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Editor :
VERONICA PLATT

Asst. Editor :
RONALD BISHOP

Editorial
and
Advertisement Offices :
8, Lower Belgrave Street
London SW1
PHONE: SLO 7287

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COVER PHOTO :
"Wanted Glider Pilots" By Othmar Schwarzenberger.

Editorial

IN MEMORIAM

BERTRAND DAUVIN, in his twenty-first year, lost his life tragically on the night of December 25th-26th in an attempt to beat the single-seat world duration record.

It is with the very deepest sorrow that we record the events leading to the death of this young French soaring pilot on Christmas night. Our deepest sympathies go to his mother, relatives and friends for their sad bereavement.

Bertrand, a tall fellow with a shock of unruly dark-brown hair and blue eyes, loved flying and spent all his spare time and money in its pursuance. He held the world duration record for multi-seat sailplanes.

He set off on his record attempt on the morning of December 24th, maintaining 30-minute radio communication with the ground. His last message came through in the early hours of the 26th, then silence. A search the next morning revealed the horrible truth. His ' Kranich III ' had crashed and his body lay 20 metres from the wreckage. His face was still smiling and his hands still grasped a medal of the Holy Virgin. After forty-four hours his young life had been cruelly snatched from him.

On December 30th, Dauvin was set to rest in the cemetery of Montmartre after a moving ceremony during which he was posthumously made a Knight of the Legion of Honour and decorated with the Medal of Aeronautics.

Dauvin's death has created a controversy as to the futility and danger of these duration record attempts, which require for long hours to be spent flying at night during which time a moment's inattention, caused through fatigue, can be so fatal. It may well be that such attempts will in future be banned. If this will prevent the loss of further lives we are in agreement. But let us not forget this brave young man who made many sacrifices and overcame all obstacles to acquire the machine he had hoped would bring him success, but brought him death instead. A full report is contained on page 2

R.G.B.

A Gliding Ball is to be held at Londonderry House, Park Lane, W.1., on Friday, 11th March, at which will be made the presentation of the Annual Awards. Tickets, price £1, are obtainable from the B.G.A., or Club Secretaries.

The next issue of *Sailplane and Glider*, March-April, will be published on April 5th.

TRAGIC DEATH OF SOARING PILOT MAY PUT STOP TO DURATION RECORDS

By Walt H. PRATT



Bertrand Dauvin in front of his 'Kranich III.'



Dauvin's 'Kranich' over the hills of the Alpilles.

THE French Soaring World finished the year 1954 under the sign of death and all Glider Pilots in our country grieve for one of their comrades.

Bertrand Dauvin, the world recordman of duration for multi-seat sailplanes, lost his life during the night of the 25th to 26th of December while trying to beat the single-seat world duration record of 56 h. 15 min. held by C. Atger.

Bertrand Dauvin, whom I knew quite well since he belonged to one of the clubs flying at the Glider Port of Persan Beaumont, was a tall fellow (6 ft.) with a shock of unruly dark-brown hair and blue eyes. Since his early youth he loved flying and he spent all his money and time on his ideal. The President of his club who recognized his love helped him as much as possible and when Dauvin spoke of getting a sailplane for himself, the President did everything in his power to support him.

Thus, Dauvin made a trip late last year (1953) to Bremen where he picked up the ship which was to become his tool in the realization of his dreams and also, his tomb. The ship he picked was one of the latest German models, a 'Kranich III,' and his club became thus the only French club after the war to own a foreign sailplane.

Once his plane was in France, Dauvin started to get the necessary accessories. He visited one manufacturer after the other to get the oxygen, radio and other equipment and when he obtained this material, his plane was one of the best-equipped planes in France.

When his money ran out he went to work. This was not only to earn money but also to convince his mother that she would not be able to stop him from his passion. His mother, when she saw how taken he was with soaring, had in effect stopped his allowance in order to get him away from his dangerous activities.

Since he also wanted to fly, Dauvin got a night job with one of the biggest French car plants, Citroën, and was thus able to spend his days on the airfield. His mother finally grew convinced that nothing she could do would keep her son away from a plane and from then on she sacrificed herself so that her son could concentrate all his time on gliding.

Came the month of April, 1954, and Dauvin and his plane went down to the National Soaring Centre of the Alpilles to get ready to attack the multi-seat sailplane duration record held by Lebeau and Fronteau with 56 h. 11 min., since the 1st of Jan., 1954.

With his co-pilot, Couston, he began his attempt on April 6th, to land joyfully on April 8th after 57 h. 10 min., new world recordman of duration. The fact which stood out the most was that this team was the youngest ever to attempt this record being just over 40 years old.

Summer came and Dauvin set about to try his plane across country to attack the existing distance records. Unfortunately, the weather proved to be impossible and he went instead, after exhibiting his plane in a big aeronautical manifestation held at Toussus le Noble, near Paris, to Paris-Plage on the Channel to prospect the possibilities of duration flying on the coast. Nothing much came of it though.

Finally it was announced that Dauvin would try during winter to set up a new single-seat duration record and later to attempt some altitude flights.

Now you must know something of the procedure for these duration records. Those pilots who propose to attempt them are sorted out by Mr. Nessler and one month is allotted to them during which they can make their attempts. The best months are from December to April when the mistral is blowing. Usually, the single-seat attempts are made from January to April as the nights are getting shorter and there is more moonshine.

As it concerns Dauvin, all the best months had been given out already but he accepted nevertheless to fly during December when the nights are fourteen hours long, as he had already experience of this type of flying and his physical resistance, already noted, was above normal.

So he went down there with his plane and settled



Photo : Parisien Libéré.

General Waysser confers Legion of Honour on Bertrand Dauvin.

down to the routine and the discipline to which all pilots are subject to when attempting this record. Early to bed, early out, no wine and good healthy food. On the 21st December he had his first try but the wind betrayed him two hours after his take-off and he had to land having first taken a terrible beating in the turbulence. That night he admitted to his friend that he was afraid to try again.

Then we come to the night before Xmas. On the morning of the 24th, conditions seemed favourable and at 8 o'clock the ' Kranich ' took off in aero-tow to begin a minute later his solitary rounds.

Everything seemed O.K. Though Dauvin complained of visionary troubles after 36 hours aloft (he saw a great white hole with walls around it in the path of his plane) and which he overcame after talking to the Chief of the Soaring Centre, nothing unusual occurred. Effectively, these troubles are common and are generally overcome. It is the task, and one of the hardest, of the Chief of the Centre to judge the seriousness of these complaints and to stop the flight if necessary. (Guy Marchand, the record-man of 1949, saw a church in his flight-path and only overcame this vision when he was told to fly through it). Radio-communication is had every half-an-hour and when necessary is kept up all the time during the night in order to assure the pilots when their morale gets low. Also, it must be said, the slope is lighted at the turning points.

Dauvin's last message came through at 3.25 on the morning of the 26th. When nothing was heard half-an-hour later, it was believed that the radio was out of order as this had happened on other attempts. When morning came and no plane was visible, fear began to rise among those waiting on the ground and the Chief of Centre took off in a plane to look around for signs of the ' Kranich.' All hope was not given up however as it was possible that the pilot had landed somewhere on the other side and had dropped off to sleep. (Guy Marchand was found sound asleep under some hedges into which he had landed with the plane on his record flight).

But when the search plane beat its wings over the summit of the slope, it became clear to all that death had reached up and clasped the pilot to his bosom. Dauvin's faithful mechanic who had accompanied him wherever he went was the first to reach the body where it lay about 20 metres from the completely smashed plane, a couple of metres below the summit on the wrong side of the hill.

Dauvin, whose face was still smiling and whose hand still grasped a medal of the Holy Virgin, had lost, after forty-four hours, his young life (he was 21 years old) trying to beat the most useless of all soaring records.

His mother who was on a trip down to congratulate her son on his victory, heard the terrible news on the train.

On December 30th, Dauvin was set to rest in the cemetery of Montmartre after a moving ceremony during which he was post-humously made a Knight of the Legion of Honour and decorated with the Medal of Aeronautics. The ceremony was attended by about 2,000 persons while the Government and all aeronautic organisations were represented by high functionaries.

The citation of the Roll of Honour to the Nation which accompanied the confer of the Knighthood of the Legion of Honour read as follows :

' Bertrand Dauvin, amateur pilot of the Aeroclub Paris Nord, working in the service of French Wings, holder of the soaring certificates ' B ' and ' C ' and the Silver ' C ', holder of the motorplane licence, 1st and 2nd degree, beat on April 6th, 7th and 8th, 1954, the world duration record for multi-seat sailplanes with 57 hours and 10 minutes.

Called the ' Mermoz of Gliders ' in the world of French Aviation, he continued to put his qualities of courage and daring at the service of the sport of aviation. Has found, at the age of 21, a glorious death on December 26th, 1954, on the slopes of the Alpilles after having stayed aloft for 44 hours while pursuing his attempt to beat the world duration record for single-seat sailplanes.'

Not much can be said about the cause of the accident. The best version is that during a moment's inattention caused by fatigue his plane was deported by the strong wind to the wrong side of the slope where the downdraughts are considerable. Dauvin, instead of landing below in the fields and giving up the attempt, knowing he had only 12 more hours to do with the morning coming up, tried to beat back up-wind to get to the right side of the hill. Not noticing that he was below the summit or probably taking the stone face, which being not wooded, looked lighter than the rest, for another vision, crashed into it at a speed of about 165 km./h. Death was instantaneous. A bit higher or to the right he would have passed.

As I already wrote to you, other competitors for the duration records are scheduled for the following months.



Dauvin aloft in his ' Kranich III ' at the beginning of his fatal flight.

But the death of Dauvin has opened the eyes of the responsible persons to the futility and the danger of these duration records. So it is now talked about forbidding all other attempts and letting the record stand as it is, at least the single-seat record.

The writer hopes this will be the case and thinks it is just too terrible that it needed the death of a pilot to make them face this fact.

Soaring now-a-days does not need to prove itself any more and the life of a pilot is worth more than the pride of a nation ; at least this sort of pride which demonstrates only that the nation possesses a few persons having exceptional physical resistance. Besides, Soaring has other tasks to-day.

THE BOOK EVERY 'SAILPLANE' ENTHUSIAST WILL WANT TO READ . . .

'THE SKY MY KINGDOM'
By Hanna Reitsch

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MIDGET SAILPLANES

By O. W. N.

MY dear Hoinvilles, we both want small sailplanes and we both hold some very opposed views on why midgets are desirable, which might be of interest to the gliding public.

Nothing was further from my mind than to compare the ' Horten X ' with the ' EPB-1,' Flying Plank.

The utility of the ' H.Xb ' project was compared with that of another midget designed to a high speed, high wing loading formula with the inevitable high stalling speed and, as the Hoinvilles say that the ' EPB-1 ' has not got a much higher wing loading, why do they ' ASSUME ' that I meant the ' EPB-1 ' ? (Mrs. Hoinville quotes wing loadings of 2½ and 3 lb./sq. ft. although published data indicate 2.05 and 3.25-3.6 lb./sq. ft., depending on pilot weight).

Before going on to our major differences, some inaccurate fallacies can here be corrected.

The Human Bottom.

Mrs. Hoinville writes of the ' Horten X ' :—' Even when used with the skid, the pilot in the prone position, is dangerously exposed and a bad landing which might result in a nasty jar in a conventional-type sailplane, would result in horrifying injuries, even death, in a prone type glider. Let's face it, the human bottom has a remarkable cushioning effect on the body as anyone who has trained on primaries will agree . . . '

She is ill-informed on the failings of such cushions. Lengthy and very thorough tests with rocket sledges at the Aero Medical Laboratory of the Wright Air Development Centre have found that the orthodox seated position (as on ejector seats) is the very worst position for tolerating vertical decelerative forces, in fact, that the human bottom is the very worst cushion.

The pilot of the ' H.X.' is not exposed but lying INSIDE the wing and in the ' H.IV.' and ' H.VI.' a foam rubber bed together with the retractable nose and fixed rear skids gave far greater protection against vertical decelerations than would have been afforded to a pilot in the orthodox position. If the Hoinvilles insist on a sailplane which should leave its pilot uninjured after flying straight into a brick wall (horizontal deceleration) it could be done with a rearward facing seat, mirrors and a long frangible nose section.

Even in the worst case, say a 45 degree nose-in after a stall where the orthodox pilot might on very rare occasions break his ankles, legs and injure his spine and cut his face, and the pilot in the prone position as shown in J. A. I. Reid's layout (see *Sailplane and Glider*, Jan./Feb., 1954) might break his arms, the pilot inside the wing of the ' H.X.' would indubitably stand the best chance of uninjured survival.

This criticism of the ' H.X.' is not only unjustified but also most unfair because Dr. Horten, by designing an ultra-light sailplane for a landing speed (air speed) of only 23 m.p.h. has made the most positive contribution against injury and bad landings.

Australian Rabbits.

Surely the Australian rabbit and its burrows should appear as witnesses for and not against landing on one's legs. Where the ground is smooth and large enough for a skid landing, the pilot's legs may remain on their foam rubber bed inside the wing. Their primary use is for self-launch into slope lift and for keeping the wing tips level during skid take-offs on aero, winch or any other form of tow. Only those pilots who wish to, may practice landing on their feet until they can land like birds on ground too rough and small for any skid.

How to get to the top.

The Hoinvilles choose to ask how one can get to the top of a soaring slope in a soaring wind. Well, nearly every cliff round Britain's shores and every slope soaring club site in the U.K., and most sites in Europe have a road leading to the top.

The ' H.X.' will still be launchable by winch, auto, motorcycle, motorboat, horse or even camel tow to 1,500 feet with cheap piano-wire with greater ease, thanks to its low wing loading, than any of its rivals. Stress is laid on slope launch because in Europe at least, it is much harder than in the wide open spaces of Australia to find suitable paddocks or straight roads without telegraph wires from which one could take-off without becoming involved with landowners and police.

The major differences in outlook.

The Hoinvilles want the CHEAPEST midget sailplane with a performance not worse than that of the ' G.B.' They want recognition for a midget CLASS defined by a span limitation of 25 feet in order to popularize WEEK-END MIDGET RACES.

O. W. N. wants a somewhat more expensive but much more practical midget which will provide him with MORE, BETTER and CHEAPER soaring than Hoinville's so-called ' cheapest ' sailplane.

One-piece wings.

The ' cheapest ' midget will have a one-piece wing and although it sounds a wonderful idea at first glance, it is a confounded nuisance. Dr. Horten and Max Scheidhauer, after experience with three one-piece wings, the ' H.1b,' ' H.X.' and ' H.Parabel,'

Thermik

Die deutsche Monatsschrift für den Segelflug in aller Welt.

Bringt Beiträge über Konstruktion und Bau von Segelflugzeugen und Motorseglern, über Wettbewerbe, Flugerfahrungen, Meteorologie, usw.

Gegründet 1948 und seitdem herausgegeben von Hans Deutsch, Göttingen.

Das Jahresabonnement kostet den Gegenwert von lo, -DM + 2, -DM Porto.

Unser Vertreter in Grossbritannien : H. Erdmann, Hampen House Cottage, Andoversford, Gloucestershire.

both conclude that the manhandling and road transport difficulties, due to wind, cancel out the advantages and the former has therefore decided to make the ' H.X.b ' a three-piece wing design. I myself noticed the extreme embarrassment caused by a Fauvel ' AV 36's ' failure to appear at an important demonstration, as its light and open trailer was unusuable in a fresh wind.

A two or three-piece wing, even if it is a midget anyway, will nearly always be worth the extra expense. Not every prospective owner of a midget has an outhouse for storing a 25 foot wing nor, for that matter, a motor car. A two-piece wing would facilitate towing by motor-bicycle, bicycle or even by hand with subsequent rail transport. It greatly reduces rail and sea freight charges and makes transport by air freight an economic possibility.

The vissitudes of dismantling and assembly are caused by bad design of fittings or false economy. If they are properly designed, as on the 59 ft. span ' Weihe,' assembly by two people in five minutes is not only possible but also a pleasure.

Midget Class.

As I believe that a one-piece wing is a false economy, it follows that I cannot see any justification for an arbitrary class definition by a 25 ft. span. How about the ' EPB-1 ' with its 26.5 ft. span, is this boon to the home constructor to be condemned by a capricious class definition ?

It is quite pointless today to instigate a crusade against giant or even large spans, they are getting shorter by themselves without loss in overall performance as shown by the Slingsby ' Skylark II,' the ' Tiny Mite,' the Scheibe ' Spatz ' and the ' LO-100 ' Zwergreiher.

However, we do need a crusade for extending the total speed range of sailplanes into the low speeds as well as the high in order to :—

1. reduce their turning circle and thus increase the rate of climb and hence the cross-country speed.
2. to facilitate all forms of launching, including the self-launch.
3. to improve landing capabilities in extremely small and rough spaces and thus to reduce crash hazards.

So if you must have some arbitrary definition or slogan, require a minimum flying speed of 25 m.p.h., or prescribe (not proscribe) leg landings, which will automatically look after Vmin, total weight and span. The optimum span of a midget might possibly lie at about 30-33 ft. today but this will shrink with the advent of lighter materials so nothing can be gained by dictating one particular span.

Midget Class Races.

Thank goodness that the F.A.I. has turned down the retrograde proposal to recognize international ' CLASS ' records and competitions. The proposals are retrograde in the literal sense because they would lead us back to, and accentuate the problems they proposed to solve.

If the Hoinvilles were successful in instituting really popular week-end triangular races round Sydney Harbour, they would soon attract a large public. This in turn would attract ' Big Money.'

Strong R.A.F. Entry for National Gliding Championships

PLANS for entering several Royal Air Force teams in this summer's British National Gliding Championships—the strongest R.A.F. entry for some years—will be discussed at the annual meeting of the R.A.F. Gliding and Soaring Association next Friday (January 21) at Londonderry House.

Representatives of most of the 20-odd R.A.F. gliding clubs in Great Britain, Germany and the Middle East affiliated to the Association are expected to attend. The Association has a membership of over 500 from clubs in Britain alone.

MIDGET SAILPLANES *(contd.)*

Although most of it would go to the bookmakers or taxes, there would be large monetary prizes. In no time at all it would become an economic necessity to turn the ' cheapest ' 25 footer into a £3,000 polished racer in order to win the weekly prize money.

As with football in the U.K., more and more people would become passive spectators and would leave the race soaring to expert professional pilots. And who is going to lend his £3,000 racing midget to a friend ?

Apart from costing more, the sailplanes will end up with extremely high wing loadings and stalling speeds and will be absolutely dependent on large, flat and smooth fields and on very powerful launching aids. The ' Hoekstra 3 ' project (see *Sailplane and Glider*, Oct., 1953) illustrates such a design trend, although it must be conceded that the designer's home country abounds with the largest and smoothest pastures in Europe.

I firmly believe that high performance soaring, like rock-climbing, skiing, riding, swimming and aqua-lung diving, can be enjoyed FOR ITS OWN SAKE and that the EXCESSIVE introduction of artificialities, such as week-end competitions and races, are perversive and quite unnecessary stimulants for the true lover of each sport. Silver, Gold and Diamond ' C's ' are quite enough.

Let us spend more of our time in the air and less of it on the ground waiting in a queue for a launch, repairing winches, wing-tip holding, retrieving others, or earning money to pay for our present-day inefficient launching methods. By all means let us retain ' team-spirit ' but let us have it in the air in the form of ' vulture thermal nets ' instead of battling with frustration on the ground.

The ' Horten Xb,' more than any other project seen so far, promises to satisfy the formula requiring the ' most practical ' sailplane for ease of launching, landing, storage and transport by road, sea, rail, and air, while giving an unprecedented rate of climb performance in thermal and cloud, together with a promising development potential into the higher speeds. It will definitely provide the ' cheapest ' total soaring cost per hour and, if only 200 or so were ordered and mass-produced in a factory, (factory produced kit-parts are also possible for the home constructors) their individual price would be lower than that of the home-built ' cheapest ' midget.

BEAUTY—GIRL, SAILPLANE AND SKY



Photo : Othmar Schwarzenberger, Dallas, Texas

Gliding News from Belgium

By A. van Ishoven

SINCE 1st August, 1954, gliding has become official with the Belgian Air Force. It is hoped that all B.A.F. personnel will have a chance to fly gliders at no cost. Up till now the B.A.F. had only one gliding club near Cologne (Köln), Germany.

In the course of next year, the National Gliding Centre that up till now was situated at Temploux, near Namur, may be transferred to St. Hubert aerodrome. This airfield has been closed to all aircraft for some time, except during two summer gliding camps organised by Antwerp Gliding Club, A.Z.M.

These are some of the most outstanding flights made by Belgian pilots in Belgium. Needless to say that weather conditions have been very poor :

H. Gildemeyn, Ghent ; Out-and-return flight of 113 km.

J. d'Otreppe, Verviers ; Out-and-return flight of 106 km.

J. d'Otreppe, Verviers ; Distance flight of 101 km.

W. Witter, Antwerp ; Distance flight of 68 km.

W. Witter, Antwerp ; Gain of height in Cunimb of 4,750 m.

As in the three previous years, Mr. P. Charron, Chief Instructor at the National Gliding Centre organises a gliding course for Belgian ' C ' pilots in Southern France during January, 1955. This year the course will be held at St. Auban.

These are the pilots best placed in the Competition Permanente :

1. J. d'Otreppe, Verviers.
2. W. Witter, Antwerp.
3. A. Litt, Verviers.
4. M. Cartigny, Verviers.
5. A. Xhaet, Verviers.
6. F. de Sauvage, Verviers.
7. M. Debauche, Namur.
8. L. Taymans, Antwerp.
9. C. de Kerkhove, Verviers.

MORE ABOUT THE JET STREAM

By Capt. Bernard C. Frost

(British Overseas Airways Corporation)

Condensed from Shell Aviation News.

It is regretted that we are unable to reproduce the colour illustrations referred to in the Text.

IT is now generally accepted by the experts studying these phenomena that in each hemisphere there exist two jet streams, encircling the globe, each containing winds blowing upwards of 100 knots according to altitude, and travelling in the main from west to east. Local synoptic and geographic variations can cause considerable intensification of the speed.

One stream, of which little is known as yet, of moderate intensity, separates the tropical air mass from warm semi-tropical air, and flows steadily eastwards in the vicinity of the tropics of Cancer and Capricorn at very high altitudes, with little latitudinal variation.

The second, and more complex Polar jet stream, with which we are more familiar, lies immediately below the tropopause, in the warm sub-tropical air overriding the adjacent cold polar air. This jet stream is a core of high altitude, high velocity winds of tube-like cross-section, encircling the globe in the mid-latitudes. It has a seasonal lateral (north and south) movement according to the sun's declination, and a marked but constantly fluctuating and meandering wave pattern caused by atmospheric variations of high and low pressure.

There is also evidence that the core rises and falls respectively in altitude as it flows over anti-cyclonic and cyclonic areas, as well as having a seasonal ascendancy of the core in the winter during its lateral movement equatorwards. Similar synoptic and seasonal effects have been observed in the average wind strengths, which tend to increase when passing over areas of high pressure and approximately double their strength in winter as compared with that in the summer.

The best analogy of which one can think in order better to describe the meandering wave movement which is such a marked feature of the jet stream is that of a long rope held by hand, and secured at the far end ; by a quick sideways flip of the wrist a wave can be made to travel along the rope. Consider then that the rope represents the core of the jet stream, with winds travelling through its length all the time at high velocity from the direction of the holder, and that the wave so made travels in the same direction but much more slowly and at a speed equal only to that of the west—east movement of cyclonic disturbance, with which it is intimately related. In fact should a depression become stationary, then likewise the wave in the jet stream will remain in the same locality.

From this description it can be appreciated that whereas the main flow along the core is from west to east, at any particular spot on the wave the wind may blow from south or north, or in extreme circumstances, when the wave becomes exaggerated almost into a loop, even from the east.

Such a set-up was observed, by good fortune, recently during seven consecutive days by the writer when travelling through Western Europe. Due to absence of low cloud the same jet stream's high cloud indications were visible every day. First observed over Le Touquet blowing from a S.W. direction, next day over Nijmegen, Holland from the S.W., then Bremen—Hamburg also from the S.W., Kiel from the W.N.W., Odense, Denmark from the N.N.E., next Copenhagen from the N.E., and finally Malmo backing to direction N.N.E. before becoming obscured by bad surface weather. Examination subsequently of upper air charts of the region for the dates concerned confirmed that such a concentration of strong upper winds had been plotted by the meteorological experts, the wind directions matching exactly. This well demonstrates the persistence of the jet on both sides of an upper air trough whilst passing eastwards over a ridge of high pressure at the surface.

Depressions have a marked tendency to lean westwards with height—usually to the order of some 10° of longitude. Hence, with a north wind and with pressure rising at the surface after the passage of a trough the upper clouds will still be blowing from the south.

The persistence of the jet stream is one of its characteristics even though at times its force abates due to some circumstance or other, such as the seasonal lessening of its wind velocity in summer, or its partial breakdown when air mass temperature differences become less marked.

On a recent flight over the Atlantic from London to Bermuda via the Maritimes, the aircraft passed under the same jet stream no less than five times, the same typical cloud types being observed high above cruising height (18,000 feet) on each occasion. The route at the time was covered with a series of narrow alternating ridges and troughs each of considerable extent northwards and southwards. The jet stream was first passed under in the vicinity of the Irish Sea (where it was northerly) then 28° W. longitude (southerly) 45° W. (northerly) Newfoundland (north-easterly) and just north of Bermuda (south-westerly).

Judging by the upper air flow distribution at the time that particular jet stream must have been setting up a record for meandering, since it stretched from Florida to Bermuda, over Newfoundland to 55° N. latitude, thence due south to S.W. of the Azores, where it snaked northwards to Greenland, and around the north of Iceland before turning south again to flow over the British Isles.

At other times it will stretch almost in a straight line from the U.S.A. to Europe. The line of high cirrus in Fig. 2 demonstrates such a straight jet stream stretching as far as the eye can see from horizon to horizon. In fact, as can be seen, it took eight exposures of the camera to encompass it. The

(Continued on page 16)

BOOK REVIEW

AERO-VERLAG of Munich have just produced a most interesting book called *Deutsche Segelflugzeuge*. It is a review of all the post-war German sailplanes. Some are in outline drawing, some are photographs, but all have their technical details clearly set out so that even a reader with no German at all can more or less guess what he wants to know. I would, however, suggest that a looseleaf be added with a glossary of technical terms in—say—English, French, and Spanish. It would be a good idea to add to this list the types that are not suitable for cloud flying or aerobatics, and also a list of addresses in clear where plans can be obtained. The details are all there but need a bit of disentangling for an overseas reader who may be miles from a German dictionary. The price is reasonable—five marks—and copies may be obtained through this office.

Even given the supremacy of German gliding before the war and the fact that several of these designs are later models of pre-war prototypes, it is fantastic that a book containing no less than forty-three different machines can be produced by one country alone. There is every possible variety of wing, of tail, of fuselage, and I can thoroughly recommend the book to our whole circle of readers. The beginner will profit by learning something of the relationship of shape to performance, the expert will see what he is up against, and the designer will be spurred on to produce superbly better or superbly cheaper aircraft in his own country—if he can.

VERONICA PLATT.

NOTES

France. M. Charles Fauvel now has a new flying wing in course of construction—the two-seater 'AV-22.'

New Zealand. Flying over Mount Cook in the South Island, Philip Wills has set up a new British height record, reaching a total altitude of about thirty-thousand feet.

Australia. Mervyn Waghorn claims the British Empire distance record for a flight of 310 miles from Narrandera, N.S.W., to Wangaratta, Victoria. He was one of Australia's two pilots in the World Championships held in Spain and comes from Sydney.

Austria. At the Gliding School of Zell-am-See there are now four two-seaters and six single-seaters, comprising the 'Mg-19,' the 'Mu-13E,' the 'Spatz,' the 'Weihe,' and the 'Grunau Baby.' During the season from May to October there were 6,000 launches and 1,400 hours flown.

Germany. A new primary with a nacelled cabin has been designed by Willy Wind. It is called the 'Wi-1' and has a span of 12 metres. The launching speed for winch or auto-tow is 75 km./h., and the towing speed in calm weather 100 km./h.

PYE GLIDERPHONE

A SMALL very lightweight set is needed for gliders and small aircraft, and to meet this requirement the Pye 'Walkiephone' has been used as a basis for a new design. Its size is much reduced by separating the batteries from the set and stowing these away into a convenient space. The very small radio set can then be sited for easy access by the pilot.



In the case of wooden gliders a whip aerial with suitable ground plane straps can be installed within the fuselage, resulting in a very neat installation.

Using an efficient ground plane with a whip aerial, remarkable ranges are possible with airborne Glider-phones operated in conjunction with 15-watt fixed or mobile stations, and distances of 80 miles and more have been reported.

With its own power supply the Gliderphone has obvious advantages in aircraft as an emergency set or in light aircraft for radio-telephone contact with airfield control towers. Gliders can maintain contact with their recovery crews by means of this set, and also receive messages regarding weather conditions, etc.

MORE ABOUT THE JET STREAM (*cont. from p. 8*)

cloud base was about 22,000 feet, and it was measured moving eastwards at 180 knots over Wilmington, N Carolina on the 9th February, 1954. It was no more than a few miles wide and the leading edge (polar) side was so well defined and characteristic of the type of high cloud associated with a jet stream that a photograph was taken and this is shown in Fig. 3.

The writer naturally does not pretend to understand fully the mechanics, and meterological processes governing the formation of the jet stream, or whether the weather creates it, or conversely, how much it influences our weather. Complicated dynamic air mass movements are involved, including motions by earth's rotation itself. However, it is very apparent that the warm air coming into juxtaposition with and overriding the cold air, releases considerable energy which manifests itself in a speedy acceleration in a narrow band of the warm upper air, reaching a high velocity which is maintained with fluctuations for thousands of miles over the more dense and sluggish cold air; the intensity of its velocity being in some way proportional to the horizontal temperature gradient across the upper polar front.

Another characteristic of the jet stream is its tendency at times to split into two or more portions, in much the same manner as the Gulf Stream in the Atlantic which has mnior branches spreading from the main flow. Complex polar front situations sometimes lead to a double jet stream. A good guide as to its likely path can be obtained by following the wind pattern shown in the 500 millibar upper air chart.

It is generally thought that the core of strongest winds is to be found on average at about an altitude of 33,000 feet. A typical cross-section of a polar jet stream viewed eastwards and down wind is sketched in Fig. 4 showing isotachs (lines of equal wind velocity), isotherms, and the boundary between polar and subtropical air. From this the narrowness of the high-wind area can be seen, a fact that makes it difficult to locate. However, it is easy to appreciate that of three aircraft all going eastwards and separated by only 100 miles, athwartships, the one situated in the jet stream at location Y will be experiencing considerably stronger tail winds (180 knots) than the others at X (90 knots) and Z (130 knots).

The two predominant features demonstrated in Fig. 4 are the marked vertical wind shear below the axis of the core, and the strong horizontal wind shear combined with a rapid temperature change where the two air masses meet at the upper polar front. It is this marked temperature change over a comparatively short distance that gives useful indication to the air pilot that he is in close proximity to a jet stream. This area of rapid temperature change will be met, if flying above 18,000 feet on the polar side of the jet core, and may be accompanied by some mild air eddies. Should one be flying at the 500 millibar level (about 18,000 feet) and enter such an area then it is safe to say the core is exactly overhead.

It is interesting to note in the northern hemisphere that at this position the upper air visibility towards the pole is astonishingly clear, whereas to the south it is obscured by haze and/or cloud. In fact, should the warm air be moist enough aloft, cirrus in the mare's tails form will be found nearby, as shown in Fig. 5. The structure of these clouds when viewed from their own level is sketched in Fig. 6 and shows a marked vertical shear. To complete the three dimensional picture, the same clouds as viewed from vertically below are shown in Fig. 7, and it will be noticed there that the mare's-tails trail some 45° across the direction of the wind flow, thereby indicating, in conjunction with Fig. 6, that the line of cirrus cloud paralleling the jet stream has a rolling motion of a clockwise nature when viewed downstream.

Two further pictures of this particular jet-stream cloud viewed from the ground were taken prior to utilizing its strong winds on a flight to Europe from Gander, Newfoundland. The flight from the east coast of Newfoundland to west coast of Fire took a little less than 5 hours, and from Gander to London 6 hrs. 27 mins.

The long line of roll cloud (cirrus) is a useful indication to the pilot of the existence of a jet stream. This sometimes consists of quite a flimsy structure, but even so the linear evidence of wind direction it gives is invaluable.

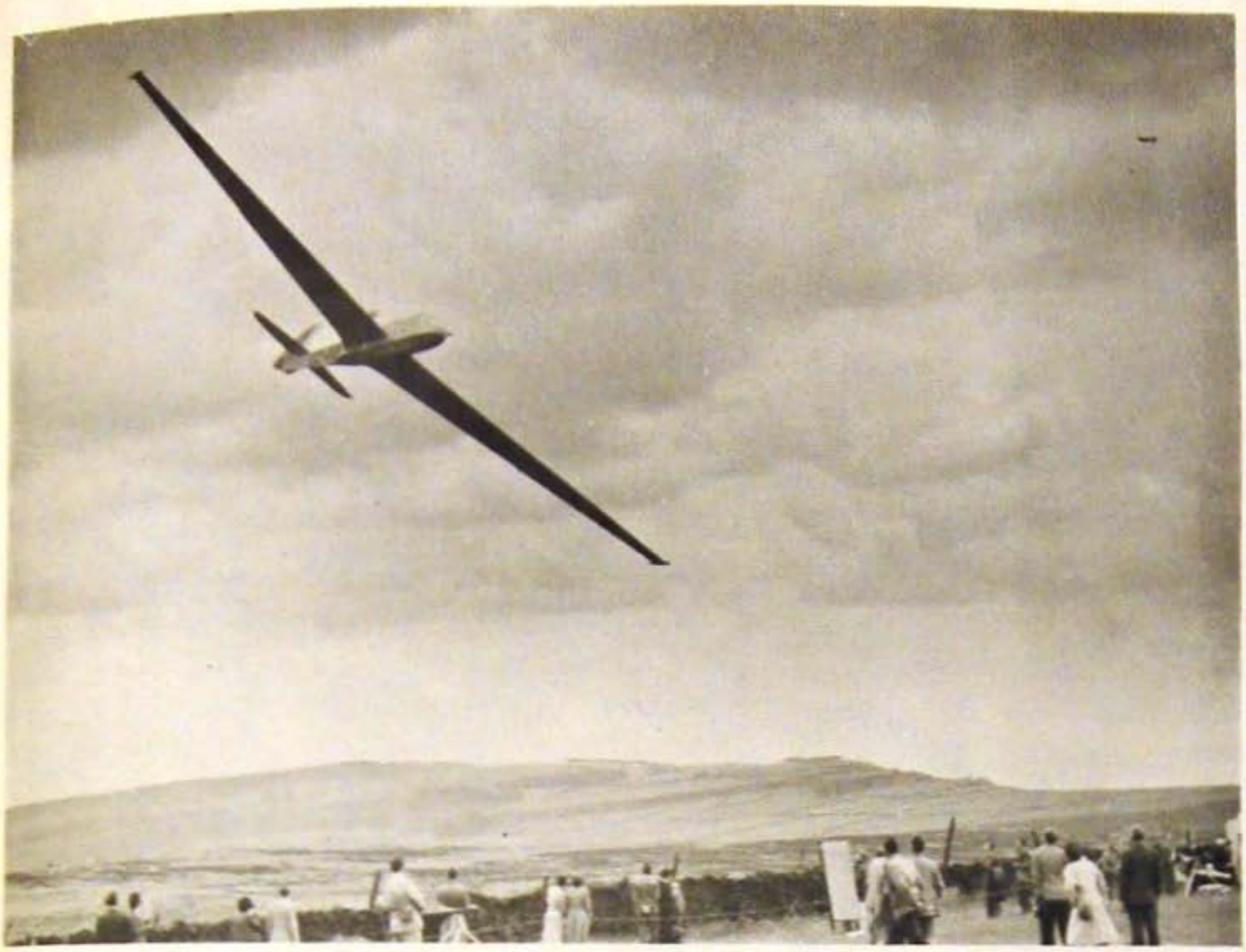
Quite often as mentioned in the previous article, no high cloud is present in the jet stream due to dryness of the atmosphere. Proof of this is evidenced in a photograph which shows the distorted vapour-trail of a fighter aircraft over Kiel on the 8th April, 1954, where a jet stream had been observed that day. A few minutes before the photograph, looking west-south-west, was taken, the trail was quite straight having been made by an aircraft immediately beforehand going from left to right in the picture into an area of higher wind velocity, the wind blowing from the aircraft's port beam (i.e. from the W.N.W.). The decided kink developed very rapidly and well illustrates the horizontal wind shear at the aircraft's level.

The majority of airline flights over the Atlantic take place at night, hence it is not easy to obtain good photographs of these phenomena on this route. Likewise the flimsiness of their structure makes some clouds a poor photographic subject. Occasionally the opportunity occurs at dusk or dawn to obtain a picture.

Another feature which may prove to be of considerable importance, but about which little can be found without the provision on the aircraft of an outside air humidity measuring instrument, is the moisture content of the upper air masses; that is to say at altitudes greater than 20,000 feet. From visual observation it sometimes appears that the upper warm air might contain some moisture, whereas the upper cold air has a remarkable clarity denoting dryness, which could consequently also be prone to a high static level. Such a deduction is supported by the fact that the bigger cumulus clouds of moderate altitudes (tops approximately 19,000 ft.) found beneath and immediately on the cold side of a jet stream spasmodically give off lightning discharges, from cloud to surface. It has been noticed too that the mean level of layers of lower and middle cloud tops in the vicinity of jet streams, tend to heighten, and, moreover, form in a band paralleling the direction of the jet stream. Another characteristic is that considerable gustiness is noticeable in the surface winds below a strong jet stream.

In this connection the findings of Dr. Vincent J. Schaefer of the Munitalp Foundation Inc., in the

(*Continued on page 19*)



Spanish 'Kranich III' side slipping at Camphill during last year's World Gliding Contests

Photo: H. F. V. M. Schwing, Holland

'SAILPLANE' PHOTOGRAPHIC COMPETITION

Again a large number of entries were received for the January/February Competition. Prizes have been awarded as follows :—

1st Prize £2. 2s. 0d. : Othmar Schwarzenberger, Dallas, Texas. 'Beauty—Girl, Sailplane and Sky' page 7. This entrant also provided our cover photo.

2nd Prize : £1. 1s. 0d. H. F. V. M. Schwing, The Hague, Holland. 'Spanish 'Kranich III' at Camphill' this page.

A consolation prize of a year's free subscription has been awarded to S. J. Nettle, Ealing, London, for his picture 'Minimoa' at Scharfoldendorf on page 13.

Entries for the March/April Contest must be received by March 5th. Send to Photo Contest, *Sailplane and Glider*, 8, Lower Belgrave Street, London, S.W.1.

Below : High density packing of Sailplanes. Netherlands National Championships, 1953
Photo : H. F. V. M. Schwing



BRITISH GLIDING ASSOCIATION

ANNUAL AWARDS FOR 1954

Notes of Interest.

1. These awards are made to British pilots starting their flights from these islands. It will be seen that the Seager Cup and Wakefield Trophy have been awarded to Mr. and Mrs. Welch for their flight in the 'Eagle' Sailplane. Their flight in fact established a new British distance record for two-seater sailplanes. Mr. Lorne Welch, who lives in Farnham, Surrey, won the Wakefield Trophy for his flight from Redhill (Surrey) to Brussels (Belgium) in 1950. Mr. Welch is a Plastics Consultant Engineer. Mrs. Welch, mother of two children, was the only woman Competitor at the 1954 World Championships, held at Camphill, Derbyshire, when she flew with her husband in the 'Eagle' Sailplane. She is Vice-Chairman of the British Gliding Association and Chairman of the Surrey Gliding Club.

2. Mr. Daniel Smith who wins the Manio Cup is the Chairman and Chief Flying Instructor of the London Gliding Club at Dunstable. Mr. Smith, who is an Ealing business man, flew in the 'Iron Curtain' Gliding Championships in 1954, held in Poland and established a new British 100 km. triangle speed record.

3. Mr. Walter A. H. Kahn who wins the Volk Cup, won this cup in 1950 when he and another pilot both broke the British National Out-and-Return record in separate gliders. He lives in Westminster (London and is a Cigar Importer.

4. Lt.-Col. A. J. Deane-Drummond who wins the De Havilland Cup is a lecturer at the Army Staff College at Camberly. He is the author of *Return Ticket*, which describes his war-time experiences, including standing in a cupboard for 13 days in an officers' Mess before escaping. He is the Chairman of the Army Gliding Club. His wife holds the British Women's Distance Record for single-seater gliders.

5. The Army Gliding Club has won the Douglas Trophy for the first time.

Awards Nos. 1, 3, 4 and 5 were all started from Lasham Aerodrome in Hampshire, between Alton and Basingstoke. This is the site where the 1955 National Championships will be held from July 23rd to August 1st.

Award No. 2 was started from Dunstable, the home of the London Gliding Club.

These trophies will be awarded at the Annual Gliding Ball to the winners.

As usual, there will be a cabaret given by members of various gliding clubs. Tickets are £1. 0s. 0d. The date is Friday, 11th March. The following day, there will be the Annual General Meeting of the British Gliding Association followed by an Instructors' Meeting where methods of instructing will be discussed.

At a meeting on 13th January, the Council approved the following annual awards as recommended by the Flying Committee. These awards will be presented by Mrs. Cuthbert Orde at the Gliding Ball in Londonderry House on the 11th March, 1955.

It should be noted that these cups and trophies are awarded to British pilots for flights commencing in the United Kingdom.

DE HAVILLAND CUP. For the greatest Height during 1954: 12,510 ft. Lt.-Col. A. J. Deane-Drummond, M.C., of the Army Gliding Club. In an 'Olympia' from Lasham, 15.8.54.

MANIO CUP. Best Goal Flight during 1954: 99 miles. D. A. Smith of the London Gliding Club. Luton, Bedfordshire to Christchurch, Hampshire. In an 'Olympia,' 19.4.54.

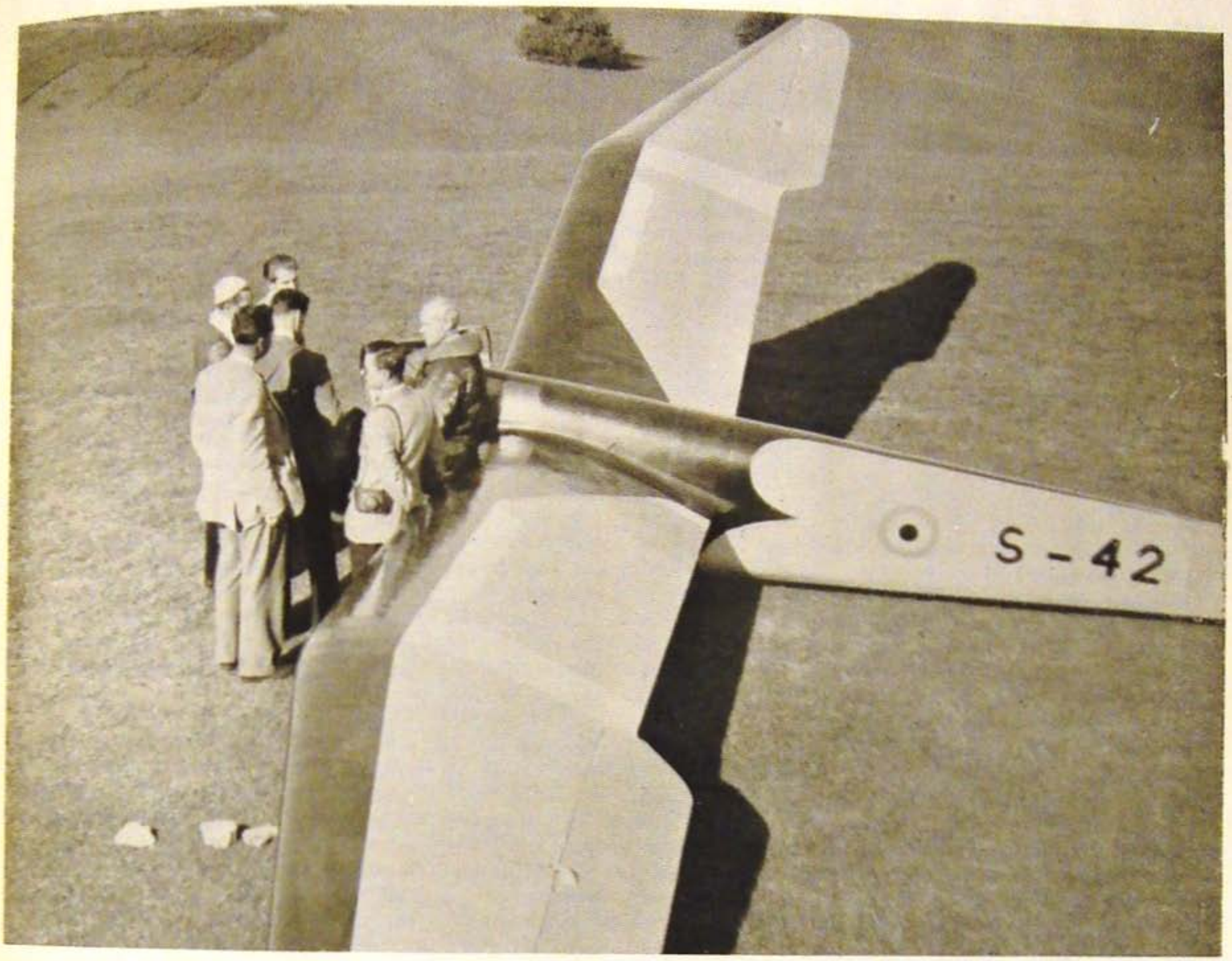
WAKEFIELD TROPHY. Longest Distance during 1954: 151 miles. Mr. and Mrs. L. Welch of the Surrey Gliding Club. Axford, Hampshire to Hopton-on-Sea, Norfolk. In the 'T.42' two-seater 'Eagle' sailplane, 27.6.54. (National Record).

Honourable Mention: B. Thomas of the Derbyshire & Lancashire Gliding Club. 150 miles from Camphill, Derbyshire to Holton, Suffolk. In a 'Sky,' 27.6.54.

VOLK CUP. For the best Out-and-Return during 1954: 95 miles. W. A. H. Kahn of the Surrey and Army Gliding Clubs. Lasham, Hampshire to Kidlington, Oxford and return. In an 'Olympia,' 19.4.54.

SEAGER CUP. Best Two-seater Performance during 1954: 151 miles. Mr. and Mrs. L. Welch of the Surrey Gliding Club. Axford, Hampshire to Hopton-on-Sea, Norfolk. In the T.42 two-seater 'Eagle' sailplane, 27.6.54. (National Record).

DOUGLAS TROPHY. Awarded to the Club putting forward 3 Flights by 3 different Club members in Club aircraft, aggregating the largest total cross-country mileage. 307 miles. The Army Club. 106 miles, E. J. Meddings—D. C. Kerridge. Lasham, Hants., to Halfpenny Green, Staffs., 5.9.54. 95 miles, S. Morrison, Lasham to Canterbury, Kent, 12.9.54.



'Minimoa' at Scharfoldendorf — *'Bessa II' 1/100 at F8* — *S. J. Nettle, London*

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The Value of Gliding and Soaring for Training Airline and Military Pilots

By L. A. de Lange

(Director of Training, K.L.M., Royal Dutch Airlines. President of the O.S.T.I.V.)

Lodewijk Anthony de Lange was born at Leiden on January 5th, 1909. On December 1929 he laid the foundation of the development of motorless flight in the Netherlands by forming the first Netherlands Gliding Club 'The Flying Dutchman,' and in 1935 became holder of the National endurance record of that country. Before the war Mr. de Lange, at the Koolhoven Aircraft factory in Rotterdam, designed the 'F.K.43' used by the K.L.M. Royal Dutch Airlines as an air-taxi. In 1945, at the request of Dr. A. Plesman, the late president of K.L.M. he organized the Netherlands Inland Air Traffic, and since June, 1948 he has been director of 'RIJKSLUCHT VAARTSCHOOL' in charge of training of airline transport pilots for K.L.M. Royal Dutch Airlines. Mr. de Lange has been President of the 'Organization Scientific et Technical Internationale du Vol a Voile' since July, 1950, and, besides contributing numerous articles on aviation to various magazines, he is the author of two text books on aerodynamics and one entitled 'The Training of Glider Pilots.' He holds both civil and military pilot licenses.

THE analysis of accidents and the statistics regarding the regularity or reliability of flights carried out, show indisputably that as regards the safety of both civil and military air traffic, the personal element—the pilot—is the most important factor in piloting and navigation.

The aircraft itself is to a much smaller extent than the pilot the cause of accidents, and yet much more care is devoted to the selection and testing of the materials to be used before they are built into the aircraft than to the choice and the testing of the candidate pilots.

During the generally relatively short time spent in grading pilots it is still argued : 'We believe that the candidate is suitable ; should it appear that we were wrong, well, it will be noticed during the training and the candidate can always be discharged from training.'

I wonder if—following this train of thought—we sufficiently realize what fatal consequences can ensue from not knowing for *sure* whether the boy is suited for the job.

A pupil who is rejected after having been under training for some considerable time, may suffer a shock which he can only get over with difficulty. I have often seen that such a boy gets an inferiority complex which—greatly to his own disadvantage and that of society—cannot be overcome at all, or only after the lapse of a very long time. And does not the unsuitability of the candidate often only come to light by the analysis of the accident he has met with ?

Great expense and great risks—lost flying hours, loss of material and human lives—are the consequences of an imperfect system of grading. No materials are used in constructing aircraft if people do not know for *sure* that they are really suitable.

The fact that the testing of materials is easier because it can be carried out objectively by measuring tests, may of course not constitute a reason to have the grading of future pilots take place according to other standards.

We should also know whether the pupil who has been admitted for training is, with a probability bordering on certainty, suited to be a pilot.

Of the three elements which determine the fitness of a man to be a pilot, namely *physical fitness*, *fitness of character* and *aptitude for flying* the first and the last are easiest to determine. Because in accordance with medical requirements laid down by the International Civil Aviation Organization and the military authorities, the candidate can be tested as to his physical condition by routine measuring tests, and in the course of a few hours of dual control instruction an experienced instructor can also fairly easily see whether the candidate has a feeling for flying.

In the first thirty years of aviation, people were in general satisfied with the reply to the question : 'Is the candidate medically fit for flying and has he a good aptitude for flying ?'

The rapid development of the modern aircraft with its high speeds and extensive sets of instruments as well as the great progress which has been made in the improvement of ground services, by which flights over very long distances and in bad weather conditions became possible, have led to the fitness of character of the pilot becoming much more important for the safety and regularity of air traffic. And it is precisely the testing of the fitness of character which is most difficult, partly because it is predominantly by a subjective test.

In the Netherlands a great deal of research work has been carried out in this field by the Foundation for Psycho-technique by testing a large number of pilots who had been successful, less successful and insufficiently successful, and analysing the results of the tests.

The result is that a fairly good insight has been obtained in those parts from which the character assessment has to be built up, and for appreciating the fitness of character or otherwise of the candidates for flying.

These parts are :

1. *Intelligence*
   - (a) clarity in thinking, imagination, conceptive faculty, endowments.
   - (b) commonsense.
   - (c) mental alertness, adaptation and co-ordination of the data.
2. *Adaptation and qualities*
   - (a) social intercourse, quick adaptation.
   - (b) capacity to adapt one's self to changing conditions and events.
   - (c) panic.
3. *Field of perception*
   - (a) survey, integration (organization of the field of perception), degree of consciousness (degree

of continuity in unconscious concentration in respect of the field of perception).

4. *Sense of responsibility*
   Seriousness, thoroughness, loyalty.
5. *Self confidence*
   Morale, assurance in performance and action.
6. *Balance*
   Firmness of character structure, vitality, nervousness.
7. *Attitude toward the work*
   Enthusiasm.

Although an experienced psycho-technical institute will usually be able to provide a picture of the character of the candidate, based on the aforementioned points, there is always the objection of the *snapshot* (to use a photographic term) taken of the young man who is suffering from a sort of examination nightmare.

The test in such a psycho-technical institute does not last longer than one or two days, and the candidate knows that from the first to the last minute he is under constant observation. The whole of his flying career depends on this concentrated and short investigation. Another factor is that the test does not take place against the background of the world of aviation in which the candidate, if he is to succeed, must feel happy.

Without entirely rejecting a psycho-technical test —as an extra check for admission it would surely be of use—a snapshot taken under the pressure of an examination is certainly not the most suitable means of determining the characterological aptitude of a candidate wishing to become a pilot.

A *long, unconstrained observation* in an *environment of aviation*, where the candidate actively and with sheer pleasure participates in flying as a sport, is much better suited for the purpose. Such an environment is to be found in the community of glider-pilots. The young people can take part in gliding a few years before attaining the age at which they can be trained as pilots of powered planes. The various activities which have to be carried out in a gliding club—a pupil there has not only to fly hinself, but also to help others to fly (teamwork !)—provide an excellent opportunity for observing the various parts of his character, which are not so easily observed during actual flying.

Furthermore, the experienced instructor gets a good idea of the aptitude for flying with the dual control method of instruction which is common everywhere these days. In a word, provided it be practiced for a few years—therefore not only in a course at the gliding school—*gliding is the method 'par excellence' for the grading of future airline and military pilots.*

Apart from that, practising gliding before applying for admission to an airline or military pilot school, has this advantage for the candidate, that should he not prove to possess fitness to be a pilot, or if flying failed to give him what he had expected to get out of it, he can retire quietly from the world of gliding ; he then gives up a sport, but has not been found unfit for a job.

Finally another advantage is that parents, who are often opposed to flying as a career—whether military or civil—grow *sympathetic* to flying and more *familiar with aviation* in general when their young sons join the gliding movement.

Let us not forget that gliding is a perfect means too of *fostering air-mindedness* amongst the whole population, especially when in a country, as a result of the situation of civil and military airports, a great part of the population does not come in close contact with aviation.

If gliding is to be made full use of in any country as a method of grading, then there must be *flourishing gliding clubs* spread over the whole country, equipped with good material and staffed with competent instructors and technicians, whilst a number of *gliding schools* also spread over the country—where, to *relieve* the gliding clubs, young people can receive elementary training in the so-called ' scholars' courses ' —may play a very useful part. After such a scholars ' course the young people must join a gliding club if the effect of gliding as a means for assessing their suitability in an *unconstrained* atmosphere and on a long-term basis is not sharply to decrease in value.

A *central gliding school* where the club instructors can be prepared for their new task, among other things in the analysis of character of the candidates and the compilation of a character sketch such as I have already given, and where the club instructors can be taught uniformity in the system of instruction and appreciation, will further constitute an indispensable element in the grading machinery I have outlined. If the place where this school is established is so selected that it affords good thermal prospects, it can then also serve as the *high school* for gliding as a whole, thus for training in *performance flying.*

If a state recognises the value of gliding, in the use made of it as sketched heretofore, as a means of grading ' par excellence ' for future airline and military pilots, and if the state wishes to make use of it, then the Government of that country will have to ensure that, via the national aeroclub or national gliding association, ways and means exist of maintaining sufficiently flourishing gliding clubs and of establishing gliding schools. The gliding clubs will then take on themselves an enormous task, but on the other hand will themselves profit from the resources provided for them by the Government, to keep their material equipment up to the mark or to add to it.

The young boys of 15 to 18 years who wish to take part in gliding cannot, speaking generally, themselves defray the expense of this sport. Here, too, in its own interest the state will have to step in. If, however, through a better grading system even only a few accidents can later be prevented, the Government subsidy will pay for itself with interest.

Moreover—so organized—gliding will, besides being an excellent grading apparatus, also become *a valuable recruiting institution.*

In my country, Holland, where the authorities have for many years already granted assistance to gliding, the Government last year approved a 10-year plan submitted by the Royal Aero Club, by which a big *subsidy* and considerable amounts will be given for *capital expenditure*, provided that a sufficient number of youths are trained.

The results achieved in my country with gliding as a grading and recruiting institution were successful

IRELAND TO — IBERIA

By S. M. O'BRIEN

THE 'Viscount' lifted her wheels off the rain-washed runway at Dublin Airport and nosed upwards through the overcast. The city was blurred and quickly blotted out by the mists streaking beneath us, but we soon emerged into brilliant sunshine. Over the sea our aircraft climbed like a homesick angel until the Captain put her 'on the step' at 20,000 feet. He told us over the intercom that Liverpool was down there somewhere. But we saw only an ocean of cloud—all England seemingly blanketed by ten-tenths strato cu. We were on the first leg of our journey to Huesca, Spain, where we would undergo a fortnight's gliding course as guests of the Spanish Government.

Over Calais the turboprops throttled back to a gentle purr and we sank—like a 'Cadet'—through four miles of smooth air until Le Bourget swept across the horizon and rose to meet our wheels. A crowded day in Paris ended when, at Gare Austerlitz we tumbled into very welcome couchettes on the



S. C. O'Grady, left, and S. M. O'Brien with 'Fiesler Storch' Tug

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THE VALUE OF GLIDING AND SOARING FOR TRAINING AIRLINE AND MILITARY PILOTS—*continued*

to such an extent that the improvement of the system, on the basis of the theory developed in this lecture, was obvious.

It is the task of the OSTIV to establish the value of gliding and soaring for the training of airline and military pilots in a report so that our member-aeroclubs may be able to use it to convince their Governments of its usefulness.

This study will have to contain :

(a) *Statistical data* on a number of recent courses for airline or military pilots showing the promotion of the percentage of non-glider pilots to glider pilots who
   1. have withdrawn during the grading for flying powered planes ;
   2. were admitted to the course of training ;
   3. during the course of training were rejected on account of insufficient aptitude for flying.

(b) *The stage of training* the candidate glider pilot must have attained and the experience he has gained in order to be marked for admission to a course of training for airline and military pilots. It will be necessary to bear in mind the time the candidate must have spent in gliding, the sort of gliders with which he must have flown, and the nature of the flights.

(c) *A report on the system of judging*, which was applied to the candidate airline or military pilot during the period spent in gliding. It will have to be stated how appreciations should be brought to the notice of the competent authorities.

(d) *The way* in which the gliding equipment will have to be financed in order to achieve the maximum degree of efficiency.

(e) The *medical requirements* and the requirements in respect of general education which the 'candidate professional pilots' will have to satisfy to be admitted for gliding, whereby however I want to emphasize that I do not mean to say that candidates found physically unfit as airline or military pilots should be excluded from financial support which enables them to glide. Those *who are physically unfit* for these spheres of activity, but with a strong desire for aviation, often form the *permanent kernel* of gliding clubs.

Since 1951 the data referred to at (a) in the Netherlands for candidates for, and pupils of, the airline pilot school (School for K.L.M. and other airlines) have been collected.

I would like to give the figures for the 1951 annual classes, the pupils of which left the school after a course of training lasting 2½ years, but without assigning an absolute and permanent value to these.

1. Those who withdrew during the grading for powered aircraft : non-glider pilots 16%—glider pilots 0%.
2. Admitted to the course of training : non-glider pilots 29.7%—glider pilots 90.9%.
3. Discharged during training on account of insufficient aptitude for flying : non-glider pilots 13.3%—glider pilots 0%.

I trust that this introduction may lead to the formation of a study group in our organization, which, among other things, will have as its task the preparation of a report from which will clearly emerge the value of gliding and soaring for the training of airline and military pilots, so that our member-aeroclubs will have a valuable document enabling them to convince the authorities in their countries of the necessity to support and show their interest in the gliding movement.

(Reprinted from 'Soaring.')

Pyrennean Express. Regaining consciousness at 07.00 hours, we dropped off at Pau where a frontier connection was waiting to haul us several thousand feet into the Pyrenees. Another border, customs, passports and two changes of trains, and we finally rolled into Huesca. The Hotel Pequenin seemed to have the most refreshing showers and the iciest 'cerveza' ever sampled by dusty, travel-stained tourists. At the reception desk we were startled to hear a familiar voice, and turned to find 'O'G.,' the fourth member of the party. We thought we had crossed into Spain the hard way until he announced he had ridden his famous 'James' (125 c.c.) across the mountains!

Next morning we piled our bags into a Gliding School truck and rode in the Instructors' 'V8' to Monflorite, seven miles out of town. A signpost said 'Escuela de Vuelo sin Motor' and suddenly we were at journey's end. John, already reeling off Spanish with native fluency, piloted us through the various formalities, and we sauntered on to the field where huge, gangling 'Fiesler Storchs' were busy hauling off 'Kranichs' and 'Grunaus.' On the ridge slope a squad of youngsters were playing with an open Primary and bungey. By the time we had seen everything and were fully documented, flying ceased for the day (2 p.m.)—only O'G. who was checked out on a 'Kranich' had flown. By stages on succeeding days, however, we all became airborne and after confinement in cramped cockpits, found the 'Kranich' a veritable airliner. In this sailplane we got on familiar terms with a trio of interesting characters. There was Mr. Ned L. Ball, a very nervous type and extremely sensitive when things took a bad turn. He had to be constantly placated. We had Senor D. Gyro, who appeared to be always in a drunken stupor and very rarely kept a straight line. And finally there was Herr Speed, who must be of nomadic descent for he could not stay in one place for very long. We could manage these fellows individually but it was another job to get them to agree with each other.

Normally all landings were made downwind. In the front cockpit you found yourself streaking back to the launching point with the hot breeze on your tail shoving the knottage up alarmingly and El Professor holding hard back to keep the tailskid in intimate contact with the ground. When the wind freshened, however, we would shift camp to the other end of the strip. The breeze was as welcome as the shadow of a wing, for all day and every day a broiling sun beat down from the cloudless Mediterranean sky, starting dust-devils which waltzed across the runway to disappear as thermals. The strange thing about the thermals was that they all stopped short at about 3,000 feet. Sometimes the ceiling was lower and there were conditions in which the tug could lift us at no better than 3 f.p.s. and would overheat her engine. We discovered also that clear air could be as rough as cobblestones and the turbulence cracked a tow-line or two. Normally the policy was to leave the 'Storch' to its own devices—ups and downs cancelling themselves out—but in very rough conditions it seemed advisable to follow the tug with about half the usual stick movement.

We averaged seven or eight trips in the 'Kranich' before we were entrusted with the 'Grunau.' 'Reeshard' was first off and afterwards celebrated his solo by being introduced to several clumps of thistles and then getting ceremonially dumped in the garden pond. At first O'G. flew 'Kranichs' single-place and kept them aloft for periods of up to two hours at a time—he too hit a ceiling at the 3,000 feet mark. Then they wheeled out a 'Weihe' for him and he added some more hours to the total.

Our spells of activity on the dusty airstrip were broken by regular trips to Huesca and its swimming pool. On the week-end we ran down to Zaragoza—



Spanish Built
'KRANICH'

in a bus which suffered from speed wobbles at 35 m.p.h.—and there saw six brave bulls come to a sticky end. There are some delicate points in the appreciation of bull-fighting: did you know, for instance, that when the matador buries his four-foot sword between the bull's shoulders, various cloak-bearers play the animal from side to side so that the swaying motion causes the blade to whittle rashers off the bull's heart? There's more to tell of Zaragoza, but we must needs return to things aeronautical.

In the hangar at Monflorite was kept 'LO 100,' a little bullet of a sailplane. Her A.S.I. was clocked to 250 m.p.h., and we could hear her whistling from 3,000 feet as she flashed through a display of aerobatics. We were told that Germany swapped her for a 'Kranich' and that two more were on the way to make an aerobatic team of three. Watching the little craft take off, we could see how touchy she was on control, looking just about as stable as a bottle of nitro-glycerine. A veteran 'Weihe' was there too, with a searchlight in its perspex nose. This was fitted when the machine was used in a crack at world duration which ended a mere two hours short of the record. At night the pilot used to climb to 18,000 feet in wave lift off the Pyrenees. They told us how two intrepid birdmen, soaring a 'Kranich' over Huesca, thought they might try a loop or two and how the 'Kranich' wasn't having any—four objects descended on the town at varying speeds, to wit, one wing, half a 'Kranich' and two parachutes. Also how, one day, the C.F.I. snapped an elevator cable in another 'Kranich' and was just about to 'hit the nylon' when he tried levelling her up on the trimmer. It worked. It was he too who once brought back the tug with a dead vulture in the cabin and a big hole in the windscreen.

On the eve of our departure, having qualified for the Spanish 'C' certificate, we signed the Visitors' Book and saw that people had come to the school from places as far apart as Finland and Chile—which accounted for the collection of multicoloured pennants and bannerets in the dining hall. We had a number of Germans with us, and a plane load of Americans was due to arrive on the week-end. Why does the Spanish Government do all this? If it is a gesture of international goodwill it is an excellent thing. Certainly we from Dublin, starved for two-seater training and aero-tow initiation, were deeply grateful for the hospitality shown us and the painstaking instruction we received. On the last night, in regular jamboree fashion, we bade farewell to our fellow course-members, Spaniards and Germans, with songs such as 'Lilli Marlene' and 'Roll out the Barrel' sung simultaneously in three languages. And the following morning we set out for Irlanda, a thousand miles away in the cold north. *Adios amigos! Hasta la vista!*

'THE SKY MY KINGDOM'

WE have been informed by Messrs. John Lane, Ltd. The Bodley Head, that publication of '*The Sky My Kingdom*' by Hanna Reitsch has been unavoidably delayed until later this year. A further announcement will be made.

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Report on the 'AV-36' to September 1954

By CHARLES FAUVEL.

UP till the end of September the Fauvel Flying Wing, 'AV-36,' had to its credit more than 500 hours in flight and had been flown by more than 200 different pilots—that is to say, in seven different countries and by pilots of ten different nationalities.—a total of well over a thousand take-offs and landings.

Throughout all these landings on very diverse types of field and with all kinds of atmospheric conditions, only on two occasions were there cases of slight damage. In both these cases, also, the damage was very small and able to be repaired in a few hours, so that the machine was flying again the next day. On take-off there was only one incident, and this was due entirely to the fact that the instructions were not being followed; for a pilot who weighed 85 kg., there had been placed in the aircraft as much ballast as for a pilot of 40 kg. (although there is no need of any ballast at all so long as the weight of the pilot—fully dressed and with no cushion—does not fall below 55 kg.). Besides this, the take-off was on a pebbly piece of ground, so that with too much weight forward the hook caught a stone and the machine tipped over. The pilot, however, was unhurt and the only damage was slight.

At the beginning of the year the prototype alone had had 250 flying hours, with 350 launches and 97 different pilots, having to its credit an excellent flight of 460 km., with Eric Nessler setting up an average speed of 71 km./h. There had also been numerous demonstration flights at various air shows and all this without any damage at all, even though many of the flights were made by young pilots without much experience. It is worth recording that all these made excellent landings simply because they had listened to the advice previously given to them, which was to hold off as long as possible till the touch down could be made at minimum speed.

It was observed, however, that certain skids and shock absorbers on some 'Wings' are rather less supple than on the prototype, and that the aircraft can easily bounce, especially on bad ground, if the pilot 'pumphandles' his stick instead of bringing her in quietly and steadily. To offset this, a new skid has been adopted, a little different and much more resilient, mounted also on better shock absorbers. We have thus obtained a much better landing which will not bounce even though the aircraft is 'sat down' from a height of half a metre. As soon as this has passed the C.E.V. examination the new skid and instructions for its installation will be sent out to the 87 amateurs who are already building the 'AV-36' in different parts of the world.

42 of the prefabricated 'AV-36' being manufactured by the firm of Wassmer were due to be ready by the end of October. Some of these are already finished and others nearly so. Doubtless they will all be flying by this spring at the latest. Overseas, besides Germany and Italy, there are some in Canada, the U.S.A., and a Swiss one now flying in Austria. All these have already given great satisfaction.

(*Editor's Note.* We announced in our last issue that Maalbergs of Lauterach was the first foreign firm to construct the 'AV-36' for sale. Mr. Fauvel tells us that Mr. Maalberg is not licensed to construct the 'AV-36'. We regret that we were misinformed).

MORE ABOUT THE JET STREAM (*cont. from p.* 16)

U.S.A., during his research into the locating of jet streams by means of ground observation of cloud forms, are extremely interesting. Enlisting the co-operation of the Forest Fire Rangers in the taking of time-lapse motion pictures of cloud forms from their look-out towers, he has discovered a positive relationship between the incidence of certain types of thunderstorms which cause forest fires by lightning strikes and the close proximity of the jet stream overhead.

Dr. Schaefer's research of jet streams by observations from the ground result in a remarkable similarity to the author's own findings aloft in the air, although they have been conducted unbeknown to one another. Upon discussing the various characteristics and other aspects of these phenomena with Dr. Schaefer and his colleagues, not one major point of difference was discovered.

Due to its in constant and sometimes irregular path, the jet stream cannot always be utilized advantageously by the regular airlines. Nevertheless on a large percentage of occasions, a diversion of track on long-haul eastbound ocean flights, enabling some advantage to be taken by intercepting the extremely high winds associated with the jet stream (even at the penalty of travelling some extra distance) will more than pay dividends in reduction of flight time. When one considers that a reduction of 10 to 15 per cent of actual flight time over that anticipated in the flight plan can be made on many occasions, amounting, say, to a saving of one-and-a-half hours, its advantages are obvious.

Winds exceeding 200 knots have been experienced by pilots over the North Atlantic. A westerly wind observation at Stephensville, Newfoundland, on 22nd January this year gave measurements of 258 knots at 20,000 feet and 328 knots at 32,000 feet.

By good meteorological coverage (and here the weather ship's upper air observations will prove invaluable) it should prove possible to plot the jet stream fairly accurately, and hence predict the path of these narrow bands of high velocity winds, and enable them to be utilized or avoided according to circumstance. The determination of their precise location however will finally fall to the lot of the pilot and maybe this article and its predecessor will prove of some assistance.

LETTERS

(The Editor does not necessarily agree with the opinions of his correspondents).

GENTLEMEN,

Please be so kind as to forward at your earliest convenience the August, 1952 issue of *Sailplane and Glider.*

The enclosed $1.00 is our smallest mailable sum of money, so please use the balance to help defray expenses and help get your wonderful magazine back on a monthly basis.—**James A. Carr, White Street, New York.**

SIR,

Midget Sailplanes.

Whilst I see no reason to suppose, as Grace Hoinville does, that O.W.N. was referring to the 'EPB-1' when he compared 'another midget sailplane' with the 'Horten X' I nevertheless find myself agreeing with most of her comments.

My first reaction to the description of the 'flying winglet' was one of great enthusiasm, but second thoughts about the value of my legs and also the probable effect on various authorities concerned with safety damped my ardour to some extent.

The 'EPB-1,' however, sounds a much more practical proposition from that point of view and I am consequently anxious to learn more about it. I would particularly like to know if any plans and instructions are available to would-be home constructors like myself.—**E. A. Cunningham, New Costessey, Norwich.**

SIR,

A friend of mine, who lives in London, has sent me several issues of *Sailplane and Glider*. I have found it to be a most interesting publication. It is to be regretted that it appears only six times a year.

It seems to me that with the increased interest in home built aircraft your coverage could be broadened and thus attract a larger number of readers. I for one would like to see more on the 'ultra lights.' Articles on home construction methods would be most useful to those of us who prefer, or are forced, to build our own ships.

The frequent articles and letters asking for a small, light sailplane design have found a ready welcome with me. Those of us who live an excessive distance from any club need a plane that can be handled by two men. The article on the Argentine 'Flying Winglet' was most interesting. Is there a chance that photographs and drawings might appear in your next issue? I am extremely eager to learn more concerning it.

Kindly convey my sentiments on the 'Horten X' to O.W.N. I for one could certainly use such a midget sailplane.—**Don Santee, Salem, Oregon, U.S.A.**

SIR,

I was rather surprised to read Grace Hoinville's praise of the human bottom as a shock absorbing cushion.

Anyone who has taken his due share of falls while riding can certify that landings on posteriors are more dangerous, and certainly more painful, than touchdowns on any other part of the anatomy.

Her remarks concerning the 'Horten X' were prejudiced to say the least.

Surely this is the sailplane which will really make the pilot independent of expensive gliding sites, and the hordes of 'helpers.'

It is the most promising key to cheaper soaring.—**D. Jones, London Gliding Club.**

SIR,

Having read in the *Sailplane and Glider* of particulars of midget sailplanes, could you let me know where more details could be obtained?

I have for quite a long time been working on flying wing models with the object of building up to a piloted sailplane of this type with the advantages of such.

I have been greatly encouraged and helped by Mr. J. A. I. Reid's article on a 25 ft. span glider.

The later information re the 'Horten X' was very interesting. The later article by Miss Hoinville amusing and interesting. Where can more be learned of the 'EPB-1' mentioned in that article?

I am at present working out ways and means of getting a Gliding Club under way in this town and district. It is not as easy as I at first thought possible. In fact when the idea is mentioned one gets the sort of startled looks, and sudden end to further talk, that so often indicates the unspoken thought 'poor fellow.'

The local paper has just given me something of an opening, and am hoping for signs of interest from the Royal Navy, in the near future.

A town of this size, with the surrounding country we are blessed with, and no Gliding Club!

Hoping for an early return to a monthly issue of *Sailplane and Glider*.—**E. A. Wagg, Plymouth, Devon.**

CLUB NEWS

It is hoped to maintain regular reports from clubs at home and overseas, issue by issue, under this heading. Club Secretaries are invited to send items, with photographs, if possible, to the Editor for inclusion.

THE BLACKPOOL & FYLDE GLIDING CLUB
Blackpool (Squires Gate) Airport, Lytham St. Annes.

Annual Dinner and Dance.

Our Fifth Annual Dinner and Dance was held at the Queens Hydro Hotel on Friday, 10th December.

Gliding.

We have recently purchased a Slingsby 'T.21b' two-seater dual control training sailplane. This is recognised throughout the gliding movement as being the ideal method of pilot training. Gliding takes place here at Squires Gate Aerodrome every Sunday, commencing at 10.30 a.m., and carries on until dusk. The training programme will be extended to include several mid-week evenings in late Spring and Summer. Social Members and their friends who would like to know more about this increasingly popular sport are recommended to contact the Honorary Chief Instructor (Jack Aked) or any Flying Member. Joy flights are available to Social Members by arrangement.

D. CARDWELL.

DUBLIN GLIDING CLUB

WE can look back on a very successful year in the development of the club. We acquired another 'Grunau' and three 'Cadets.' A full turnout of the Sailplanes shows two 'Grunaus,' a 'Kite II A,' and

a 'Petrel.' Not bad considering we started two years ago with a U/S. 'Grunau' and we have no Kemsley Trust to assist us.

We received an invitation from the Spanish Air Ministry to send some of our members to Huesca and five accepted. They were John Byrne, Sean O'Brien, Dick O'Sullivan and Standish O'Grady (Newcastle-on-Tyne) and later in the year Norbert Reilly also accepted this generous offer. All returned delighted with their experiences and the hospitality they received.

As our home base at Leixlip rather restricts our activities not only because of its small size, but also due to the innumerable 'Tigers,' 'Cubs,' and 'Swallows' buzzing around on circuits and bumps we are interested in two other sites. Early in the year we operated at Baldonnel military aerodrome but had to leave when grass cutting commenced. Fortunately we then got permission to use The Curragh, Co. Kildare, and here we spent the entire summer. This Irish equivalent of Salisbury Plain gave us immense scope. Using piano wire and a 30 h.p. Ford car we got launches of 2,000 feet. Contrary to our expectations nothing spectacular resulted, whether due to our lack of experience or the appalling weather we are not sure. Whenever thermals were contacted the wind was from the North, causing the sailplanes to drift over the military buildings which was very much *verboten*. Con McNulty had to abandon a very promising flight due to such circumstances.

The most outstanding flight of the year was made appropriately enough on St. Patrick's Day, March 17th, by John Byrne. Launched in the 'Petrel' to 700 feet at Leixlip in a bitter north-east wind he immediately contacted lift and climbed on what seemed to be a wave to 3,300 feet. He decided to land after more than a hour because of the cold. By a strange coincidence another of our members, Paddy Murphy, completed the distance and height legs of his Silver 'C' on the same day in Egypt.

Little flying could be done during the winter due to the bad weather but the time was well spent on repairs and the construction of three new trailers which will be required next season. Several excursions were made to the Dublin-Wicklow mountains to search for a suitable ridge site.

We welcome to our ranks Ralph Slazenger, founder member of the Cambridge University Gliding Club, who is now living at Tullamore. He has brought his 'Gemini' and is generously allowing our club to use his 'Kranich' sailplane.

Probably the most interesting development during the past year was the formation of new clubs at Limerick, Birr, and Borrisoleigh, all of which were organised by local people with either power flying or gliding experience. They are equipped with ex A.T.C. 'Cadets.' In all fourteen of these gliders were bought very cheaply and they will be of immense value to the movement here. We took most of them over in the capacious maw of a 'Wayfarer' through a special arrangement with Aer Lingus which was negotiated by the Irish Aviation Club. The I.A.C. is the controlling body here and it was reconstituted about a year when it received the financial support of our National Airline Co.

W.F.



Members of the Dublin Gliding Club at the Curragh site with 'Grunau,' 'Kite II,' and 'Petrel' during the 'rainy season' last summer.

News from Australia

By Fred Hoinville.

Death of well-known Australian Glider Pilot.

Martin Warner died in Sydney on December 16, of leukaemia, after a long illness. He was a member of the Sydney Soaring Club, and held a Gold 'C' with Height Diamond, and the Australian Altitude record. At various times he held many other Australian records, and had been in gliding since before the last war.

Minimidgets.

Yet another design has now been flown. Jas. A. Wood, of Port Wakefield, South Australia, has test-flown his new 'Minimidget.' Based on the 'H-17,' it uses the same fuselage with Minimidget wings, which are two-piece and strut-braced, and rectangular in plan, with rounded tips.

Ten short flights were made to test flying characteristics, and no measurements have been attempted yet. Although flown without any cockpit cover at all, with considerable loss of normal efficiency as a result, it was found that a very gentle stall occurred at 28 m.p.h., and that the glide angle at 60 m.p.h., was very good.

This machine has been named 'Chicken Hawk.'

The Backstrom 'Flying Plank' Minimidget was demonstrated at an Air Show at Grand Prairie recently, and was the 'hit' of the show. Jock Powell took it to 8,000 feet for a two-hour jaunt. Landing speed of this machine is about 30 m.p.h.

There has been much discussion of the most practical method of launching for midget gliders, usually involving comparisons between the Backstrom version and the 'Horten X.'

My view is that leg-launching and leg-landing, as with the 'Horten X,' may appear to be practical, but in fact are not so, because of the unlikelihood of ever finding a wind of just the right strength. A lesser wind will not launch the glider at all, and a slightly stronger wind will endanger both pilot and glider. Also, suitable slopes are rare in any country, and non-existent in some. In most places, such slopes are so distant that the cost and inconvenience of reaching them negatives the cheapness of the ultimate launch, if any . . . if the wind is the right direction and strength. It is notable that the prototype 'Horten' has never yet been launched by leg alone, although it has been flying over a year.

Therefore, although the 'Horten X' is an interesting and valuable experiment, I feel that it will not be practical until it has been re-designed for normal launching. The 'Backstrom' and other Minimidgets can be car-towed, by very small cars, too, in the nearest cleared field, or even on a deserted road. Certainly there is no need to travel as far as a slope site.

Far from wishing to belittle the 'Horten X,' I feel that it is basically very sound, and that the design could be altered as required for normal launching without increasing the man-hours of construction. However, unless the pilot cabin was altered to allow an upright seat for the pilot instead of the prone position—which can also be done without much difficulty or cost—I feel that the landing hazards are too high for novice pilots, or even for experts, if very large numbers of these machines are to fly. Even the simplest minor overshoot in landing could well be fatal, and all pilots make mistakes.

I think it should be a cardinal rule that any glider design which is likely to be mass-produced should have its hazards reduced to the minimum in the design stage. This need not apply to special gliders which are made in very small numbers for specialists who understand the risks and are prepared to take them.

Accidents will always be with us, in much the same proportion as usual. Let us design our gliders so that our pilots will only be hurt, not killed, when the mathematically inevitable happens.

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'THE PLAIN MAN'S GUIDE TO GLIDING'

By Godfrey Lee. Copies of this instructive booklet are available from 'Sailplane' Office, price 6d. per copy.

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18995	P. L. Bethray	No. 125 G.S.	8. 8.54
18996	M. J. Box	No. 126 G.S.	4. 7.54
18997	V. H. McElhinney	No. 186 G.S.	28.10.54
18998	D. G. Kuyper	London G.C.	20. 8.54
18999	R. S. Newby	No. 143 G.S.	30.10.54
19000	D. Pedrick	No. 168 G.S.	24.10.54
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19012	R. Mason	R.A.F., White Waltham	13.10.54
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19016	P. W. Williams	R.A.F., Oldenburgh	21. 2.54
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19018	K. L. Moorey	Yorkshire G.C.	19.10.54
19019	R. B. Benson	No. 188 G.S.	3. 1.54
19020	C. B. Pelham	No. 106 G.S.	27. 8.54
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19023	J. C. Littleton	No. 143 G.S.	31.10.54
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19025	H. V. Main	No. 31 G.S.	31.10.54
19026	A. ≅. Jones	Midland G.C.	19. 9.54

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19030	D. M Puddephatt	No. 106 G S.	10.10.54
19031	A. E. Leaning	No. 22 G.S.	7.11.54
19032	J. A. G. Luck	No. 106 G.S.	7.11.54
19033	R. S. Wood	No. 23 G.S.	7.11.54
19034	N. A. Groucutt	Coventry G.C.	10.10.54
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19106	M. Bains	No. 102 G.S.	6. 8.54
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11169	J. P. Hannan	No. 203 G.S.	17.10.54

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19057	D. O. Jones	London G.C.	4.10.54
19075	R. H. Gentry	London G.C.	30.10.54
19076	F. D. G. Gentry	London G.C.	30.10.54
13694	R. Way	R.A.F., Bruggen	7. 5.54
15631	R. Haddock	No. 87 G.S.	15. 8.54
16655	D. S. Rennison	Yorkshire G.C.	27. 6.54
16943	W. Parker	Avro G.C.	7.11.54
17357	F. M. Rigby	H.C.G.I.S., Detling	29.10.54
17432	J. V. Ilett	Avro G.C.	10.10.54
17572	J. A. Abbott	R.A.F., Bruggen	7. 8.54
18136	D. G. N. Hunter	London G.C.	24.10.54

'Elementary Gliding'

We have just received a copy of *Elementary Gliding*, by Paul Blanchard, formerly Chief Flying Instructor of the Cambridge University Gliding Club and the Surrey Gliding Club.

This book has much to commend it. It is a manual designed to be a source of basic information to which the pupil learning to glide, can refer in order to refresh the memory on the flying instruction received.

The first part contains a simple account of the fundamental principles concerned with the flight of a glider. The later chapters are concerned with the various flying exercises taught during early training. Here is outlined the fundamental basis; the actual technique can only be acquired by constant practice under skilled supervision.

A few points of interest to more advanced pilots have been included in the Appendix.

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18636	P. C. Walsh	Coventry G.C.	10.10.54
18907	A. F. Walker	London G.C.	30.10.54

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'B' .. 64
'C' .. 9
Silver 'C' 1
Gold 'C' —

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19109	H. L. Lloyd	No. 84 G.S.	10.10.54
19110	A. G. K. Donald	No. 5 G.S.	9. 7.54
19111	R. Hannington	No. 22 G.S.	28.11.54
19112	E. T. Ware	R.A.F., Feltwell	31. 7.54
19113	Sheila A. Wagstaff	Perak Flying Club	22. 8.54
19114	W. M. S. Parsons	No. 89 G.S.	13. 8.54
19115	C. Wharton	No. 22 G.S.	14.11.54
19116	B. F. Cooper	No. 143 G.S.	5.12.54
19117	J. W. Thornhill	Derby & Lancs. G.C.	29. 5.54
19118	A. G .Pearson	No. 130 G.S.	18.10.53
19119	R. Walker	No. 188 G.S.	10.10.54
19120	C. J. Kitley	No. 142 G.S.	21.11.54
19121	A. Whitehead	No. 188 G.S.	3.10.54
19122	J. McConvey	No. 188 G.S.	3.10.54
19123	G. A. Moy	No. 31 G.S.	14.11.54
19124	F. D. Hillebrand	R.A.F., Moonrakers	28.11.54
19125	C. H. Hewes	No. 24 G.S.	3.10.54
19126	J. C. E. F. de Salis	No. 143 G.S.	28.11.54
19127	A. J. Scott	R.A.F., Moonrakers	5.12.54
19128	P. B. Hawkins	No. 92 G.S.	14.11.54
19129	M. B. Beck	No. 102 G.S.	5.12.54
19130	B. A. Stuart	R.N., Bramcote	13. 9.54
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19132	D. J. S. Marchant	No. 122 G.S.	5.12.54
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19134	G. L. Farm	No. 2 G.S.	24.10.54
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19136	W. K. Taylor	No. 48 G.S.	24.11.54
19137	J. Howie	No. 7 G.S.	4. 8.54
19138	C. Meleson	No. 89 G.S.	19. 6.54
19139	G. M. Lewis	Derby & Lancs, G.C.	14.11.54
19140	R. A. Pyle	No. 22 G.S.	28.11.54
19141	M. D. Stubbs	No. 125 G.S.	11. 7.54
19142	D. G. Warren	No. 89 G.S.	14.11.54
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19147	M. Fleming	No. 45 G.S.	14.11.54
19148	K. P. Austin	R.A.F., Cranwell	10. 7.54
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19150	B. R. Wilson	No. 125 G.S.	5.12.54
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19168	R. A. Gaiger	No. 168 G.S.	20.10.54
19169	M. H. Walker	No. 24 G.S.	14.11.54
19170	K. R. Petrie	No 5 G.S.	31.10.54
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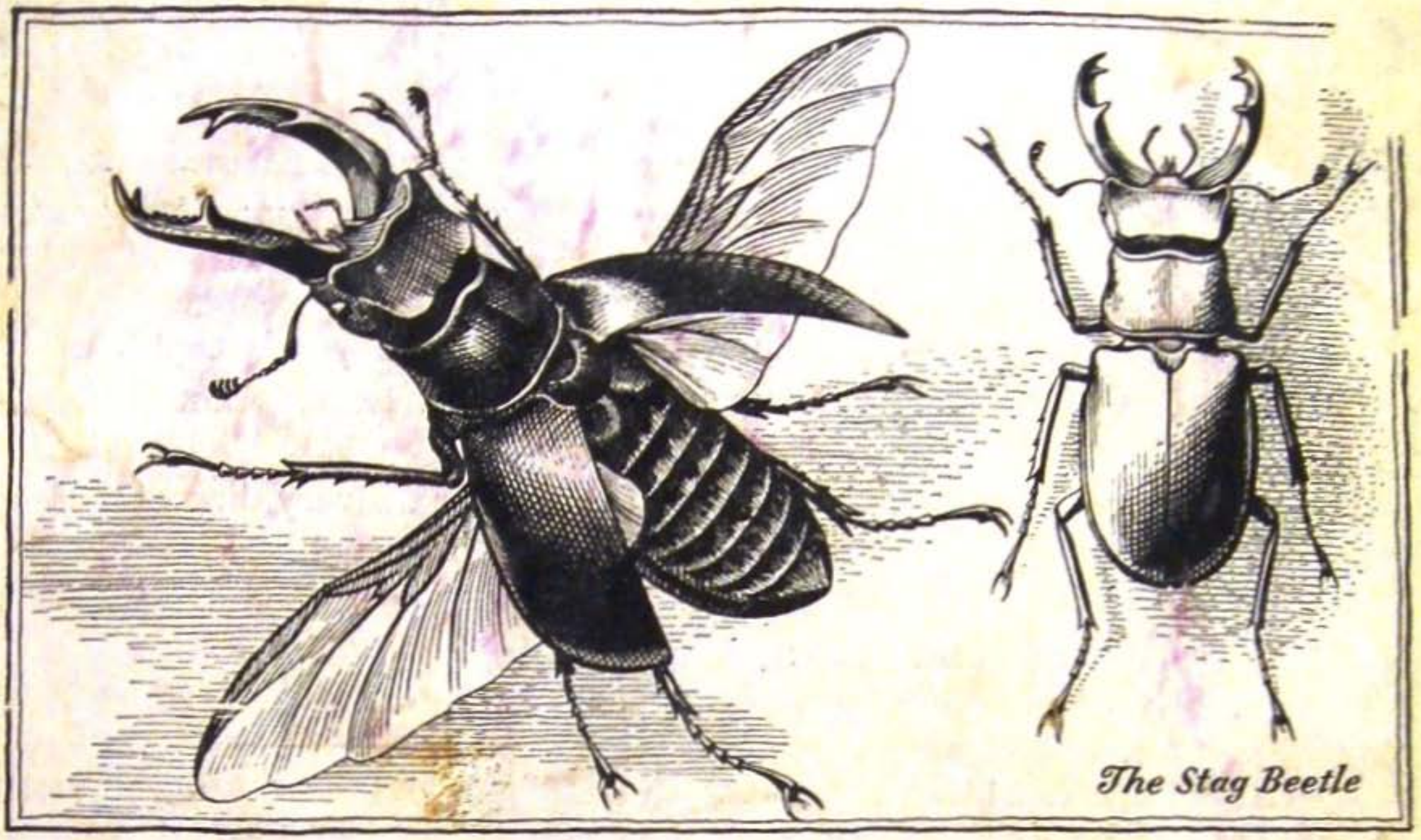
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