.52
14570	D. J. Wolfe	No. 105 G.S.	11. 4.52
14571	A. P. Curry	No. 22 G.S.	17. 4.52
14572	M. A. Norton	No. 125 G.S.	13. 4.52
14573	R. D. Robertson	Wahn G.C.	14. 4.52
14575	G. C. Price	Deeside G.A.	16. 3.52
14576	A. B. Clark	No. 125 G.S.	13. 4.52
14577	M. E. Collins	Wahn G.C.	13. 4.52
14578	W. J. Howse	Oxford G.C.	19. 4.52
14579	C. G. Pickering	No. 23 G.S.	20. 4.52
14580	J. A. Gibbs	No. 168 G.S.	14 1 52
14581	R. J. Manning	Wahn G.C.	10. 4.52
14582	L. M. E. Male-Cole	Wahn G.C.	12. 4.52
14583	D. S. Watts	No. 188 G.S.	26. 6.51
14584	P. J. Colder	No. 122 G.S.	25. 4.52
14585	N. E. D. Walker	No. 168 G.S.	20. 4.52
14586	J. Thompson	Gutersloh G.C.	9. 6.51
14587	P. A. Bough	No. 166 G.S.	27. 4.52
14588	G. Davies	No. 122 G.S.	26. 4.52
14589	G. B. Jarvis	No. 122 G.S.	25. 4.52
14590	P. N. P. Nightingale	No. 122 G.S.	27. 4.52
14591	B. Pedlar	No. 122 G.S.	26. 4.52
14592	S. E. S. Smith	No. 122 G.S.	24. 4.52
14593	G. Stanley	No. 122 G.S.	24. 4.52
14594	D. J. Wender	No. 126 G.S.	14. 4.52
14595	J. G. Wilson	No. 146 G.S.	26. 4.52
14596	J. Garnier	R.N.G.C.	10. 9.51
14597	D. W. W. Goodenough	No. 125 G.S.	27. 4.52

'C' CERTIFICATES

6890	M. B. Swann	No. 105 G.S.	13. 4.52
3119	J. C. Beecham	R.A.F., G.S.A.	20. 4.52
9804	K. W. Blake	Derby & Lancs. G.C.	27. 1.52
10344	W. J. Miller	R.A.F., Halton	4. 4.52
11952	C. J. Sanderson	No. 168 G.S.	13. 4.52
12912	T. H. Williams	R.A.F., G.S.A.	6. 4.52
13029	V. J. Nickson	No. 143 G.S.	14. 4.52
13106	T. A. R. Hanney	No. 168 G.S.	20. 4.52
13215	J. Downes	Portsmouth N.G.C.	2. 3.52
13293	J. R. Ayers	Cranwell	18. 4.52
14384	J. S. Shackleton	Derby & Lancs. G.C.	23. 3.52
13403	R. M. Hancock	Cranwell	21. 4.52
13429	C. G. Richardson	London G.C.	7. 4.52
13664	G. E. Leach	No. 105 G.S.	13. 4.52
13942	W. J. Moreton	Bristol G.C.	13. 4.52
14043	M. P. Seth Smith	Portsmouth N.G.C.	2. 3.52
14075	E. J. Downing	Portsmouth N.G.C.	3. 2.52
14127	P. D. Wenham	Army G.C.	13. 4.52
14250	D. R. Mills	Derby & Lancs. G.C.	26.12.51
14261	L. G. Blaber	Southdown G.C.	5. 4.52
14375	H. A. Lake	Wahn G.C.	14. 4.52
14378	R. J. G. Delhaye	Wahn G.C.	14. 3.52
14383	G. S. Taylor	Derby & Lancs. G.C.	23. 3.52
14419	G. I. Pawson	No. 143 G.S.	13. 4.52
14439	L. J. Birch	Derby & Lancs. G.C.	6. 4.52
14477	C. H. Mitchell	R.E., Hameln	6. 2.52
14483	M. C. Harries	Cambridge U.G.C.	20. 3.52
14489	J. F. Hyde	Gutersloh	24. 4.52
14490	I. D. Edwards	Gutersloh	15. 4.52
14497	A. H. Back	Cambridge U.G.C.	20. 3.52
14508	E. E. Richardson	London G.C.	7. 4.52
14514	B. A. Clayton	Gutersloh	3. 6.50
14515	A. R. Martin	Celle G.C.	15. 3.52
14516	R. A. Woolgar	Luneburg	2. 4.52
14561	C. N. Hall	Celle G.C.	14. 4.52
14569	J. N. Cozens	Celle G.C.	14. 4.52
14586	J. Thompson	Gutersloh	16. 6.51

SILVER 'C' CERTIFICATES

3338	J. D. Jones	
14514	B. A. Clayton	
12709	D. M. Kaye	
12464	E. J. Wynter	

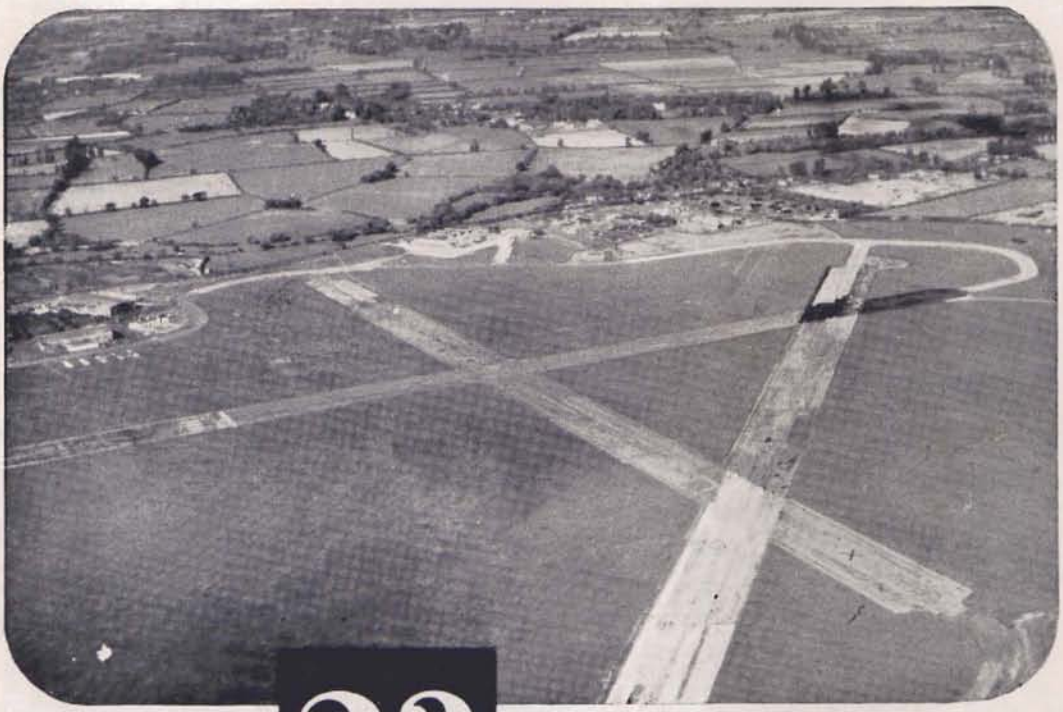
FASHION NOTE

A FRIEND has called our attention to the difference in ideas between Spain, a strongly Catholic country,—and ourselves—as to what constitutes civilised costume for women, on sports or informal occasions.

We are reminded that there have been occasions on which women have been escorted from the beach by the Guards Civile, whilst others have been refused access to hotels and gardens because their lack of dress and covering for the nether limbs offended Spanish ideas of propriety. Trousers and shorts for women are a cause of resentment among Spanish women, whatever the men may think. If you are going to the International Competitions therefore, it might be as well to bear this in mind, whether you are male or female. The freedom of Sweden and Switzerland in matters of personal dress may not apply to Spain, and it would be a pity to spend some of the precious time in Spain in a Spanish police station. After all, we are guests and we should behave with due regard to our hosts' sensitivities.

Incidentally, according to the Texan Gliding Bulletin *Spirals*, they expect the Americans to occupy the first five places in the final results.

Do you know your airfields ?



23

Recognise this airfield? It's No. 23 in this series of puzzle photographs. You'll find the answer below on the right. ★

Lucky the aircraft operators—be they international airlines or week-end joyriders—who use Shell and BP Aviation Service. The keen crews of the famous Aircraft Servicing Vehicles, on duty at twenty-six of Britain's aerodromes, are always glad and willing to take the refuelling work off everybody else's hands—yours included.

Shell and BP Aviation Service

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★ Gloucester/Cheltenham (Staverton Airport)