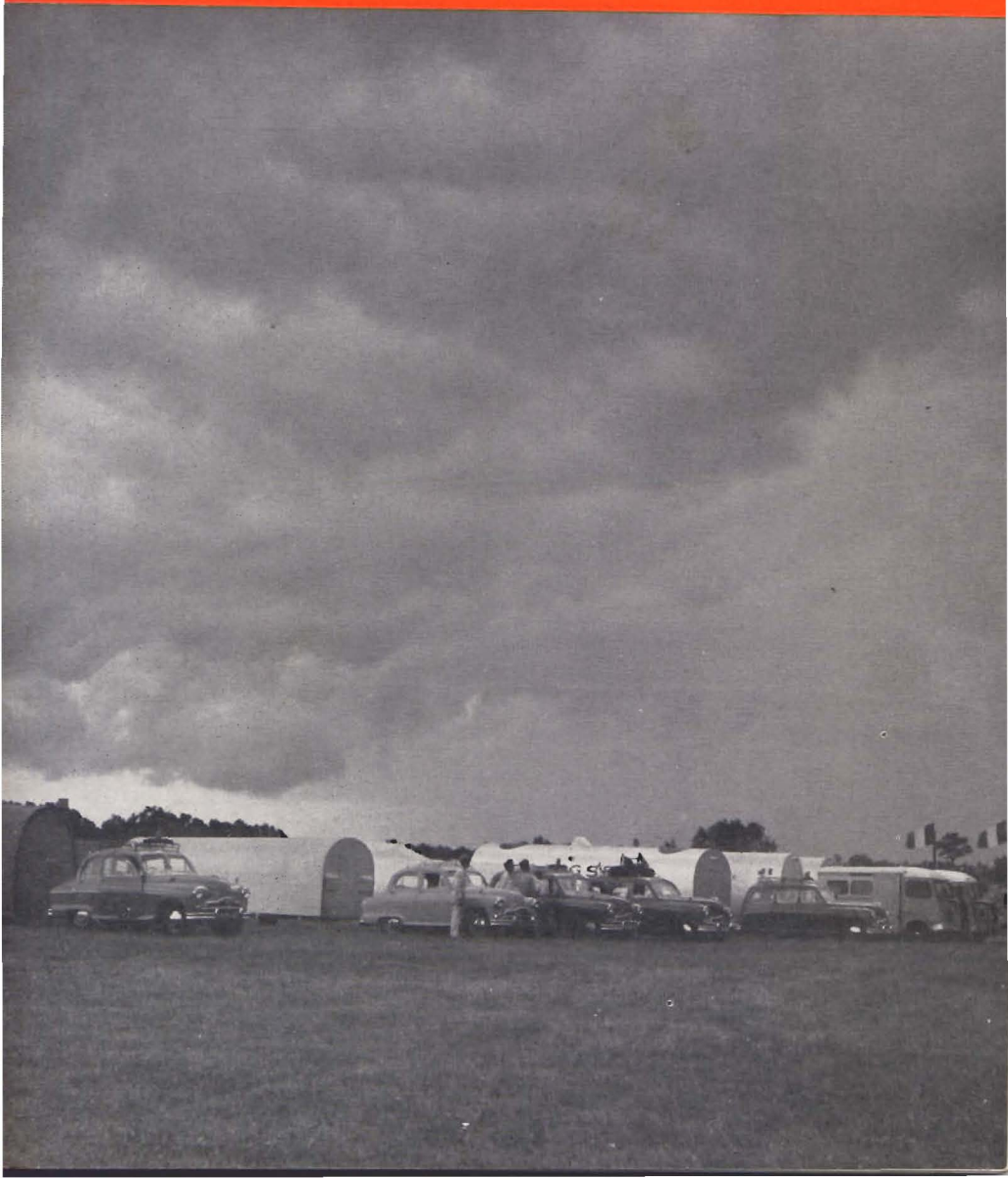


Sailplane ^{and} GLIDING

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SAILPLANE AND GLIDING

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INTO THE WIND.—Trailers and cars drawn up to face an oncoming storm at St. Yan.
Photo by Philip Wills, processed by E. Baker.

24,000 ft. OVER CANTERBURY

by S. H. Georgeson

THERE is no particular merit about this flight but it is described for those who are interested in waves and wave flying. The day of the flight was typical of the conditions which produce waves. A depression centre was passing to the south of South Island and a warm front approaching the Southern Alps across the Tasman Sea. A N.W. arch was beginning to form along the Southern Alps at about 30,000 ft. and roll clouds were forming at about 6,000 ft. in the lee of the ranges. The aim of the flight was to try and enjoy some wave-flying and to try and learn a little more about how to use the waves. Also, we can't have Philip Wills holding our height records all the time, and therefore we must at least try to alter this situation.

I therefore took off in the Weihe at 15.20 on March 24th, 1956, towed by John Neave, Chief Instructor of the Canterbury Aero Club. We passed through the first wave over the Waimakariri River at 4,000 feet. After the next downdraught had been passed through, the second wave was entered about half-way up the Eyrewell forest and I released at 6,000 feet after steady lift had been encountered for one minute. At this height, flying at an airspeed of 45 miles an hour, my position remained stationary over the ground. Lift was approximately 5 feet per second, and after the 8,000-foot mark was reached I had to reduce speed continually in order to stay in the same place. I was eventually flying at 35 m.p.h. and making slight headway, so I had to resort to ridge-soaring technique in order to stay on the wave.

At 9,500 feet the lift stopped. I therefore set off upwind and after passing through two waves arrived at 6,000 feet in the lee of Lees Valley and also in the lee of a roll cloud. I could see that the front of the cloud obviously had tremendous lift. I therefore decided to enter the cloud in an effort to get forward to the leading edge. Conditions became extremely turbulent with lifts and drops of 20 feet per second shown on the variometer. It was very disconcerting at one moment with 20 feet per second up and at the next moment 20 feet

per second down. I considered the turbulence too great for comfort, and although I don't think the structure of the aircraft at that stage was being over-stressed, I felt if conditions became much more turbulent damage could occur. I therefore turned downwind to the next wave.

It is worth while noting here that to progress upwind against waves was relatively easy. Normally this has been found extremely difficult in nor'-west conditions and I remember on one occasion losing 10,000 feet in approximately 3-4 miles. I entered this particular wave at about 6,000 feet and obtained good lift, although it came in strong surges until the 12,000 foot mark was reached. Here the wind velocity appeared to decrease further still and the air became smooth with reasonably steady lift. I again had to resort to ridge-soaring technique in order to stay in the waves.

At 18,000 feet the base of the first lenticular cloud was reached. Considerable cloud cover was developing at this height across the Canterbury plains and was due to the lenticulars becoming enlarged to such a degree that there was a very small gap between them. The 20,000-foot top of the lenticular cloud was passed, but when climbing up through the clear air between the two clouds I noticed small particles streaming off the lee of the lenticular in front of me and being carried through the valley and ascending again through the lenticular which lay downwind. The sun shining on these particles was a wonderful sight as they came streaming past the aircraft. I assumed that these particles were ice because there was no sign of moisture on the aircraft, nor was there any sign of ice except on the inside of the canopy. This ice was produced from my breath and after I had put the oxygen mask on at 16,000 feet it did not become thicker.

I was using the American Pressure Demand equipment and apparently sufficient condensation was taking place in the mask, thus preventing the moist air coming in contact with the canopy. This Pressure Demand equipment seems com-

fortable to use at low altitudes. The only disconcerting thing is the size of the mask, which is a good deal larger than the BLB type which I had used previously on wave flights.

Above the top of the lenticular clouds the brilliance was terrific due to the sunlight being reflected from the clouds. The air was completely clear except for cloud which could have been the trailing edge of nor-west arch. The top of this appeared to be about 30,000 feet. Wave lift became slow at 24,000 feet and unfortunately I did not have sufficient time, owing to commitments on the ground, to allow me to carry out further investigations. I was at this stage flying in the fifth wave which for some reason gave 2,000 feet more than the fourth wave. I think considerably more height could have been obtained by going back upwind and into the nor-west arch itself, the leading edge of which was somewhere over the Oxford range.

Conditions would have been very cold indeed if the cloud had been entered at this height, but in the clear air the sun was streaming through the cockpit canopy and I was very comfortable in flying clothes, but these would certainly not have kept me warm if I had been in cloud.

At 17.20 the ground was completely obscured in front of me by cloud and behind me the sky was broken as the lee-wave lenticulars had not joined completely.

I pulled out the dive brakes and descended through cloud in order to try and ascertain whether the cloud was formed by ice crystals or supercooled water. Again the aircraft showed no signs of becoming wet nor did any ice form. From the time I pulled out the spoilers at 24,000 feet until I landed on the ground was exactly 30 minutes. The high rate of descent was achieved by using the lee of the wave. The air was smooth until the 11,000 feet mark was reached. Here turbulence began again and I had to reduce speed in order to make flying reasonably comfortable. I also found it was easier to come down in circles rather than flying straight and level. This seemed to make the turbulence less severe.

Below is a table of wind speeds and directions which were taken at Harewood at about 15.30 by the local Met. Office. The easterly ground wind is typical in N.W. conditions in early stages of development. Sometimes the N.W. wind does not reach the ground, but quite often it does and a

110° wind change can occur in a few seconds and the wind speed go up to 30-40 m.p.h. This happened to Helen, my wife, when coming into land in the Weihe one day, and gave her a few interesting moments. Luckily she realised what was happening and managed to get within 45° of into-wind and reduce drift sufficiently not to cause damage. This is a problem which local pilots have to watch for all the time in these conditions.

The interesting thing is the decrease of wind with altitude; this is normally considered an unsuitable condition for wave flying, but from this flight it is evident that this is not always so.

This is the wind information for 24.3.56.—

Height (ft.)	Direction	Speed (kts.)
1,000	020°	13
2,000	320°	20
3,000	310°	23
5,000	300°	33
7,000	290°	28
10,000	280°	15
14,000	300°	25
18,000	300°	27
24,000	280°	21



RIDING THE MISTRAL

By Philip Wills (Reproduced with acknowledgment from "Flight")

BRIEFING time, the World Gliding Championships at St. Yan aerodrome in central France, July 11th, 1956.

"The task today", announced M. Eyraud from the platform, "is a goal race from St. Yan to St. Auban on the River Durance, a distance of 302 kms. The aerodrome on your maps is called Château-Arnoux. In view of the distance of this flight and the mountainous nature of the route the retrieving trailers must follow, there will be no contest tomorrow."

There was a rustle of excitement amongst his two hundred odd hearers, as M. Gerbier, the meteorologist, took his place on the platform and pinned up his cabalistic charts. He turned at last to his expectant audience and said: "*Nous avons aujourd'hui la situation classique du Mistral.*" It was enough. We were given today the longest, most spectacular, and possibly the most exciting goal race that had ever been offered a Championship Meeting.

The Mistral is a strange strong northerly wind that roars its way from Lyons for 160 miles down the regal valley of the Rhône to the Mediterranean. Either side of the valley is flanked by mountain chains, with the result that any north-westerly wind arriving at Lyons is funnelled and concentrated into the deep groove of the valley and becomes a fast steady northerly stream, hot and dry in summer, cold and dry in winter. This rapid corridor of air is also descending so that in summer it is quite cloudless, thus from a very great height the eye would see a river of cloudless hot air, thirty miles wide and one hundred and sixty miles long, cutting a straight line between vast areas of sky dotted with cumulus and wave clouds on either side.

From the sailplane pilot's point of view, this corridor presented a serious problem, since there would be little lift to be found in it, yet we had to cross it to reach our goal. Clearly the best plan would be to try and get round the northern end of it, over Lyons itself, and then dash south-east to the virile mountain air of Drôme, the Basses Alpes

and Provence. From here on the prospects were exciting enough, since these mountains, roughly speaking form a series of parallel spines running from west to east, forming the outlying spurs of the Hautes Alps dominated by Mont Blanc. These escarpments thus face directly into the northerly Mistral and deflect it powerfully upwards, so that any sailplane reaching them must find very strong lift on each windward face, and strong wave formations over the whole area reaching heights certainly in excess of 20,000 ft.

The dish we were therefore offered was a royal *Macedoine de Fruits*, containing almost all the major forms of upcurrents used by sailplane pilots: on the leg to Lyons thermal and cloud-flying, thereafter slope-soaring on a gigantic scale and wave-flying. Never have sixty pilots strapped themselves into their brightly-coloured cockleshells with livelier anticipation.

The 60-mile flight as far as Lyons over the Monts du Baujolais was a little more difficult than we had expected, but most of us survived it. At the base of many of the cumulus into which I circled I found large flocks of darting swallows, feeding on the swarms of insects carried up in the warm rising air from the sunny fields below; but the birds never followed the insects or me into cloud, being just as incapable as I would be to fly blind were it not for the additional powers conferred on me by the magic properties of the gyroscope. After Lyons, forty more miles on a south-south-easterly course and I would reach the mountains, and all, I thought, would be well.

It was a struggle, but I made it, and the wide bowl of Valence opened up, of which the south-eastern part is boxed in by two walls of mountain at right-angles to each other rising up almost sheer to over 3,000 ft. But something had gone wrong, the situation was far from classic after all. The meteorologists must have made some minute error in their forecast of the moisture-content of the air, for instead of ranges of mountains rising sharp and hot

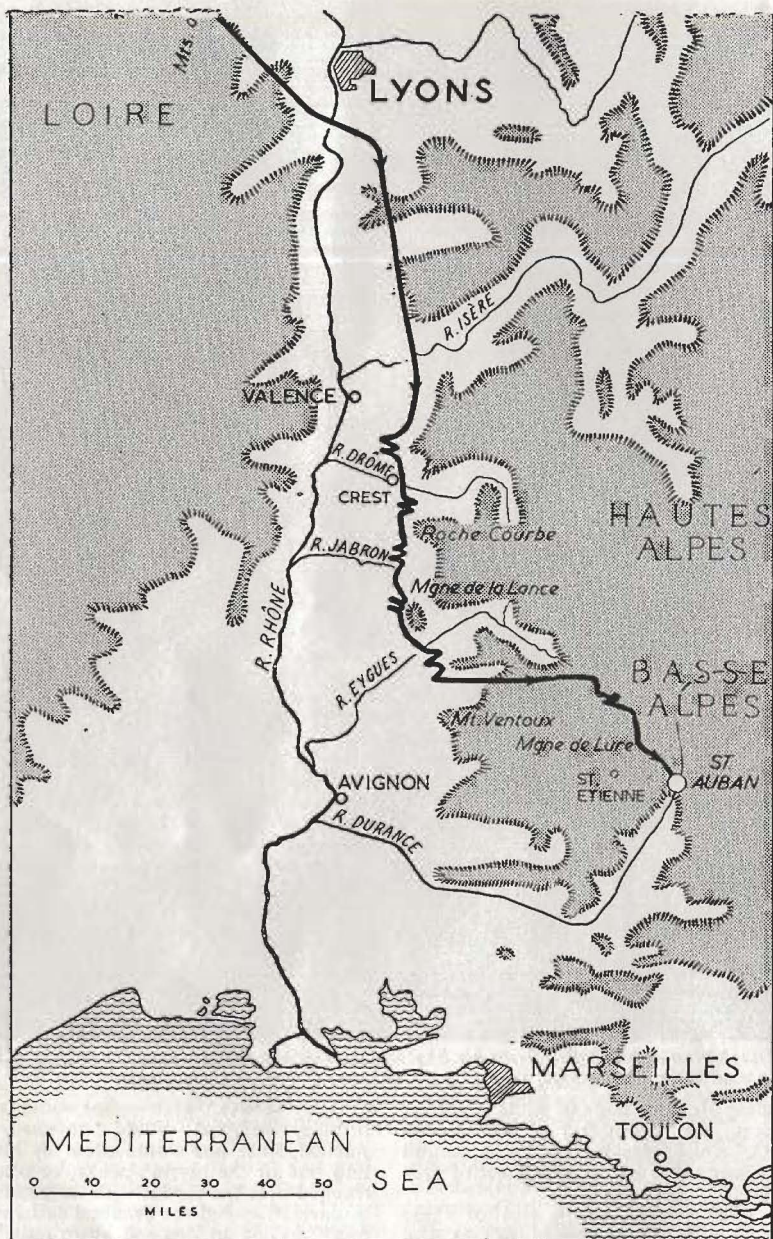


The Dutch pilot Toutenhoffd, flying his Skylark III over the Basses Alps. On July 11th pilots had to find their way through these mountains under a sheet of cloud clamped over their tops.

into clear air, with puffs of white cloud far overhead, the view ahead on course consisted of sinister black walls rising up and disappearing into a complete sheet of grey and black cloud.

To offer oneself up to one of these frowning cliffs and be sucked up into, and

possibly above, such a pervading and turbulent shroud would obviously be suicidal, since one would either fly blindly into one of the myriad peaks, or else get trapped over the clouds with no possibility of navigation and the eventual certainty of finally having to descend again quite lost,



over virtually unlandable country.

Our course lay south-east diagonally over the mountains, but since this was clearly impossible, the only alternative was to try and keep to the westerly end of each ridge, within reach of the Rhône valley, and whilst keeping under cloud, climb high enough on each face to enable one to dart over it or round it on to the one behind it. But this was not to be easy.

The lower half of each escarpment was densely clothed in trees, the upper part bare and jagged rocks, and there was no hope of landing at the foot, whilst the wind was so strong that, once pinned to the face, it was impossible to force one's machine any distance north again to reach kinder country. And each succeeding mountain-wall was partly "in irons" from the one in front of it, so that if one reached it more than half-way down there would probably be no lift at all, but a wildly turbulent cataract of air which would sweep one helplessly down to the rocky floor of the cleft below.

However, this was World Championship flying, not a Sunday afternoon at Dunstable, so after a lot of delicate juggling I got myself pinned against the first battlement, and was rapidly swept up, a span or two away from the precipice, to the top. Towards the east the razor edged ridge ran up into the cloud-sheet, but where I was there was perhaps a 300 ft. gap through which I could peer down wind, over the precipitous valley of the Drôme to the next range of Roche-Courbe, a 5,000-ft. mountain towering up invisible and menacing into the ceiling of cloud. And now I saw something which put the lid on my troubles, and made me realise my catalogue of woes had so far been incomplete. Over the valley of the Drôme, looming and rotating like a gigantic garden-roller, was the largest rotor-cloud I have ever seen.

* * * *

Most people still think that the most extraordinary and dangerous conditions tackled by sailplane pilots are in cumulonimbus or storm-clouds, and certainly to wrestle one's way up through the rain and hail and lightning of one of these monsters to heights in excess of 30,000 feet is exciting enough. But such great strides in instruments and in design have been made since the war that in fact large numbers of flights in these clouds have been made in the last ten years without dangerous results. In

fact, we had had a very good example at St. Yan a few days before this flight, when 27 sailplanes went into one such cloud, reaching heights of up to 25,000 ft. without any trouble arising.

But within the last few days explorers of wave-systems in the lee of mountain ranges have come across layers of incredibly turbulent air, frequently marked by vast untidy rollers of cloud called rotor-clouds. These rotors can be seen by the naked eye to be rolling over and over at high speed, with rags of tortured cloud being flung over and out at all levels, and in and underneath them the air is tossed around with unprecedented violence. Last year in such a cloud in the U.S. an exploring sailplane quite suddenly literally disintegrated, in spite of strength factors higher than those of many aeroplanes, and the pilot had a miraculous escape by parachute. He found himself falling with the nose of the glider locked to his feet by the straps of his boots, but when he pulled his rip-cord the jerk was sufficient to pull his feet out of his laced boots and he descended to safety.

Now I knew that the formidable monster I could see was not likely to be such a killer, since the mountains over which I was flying were far smaller than those of the Californian Sierras, but in this case I was faced with the problem of flying under it whilst surrounded on nearly all sides by invisible mountain peaks, at an altitude insufficient to give me much chance of finding a safe landing place should I be forced down. I heard myself saying, "And we do this for fun!" I decided to try out a trick I had practised earlier in the year on the smooth and friendly slopes of the Long Mynd. The plan was possible because of a miraculous little compass recently invented by a gliding enthusiast at home which is "dead-beat" and shows one's course instantaneously at all times. Keeping to the west end of my escarpment, where there was a small gap of clear air between the crest and the cloud, I checked my compass course on each tack of my beat and allowed myself to be drawn up blind into the cloud.

Six minutes on 050°, turn, four minutes on 335°, turn, six minutes . . . , all the time watching my rate-of-climb indicator like a fascinated rabbit. Green, up 5; green, up 3; green, up 3—rapidly and easily we gained a further 1,000 ft., then, blind, turned and held a grim southerly course. The climb turned to a descent, two or three minutes

went by, and we broke cloud, over the Drôme valley, safely south of the mountain I had just left.

Suddenly there was a jar and a shock, and my starboard wing fell into nothing. With full opposite aileron we hung and slid in space for what seemed an age. The next ten minutes were unforgettable. Seven pilots eventually completed this flight, and all of them confessed they had never experienced such wild turbulence before. Many were forced to land in the Drôme valley, and Bill Ivans, the American holder of the world altitude record in the Bishop wave in California, had his machine fall out of his hands at sixty feet into a rocky field—it was completely destroyed, and Bill cracked a vertebra and was laid up in hospital in plaster.

But my extra 1,000 ft. stood me in good stead, and a shaken pilot reached the Roche Courbe ridge in one piece, climbed, dodged round behind it over the Jabron to the Montagne de la Lance, and again over and to the valley of the Eygues.

Here patches of blue sky began to show between the mountains, and it became possible to try and mount through the rough air, up past the clouds to the wide smooth waves in the blinding blue air above. Since these waves would run due east, once attained any one of them would lead one in blissful smooth silence straight over the mountains to the goal in the valley of the Durance to the east.

And this is what happened. With the vulturine bald-headed Mont Ventoux to the south marking my position exactly, I struggled and slowly gained height in the

wild air, until quite suddenly I was over it, riding in silky silence whilst below me the clouds lay in enormous ribbon-like rolling masses from west to east like the warp-threads of an enormous loom.

I climbed to 10,000 ft. and set course direct for the goal. The contrast between the struggle and the maelstrom I had left and this last leg of the flight was almost too dramatic to be real. It was nearly 7 o'clock, and the sun was setting beyond the Rhône valley to the west. To the south the clouds dissipated and the brown and grey parallel spines of Provence, like ranks of soldiers, led the eye on to a distant blue circle which was the Etang de Berre behind Marseilles. To the north-east cloud-piercing snow-capped mountains swelled up to Mt. Pelvoux and the massif dominated by Mt. Blanc. Below and to the north-west was my carpet of rolling cloud, dazzling white and glowing pink in the sinking sun. In absolute calm, in absolute peace, with a whisper of silken air over the wings, I flew at 10,000 feet and nearly 100 m.p.h. to the goal which had seemed so impossible to reach.

The valley and the blue Durance opened up ahead, I jumped back two waves to the Montagne de Lure, and there was the aerodrome, on the river bank. I put my gallant Skylark into a steep dive and crossed the line at nearly 100 m.p.h.

As I landed and got out, the hot gale struck me in the face. The mistral, "*Une situation classique du Mistral!*". As I said afterwards to M. Gerbier, he must have been thinking of the more sombre classics, such as Dante's Inferno?

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FRENCH PILOTS IN THE WORLD CHAMPIONSHIPS

The following letter, commenting on an article in the French monthly magazine "Aviasport", has been published in French in the current issue of that journal.

To the Editor, Aviasport,
Livry-Gargan, Seine-et-Loire.
Dear Sir,

I am sure I am speaking for all the competing nations when I say that we left St. Yan feeling that France had finally established her place as amongst the top-rank nations in the world of gliding if not the very first.

In 1952 and 1954 Gérard Pierre and his colleagues had shown that French pilots were amongst the world's best; now, in 1956, we saw that French aircraft, organisation, meteorological and technical facilities and above all the sporting spirit which animates the whole movement, were supreme.

Now in the August issue of your usually excellent magazine comes a shock—the really bitter criticism and the attacks on the competence and even the characters of your 1956 pilots.

I remember some years ago reading with horror of some international football match where the visiting team lost, and were frightened of what would happen to them when they returned home. I remember feeling what a travesty of so-called sport these international events had become and how glad I was that nothing of the kind could ever happen in our beloved sport of gliding. And now, it has happened. If I was a French enthusiast, I should feel very disinclined to put up my name for your 1958 team if I felt that, should I do badly, I would be treated like this.

In the 1950 World Championships in Sweden I myself did very badly indeed, and came out 27th out of 29 entries. Fortunately my colleagues did not say harsh things about me; let me assure you that a glider pilot is his own worst critic and can safely be left to torture himself when he performs badly. Instead, I was elected to fly again for Great Britain in 1952, perhaps the greatest expression of confidence I have ever received, and in Spain I became World Champion. How easy it would have been

after Oerebro to say that, at 43, I was too old for gliding championships and had lost my "cran" (guts).

Let me tell you, M. Sirretta, that folk who go in for gliding, and who reach International standards, *must* have "cran", and once one has it one does not lose it. It is not a quality to be proud about; one just has it or not. I simply do not accept, and I am sure no other pilot of any other nation who has flown with Pierre and the others in previous World Championships will accept, that the reason for the poor placings France achieved in 1956 were lack of "cran".

You may know how interested I am in this problem of pilotage, still by far the greatest mystery in gliding. Taking my own case, how was it that I was 10th at Samaden, 29th at Oerebro, 1st at Madrid, 2nd at Camphill, 10th at St. Yan—whilst it is easy to find still greater divergencies with other pilots? I talk of my own record, not because I want to be egotistical, but because I naturally know more about it.

Well, I have to abandon Oerebro; there were special reasons which must have made it non-representative. As for the rest, at present the best I can assume is that the factor of luck can still move one's place by, say, 25%, so that a potential World Champion may, in a field of 44 pilots, find himself reach any place from 1st to 11th.

This theory does not explain the French result in 1956, so we must look further. You make other suggestions in *Aviasport* which I think cover all the possibilities, so may I analyse each one more closely.

LACK OF TRAINING.—MacCready does not fly gliders between one World Championships and the next, and steps straight into a strange machine each time. Goodhart had only had one week-end flying the T-42 before he arrived at St. Yan, because the machine only finished its tests just prior to that. And I doubt if he had had more than half a dozen week-ends, flying this year—about as much as I had had. I do not of course know what blind-flying

experience is available in France; certainly this is required, but I certainly hate the suggestion of a band of dedicated fanatics going to a dare-devil course before each Championships to be taught how to take risks regardless of consequences. We do not want World Gliding Championships to be bracketed with the Imperial Games of the time of Nero. Gliding has bigger values, and a more important function, than that in the future development of mankind.

PILOT BACKGROUND.—On the whole, I am inclined to agree that a good instructor will not often make a good Championship pilot, because the former has to discipline his flying between rather narrow limits, whilst the latter has to be ready for anything, and have a great flexibility of approach. But then we see Juez, the magnificent Juez, flying a dear old Sky into second place at St. Yan!

AIRCRAFT.—I think I agree that the Bréguet 901 was probably the best competition aircraft at St. Yan. But most of us would agree that MacCready would have won in any of half a dozen other types—and the next 901 was 14th! So I conclude that the advantage to be got out of a *splendid* machine as compared to a merely *first-class* one is rather small for the cost involved, and where funds are limited one might do better by spending the money in other directions.

TEAM CONTROL.—Here I come to the aspect which I find most interesting of all. Let me tell you a story. When the British team left England, facing a competition against a French team flying on their own ground, with a month's practice behind them, with splendid aircraft and equipment costing several times as much as ours, we



Guy Rousselet and Louis Trubert, in the new Bréguet 904, represented France in the Two-seater Class.

consoled ourselves by saying, half-jokingly, "Oh well, the French can't win because we hear they have 8-Channel radio!"

For some years now several people, particularly MacCready himself, have been saying that the time would soon arrive when the individual pilot would have no chance in World Championships flying against a team flying *as a team*, exchanging information between themselves in the air, and receiving radio information and even instructions from the ground. I have not felt so sure.

From several of your remarks in *Avia-sport* one can read that this general plan was in fact tried out by the French team at St. Yan. If so, it clearly failed, and we can learn much by its failure. But certainly, if this is so, and it did fail, it was a plan worth trying, and we must be grateful to France for the lesson.

It would therefore be of great value to all of us if we could have answers to the following questions.

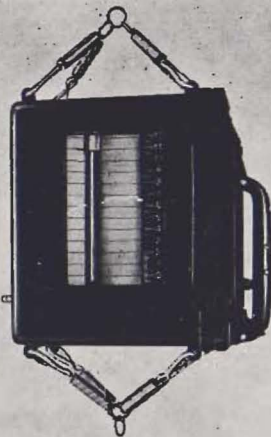
- (1) What use of radio was made by the French team at St. Yan? Did they use 8 Channels and if so how?

- (2) How much information did they interchange air-to-air?
- (3) How much information did they get from the ground, and from whom?
- (4) Did they receive anything in the nature of *instructions* from the ground after take-off?
- (5) Did they receive anything like *instructions* from their Team Captain before take-off?

You say that "Pierre flew like a good civil-servant", that "the French team followed each other in a queue like little dogs". If this was so, was it through their own wish, or because it had been previously decided that they should do so?

In the answers to these questions may be the reasons for the poor results achieved, and if so, the reasons were not inglorious ones. One tries out a bold plan: it fails, one has learnt something of value. If 1956 has shown that in gliding the individual is still supreme, what a magnificent lesson to have learnt, in this age where the individual is in so many fields being remorselessly sub-merged.

PHILIP WILLS.



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The PIK-3

by Carl-Eric Calas

(Helsinki)

This account of the smallest sailplane flying in the 1956 World Championships is translated from the magazine "Aero", of Munich.

THE PIK (Polyteknikkojen Ilmailukerho) was founded at the Technical University of Helsinki on March 26th, 1931. At first old and well-tried sailplanes, such as the Grunau Baby, were built and flown. Later, with the introduction of aviation technology into the teaching programme, there began an intensive project activity under the direction of Professor Arvo Ylinen. The PIK series began in 1945 and the PIK-3, completed at that time, was the first type to be produced in series.

All PIK types, except the PIK-10, were built by amateurs without mechanical equipment, under often very difficult circumstances, in a small cellar 8 × 3 metres in size. Our enthusiasm eased our task considerably.

The PIK-3 of Lars Norrmen and Ilkka Lounama is intended as a small and simple sailplane for performance and practice flights. In the design it was endeavoured to achieve good flying performance with small dimensions, without thereby making its construction complicated and expensive.

All the gliding clubs in Finland had to be capable of building it.

The original idea goes back to the year 1940; the design work was concluded by the end of 1945. The prototype made its first test flights in the summer of 1950.

The PIK-3 is a cantilever high-wing aircraft of wood construction, with a straight, single-spar wing of trapeze-shaped outline with rounded ends, made in two parts. The wing is fitted with flaps between the aileron and the centre-line of the fuselage. The ailerons drop with the flaps to the extent of 7°; their greatest deviation is 20°.

The fuselage is of wood; it has an oval cross-section with plywood covering throughout, a jettisonable plexiglass hood as far back as the spar, and a landing wheel behind the centre of gravity with a skid in front of it. The tail is cantilever; fin and stabilizers are covered with plywood; elevators can be trimmed.

The construction of the flaps appeared too complicated in relation to the advantages they gave; consequently the production model, PIK-3b, evolved by Ansh. Koskinen, was made without flaps.

Span, 42 ft. 8 in.; wing surface, 140 sq. ft.; aspect ratio, 13. Empty weight, 287 lb.; all-up weight, 507 lb.; wing loading, 3.63 lb./sq. ft. Best gliding angle, 1 in 26 at 40.4 m.p.h.; minimum sink, 2 ft. 3 ins. per sec. at 37.3 m.p.h.; maximum speed, 143 m.p.h. (For metric equivalents, see table on page 240).



*The PIK 3
at the
World
Championships.*

*The Elfe
at the
1956 World
Championships.*



The Elfe M.

by A. Markwalder

The most heavily-loaded machine in the 1956 World Gliding Championships, and admittedly designed for "more-than-average speed flying-characteristics", the Swiss "Elfe M" finished 8th out of 45 entries in the single-seater class, flown by Hans Nietlis-pach. The following translation is from the "Swiss Aero Revue" of August, 1956.

ON the afternoon of June 14th, 1956, the Elfe M left the ground for the first time. After a short launch the thin wings bent lightly upwards; the first control movements under air loads were set going, and the aircraft proceeded to climb behind the tug to the release height of 1,200 m. (4,000 ft.). The succeeding glide of about 20 minutes served for testing all the controls and the air brakes.

First of all, I would like to go briefly over the history of the development of the Elfe types. The Elfe I, with only 9 m. span (29 ft. 7 ins.) and 43 kg. empty weight (95 lb.) already exhibited performances like the machines of its time. A further variant of the Elfe I was built with a span of 11 m. (36 ft. 1 in.) and flown with success. In the years 1946-47 the Elfe II took shape with laminar profiles which Dr. W. Pfenniger had developed specially. This machine unfortunately soon crashed.

In the year 1951 the construction of the Elfe III, commissioned by Max Schachenmann, was begun; it is now known by the name of "Super-Elfe". This name was

invented by the numerous "spotters", and we can well take it as referring to the weight. Its gigantic weight is due to the deliberate use of certain materials and the manner of construction.

These disappointments resulted in my deciding—and this time alone—to take upon myself the gigantic work of detailed design and calculation. So the Elfe M was slowly conceived. A. Neukom began at the same time with its construction—this was in January, 1954. The work of construction and design was carried out exclusively in spare time. By January, 1956, the skeleton of the fuselage was made, the wing-spars were roughly assembled and most of the ribs made; about 2,500 hours of spare-time work had been put in.

Then came the great crisis. Aircraft were wanted for the World Championships. A recommendation of Dr. H. Nietlis-pach to the Soaring Flight Commission, that financial help should be given to speed up the construction of the Elfe M, was accepted. The almost impossible feat was attempted of getting the Elfe M into the air in time for the World Championships. This was made possible through the expenditure of 2,000 hours' labour.

Aerodynamics

The laminar profiles, specially developed by Dr. W. Pfenniger (now in the U.S.A.) for the wings and tail surfaces, were taken over unaltered from the Elfe II and Elfe III; they are thus ten years old already. The fuselage lines were modified, but the sections of the basic shape were retained. The 15.4 m. span of the Elfe II and the 16 m. of the Elfe III were increased to 17.5 m. (57 ft. 5 in.) for the Elfe M at Dr.

Pfenniger's wish. The chord lengths were retained, so that the aspect ratio rose from 21.4 to 24.15.

The ground plan of the wing is of elliptical shape. The profile thickness is 13.3% in the middle of the wing, and at the tips 10.5% with the greatest thickness at about 45% chord, and with different curvatures. Since laminar profiles keep their optimal minimum drag over only a small range of incidences, narrow camber-changing flaps were fitted over the whole wing-span, thus allowing the optimal range to be broadened.

The performance calculations gave the following results:—

Gliding angle 1 in 44 at about 100 km./h.

Minimum sink 0.54 m./sec. at about 70 km./h. with a wing loading of 26.5 kg./sq. m.

Sinking speed 1 m./sec. at 135 km./h. (84 m.p.h.); 0.77 m./s. at 116 km./h. (72 m.p.h.).

As with the Elfe II and Elfe III, so with the first flights of the Elfe M, the calculated performances were attained.

Detailed Design

As the Elfe M had to be capable of being built by individuals without a mechanically equipped workshop or special fittings, it was decided not to incorporate the shell-type construction of the wing which had been adopted for the Elfe III. The three-part wing, with a middle section of 8.4 m. (27 ft. 7 in.) and two outer sections, was given a single spar upon which ribs were fixed before and behind at intervals of 13 cm. (5.1 ins.), and which was covered with plywood. Diagonal plywood covering the inner wing is 3 mm. thick, and on the outer wings 2.5 mm. tapering to 1.5 mm. The spar width in the mid-line of the fuselage is 33 cm. (13 ins.). A spar at the leading edge and at the trailing edge, which has also to carry the control fittings, facilitates greatly the covering of the wing, as the plywood does not have to be carried round the leading edge. The tail surfaces are similarly constructed.

The fuselage cross-frames and longerons are placed at intervals of 10 cm. (4 ins.), and are covered with diagonal plywood 1.2 mm. thick. The cockpit is of generous dimensions; even big pilots have full elbow-room.

There is no retractable wheel such as in the Elfe III; launchings and landings are done on a skid sprung with sponge rubber. Further, the pedals and seat-back are not adjustable.

The jettisonable hood is smoothed into the fuselage outline and is of generous size to give good vision all round. All the controls are actuated throughout with rods. Tests by the Air Office showed extraordinary rigidity.

For the Elfe M, stress group 2 was chosen; this group allows cloud-flying and simple aerobatics.

Positive load factor + 4, negative — 2 up to dynamic pressures of 220 kg./sq.m., or about 214 km./h. at sea level with safety factor of 2.

Maximum speed in tow, 180 km./h. (112 m.p.h.); in moderate gusts 200 km./h. (124 m.p.h.); in strong gusts, 80 km./h. (50 m.p.h.).

Span, 17.5 m. (57 ft. 5 in.); wing area, 13.2 sq. m. (142 sq. ft.); aspect ratio, 23.13.

Horizontal tail surfaces, 1.31 sq. m. (14.1 sq. ft.); vertical 0.94 sq. m. (10.1 sq. ft.); both with "lever arm" (*Abstand*) of 5.2 m. (17 ft. 1 in.).

Weights (actually measured):—

Component	kg.	lb.
Wing centre section ..	120	265
Outer wings (each 25.5 kg.) ..	51	112
Fuselage with instruments ..	76.5	169
Horizontal tail surfaces ..	66	13
Hood	6.5	14
Empty weight	260	573

Normal payload, 90 kg. (198 lb.); all-up weight, 300 kg. (770 lb.); wing loading, 26.5 kg./sq. m. (5.43 lb./sq. ft.). Maximum payload 117 kg., giving wing loading of 28.5 kg./sq. m. (5.83 lb./sq. ft.).

According to calculations all load cases are met. For the wing, the positive and negative pull-outs are decisive; for the fuselage and tail, sudden application of controls. The comparatively thick plywood surfaces, which are necessary for laminar flow over the upper surfaces, give good security against flutter, according to the calculations.

The empty weight of the Elfe M, 260 kg. with 17.5 m. span as against the 310 kg. and 16 m. of the Elfe III, could only be attained by exact carrying-out of the design and by good co-operative work.

In conclusion it should be pointed out again that the Elfe M. is designed for home construction. Experience has shown that about 4,500 hours' work is needed, and the cost of raw materials is about 4,500 Swiss francs (equivalent to £370).

WORLD CHAMPIONSHIP SAILPLANES 1956

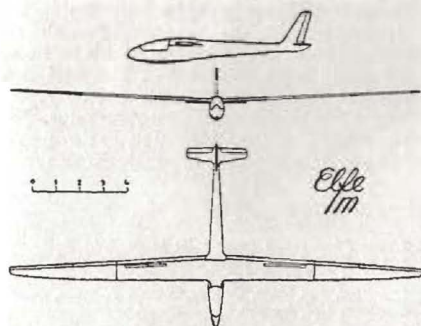
Type	Designer	Builder	Wing span, metres	Wing Area, sq. metres	Aspect Ratio	Empty Weight, kg.	Flying Weight, kg.	Wing Loading, kg./sq. m.	Glide Ratio	at—km./hr.	Sinking Speed, metres/sec.	at—km./hr.	Maximum Speed, km./hr.	Wing Profile root, tip
Bréguet 901s		Bréguet	17.3	15.0	20.	230	415	28.	35*	80	.65*	70	220	NACA 63
Skylark 3	F. N. Slingsby	Slingsby Sailplanes	18.0	16.1	20.5	248	359	22.2	32	74	.56	65	200	63 ₃ -620 4415
Sky	F. N. Slingsby	Slingsby Sailplanes	18.0	17.3	18.7	250	363	21.	30	74	.61	63	188	Gö. 549 NACA2R ₂ 12
Olympia Eon IV		Elliotts of Newbury	16.8	15.0	17.7	258	354	23.6	36	83	.67	55		64 ₃ 618 64,421
Zugvogel	Scheibe	Scheibe Flugzeugbau	16.0	13.9	18.3	220	345	24.7	34	80	.58	65	200	63 ₂ 616 63 ₂ 614
Orao IIc	Cijan & Obad	Letov	19.0	17.8	20.3	365	455	25.4	37*	83	.61*	77	220	Gö.549 mod. RAF-34 mod.
PIK 3	Koskinen	Flying Club, Vallila	13.0	13.0	13.0	130	230	17.7	26	65	.70	60	230	Gö 693
Weihe	H. Jacobs		18.0	18.2	17.8	195	335	18.4	29	76	.58	76	210	Gö 549 M 12
Jaskolka	Kostia, Sandauer, Skarbinski		16.0	13.6	18.8		330	24.4	27	82	.75	58	250	NACA 43012
Bréguet 904		Bréguet	20.0	20.0	20.	350	630	31.	37	90	.65	75	220	NACA 63
Schweizer 2-25	E. Schweizer	Schweizer Aircraft	18.3	21.4	15.6	333	508	23.7	30*	84	.67*		215	
T-42 B	F. N. Slingsby	Slingsby Sailplanes	17.8	21.2	14.8	318	545	25.7	31	80	.61	78	260	63 ₃ 618 4412
Kosava	Kisoric, Ilic, Karapandzic	Ikarus	19.1	21.1	17.3	372	562	26.6	33*	90	.61*	76	220	Gö 549 mod. CAGI 731 mod.

* Performance figures obtained from flight test; others are estimated. This Table is reproduced, with acknowledgements, from O.S.T.I.V. News, June, 1956.

MORE CHAMPIONSHIP SAILPLANES

Type	Span, m.	Wing surface, sq. m.	Aspect ratio	Empty weight, kg.	Flying weight, kg.	Wing loading, kg./sq.m.	Best gliding angle	at—Km./h.	Minimum sink, m./sec.	at—Km./h.	Max. speed, km./h.
Bergfalke II ..	16.6	17.7	15.6	240	420	23.8	28.8	78	0.68	65	150
Kranich III ..	18.3	21	15.9	320	520	25	31	—	0.70	—	185
H.K.S.1 ..	19	18.3	19.7	300	520	28.4	40	—	—	—	200
Bocian ..	18	20	16.2	330	500	25	26	82	0.80	72	200
Condor IV ..	18	21	15.4	310	500	23.8	—	—	—	—	—
Geier ..	17.8	15.8	20	255	375	23.8	32	75	0.55	60	—
Eolo ..	20	16	25	280	400	25	43?	90	0.54	82	—
Elfe PM.3 ..	16	12	19.2	235	404	33.6	39.5	100	—	85	240

CONVERSIONS: 20 m. = 65.6 ft.; 500 kg. = 1,102 lb.; 25 kg./sq.m. = 5.12 lb./sq. ft.; 100 km./h. = 62.14 m.p.h.



The Swiss "Elfe M"
described on pages 238-239
this issue by A. Markwalder

The First R.A.F. Gliding Championships

SEVEN gliding clubs, 16 sailplanes and 75 campers, including pilots and ground crews, took part in the first R.A.F. Gliding Championships ever to be held, from July 28th to August 6th. The airfield at Netheravon, on Salisbury Plain, where they camped, has a history going back to 1912, but here was something it had never seen before—at least, not until a ten-days' Whitsun rally held this year by some of these R.A.F. Clubs.

Netheravon is now an R.A.F. Police depot, specialising in the handling of police dogs rather than aircraft. Their Commanding Officer generously offered the use of the various messes in the aerodrome buildings, but Wing Cmdr. N. W. Kearon, deputy chairman of the R.A.F. Gliding and Soaring Association, who was in charge of the camp, thought this would have split up the individual teams, whereas in a tented camp, with its own kitchen, all ranks could mess together. So they set up camp on the opposite side of the aerodrome.

The clubs and sailplanes taking part were:—

East Midlands Gliding Club (R.A.F. Swinderby) with Olympia and Grunau Baby; St. Athan, with Kite I and Tutor; Home Counties (Biggin Hill) with Grunau; Four Counties (Wittering) with Grunau; Windrushers (Bicester) with Olympia and Prefect; Wessex (Andover) with Olympia, two Grunaus and T-21 two-seater; Moonrakers (Lyneham) with Gull IV, Tutor and T-31; and an extra Tutor.

The Championships were divided into three separate classes according to sailplane performance; the Olympias and Gull IV were in Class A; Grunau, Prefect and T-21 in Class B; and Tutors and T-31 (flown solo) in Class C.

The violent gales of the first week-end prevented any launches, and even on Monday, July 30th, everyone's attention was still needed to keep the tents from blowing away. Then on Tuesday, July 31st, came the best day of the contest, when all four machines in Class A were flown to the far end of Kent.

Flg. Off. D. H. Ellis (Windrushers) made

the longest distance of 140 miles to a point on the beach in front of Walmer Castle, near Deal. His first really good bit of lift, which took him to 7,500 ft., was found just before Basingstoke; but he nearly had to land just beyond Tunbridge Wells. He regained 3,000 ft. at Dover and used it to glide to Deal.

Senior Aircraftman T. P. Docherty (Moonrakers), with 135 miles in the Gull IV, landed short of Deal at the Duke of York's Royal Military School at Guston. He went into cloud straight off the launch, and thereafter never got below 2,500 ft. He reached the coast at 5,000 ft. over Hytlee, and a thermal from Dover took him out over the sea to 3,500 ft. (S.A.C. Docherty obtained all three Silver C legs during the Whitsun camp.)

Sergeant Jobling (East Midlands) made 132 miles and Sergeant "Andy" Gough (Wessex) 127. Gough reached the coast at Bognor, much earlier than the others, and then soared along in successive thermals coming up from the South Downs, each of which took him out over the coast while he was climbing in it. He landed at Hawkinge after 3½ hours.

Wednesday was just a rainy day. Then on Thursday things were not too easy, and Flg. Off. K. C. Fitzroy (Moonrakers) soon came down at Andover in the Gull IV. But he was determined to do better, although the retrieve took five hours; so at 5 p.m. he set off again from Netheravon and this time reached Redhill, 72 miles away, by 7 p.m. There was widespread strato-cumulus, with some cumulus clouds pushing up through it, but the only good lift lower down was from

Upper Photograph (with pilot in cockpit) L. to R.:— S.A.C. Walton, Jun. Tech. Cockerell, Jun. Tech. Whitehall, L.A.C. Lee, S.A.C. Baugh, Flg. Off. Swaffer, Flg. Off. Ellis, Jun. Tech. Cooper, Sapper Johnson, Sapper Solomon, Cpl. Horton.

Lower Photograph L. to R. standing:— Mr. Page, Flg. Off. Gould, Flt. Lt. Harcourt, Flg. Off. Fitzroy, Sgt. Gough, Capt. Fifield, Flg. Off. Swaffer, Sqn. Ldr. Scorer, Flg. Off. Ellis, Jun. Tech. Brimfield. Seated: S.A.C. Docherty, Flg. Off. Ross, Wg. Cdr. Kearon, Sgt. Andrews.



By courtesy of "The Aeroplane"

aerodromes, such as Greenham Common and Aldermaston, which had been bathed for some minutes in one of the rare patches of sunlight.

On Friday, August 3rd, an enormous cumulus cloud built up over Netheravon—so big that, for once, more than one sailplane could be allowed into it at a time. The wind took pilots towards the South Coast.

Saturday, August 4th, was an interesting but difficult day, with the wind again blowing towards the coast. Andy Gough went to New Romney golf course, 120 miles, in 5 hours, spending much time in clouds and reaching 6,400 ft. Flt. Lt. C. M. Harcourt (Windrushers) reached Hastings, 104 miles, and Wing Cdr. Kearon (Wessex) took the T-21 Sedbergh with a passenger, Corporal Le Roy, 52 miles to Chichester. Wing Cdr. Kearon noted that the cumulus clouds were building and decaying in quick time, and their life was so short that it was difficult to reach them in time to use the lift; this was due to high cloud, moving in the same direction, causing them to die out.

Sunday, August 5th, the last flying day, provided Flg. Off. Fitzroy with an oppor-

tunity for Gold C altitude in a cu-nim, but he had first to be towed in the direction of Bournemouth way to reach soaring air. Eventually he found what he wanted, climbed to 12,500 ft., descended again, and finished up at Brooklands. Sqn. Ldr. C. Scorer (Wessex) took a Grunau 95 miles in 3½ hours to the other side of Tunbridge Wells. Next day there was so much rain, with cu-nim nearly covering the sky, that it was decided to pack up the gliders and take them home.

Thus, in spite of much frustrating weather, the first R.A.F. Gliding Championships got off to a pretty good start, with everyone taking every possible opportunity to fly. And incidentally the retrieving crews gave themselves much useful instruction in map-reading, even if they couldn't all join in the flying. Only one piece of equipment was lacking—trophies for the winners, but it is hoped to raise something by next year.

A.E.S.

(Reproduced in part, with permission, from "The Aeroplane".)

Final Results

Class A.	Club	Sailplane	Pilots	Points
1.	Windrushers	Olympia	Flt. Lt. Harcourt & Flg. Off. Ellis	2,880
2.	Wessex	Olympia	Sgt. Gough	2,737
3.	Moonrakers	Gull IV	Flg. Off. Fitzroy & S.A.C. Docherty	1,654
4.	East Midlands	Olympia	Flt. Lt. Perks & Flg. Off. Spottiswood	900
Class B.				
1.	Wessex	Grunau Baby	Flt. Lt. Allen	3,211
2.	Wessex	Grunau Baby	Sqn. Ldr. Scorer	2,220
3.	Wessex	Sedbergh	Wing Cdr. Kearon	1,910
4.	Home Counties	Grunau Baby	Flg. Off. Coulson & Sgt. Andrews	1,785
5.	Four Counties	Grunau Baby	Flg. Off. Ross & Flg. Off. Gould	1,653
6.	St. Athan	Kirby Kite I	Flt. Lt. Bridson & Flg. Off. Morgan	1,446
7.	Windrushers	Prefect	Flg. Off. Swaffer & Capt. Fifield	1,306
8.	East Midlands	Grunau Baby	Flt. Lt. Dandie & Flt. Lt. Ross	478
Class C.				
1.	Moonrakers	Tutor	Flg. Off. O'Brien	1,000

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TWENTY-THIRD AMERICAN SOARING CONTEST

From Grand Prairie, Texas, the site of this year's United States National Soaring Contest, we have received daily bulletins published on the spot by mostly anonymous authors. From these we have taken the following extracts and added short lists of each day's leading competitors and the full list of final results. Among those taking part were R. C. "Jock" Forbes, who flew for Britain in the first three World Championships after the war and is now Editor of "Soaring", and Peter Stickland, of Canada, Editor of "Free Flight", with more Canadians.

FORTY-SEVEN shining shimmering high-performance sailplanes, piloted by the pride of America's motorless flight experts, glittered in the bright blue of a typical Texas soaring sky as this great 23rd National went with a bang today, July 31st. Never before in all the nearly quarter-century history of this, America's greatest aviation sporting event, have so many and such a great variety of high performance sailplanes been seen in a tournament.

July 31st.—Today was a task, Goal and Return: Grand Prairie to Mineral Wells, Texas, and back. Shortly after 11.00 the first eager pilots went to the sky and by 14.00 the line of 47 flyers were on the way in the 125-mile R.T. Weather was semi-super, 6,000 ft. cloud bases going on to 9,000 in the later p.m. A mean but refreshing cross-wind blew from the south, producing something of a sawtooth-like track. The lift indicated as much as 1,500 f.p.m. in some of the full-grown thermals. Paul Schweizer, one of the higher scorers, complained of being severely pressed into his seat as he rode one of the altimeter winder-uppers.

This was the most thrilling mass flight of returning ships that has ever been seen in a contest event. Hundreds of observers were electrified by the drama of this race's finish as Dick Johnson and John Novak announced the "blow-by-blow" finish. As many as four ships at a time were screaming in low over the finish line; neck and neck they came, each straining for that split-second advantage.

AT THE TURNING POINT.—There were no screaming finishes at this end of the run—only a couple of slow, reluctant landings: one by Ray Jackson in his I-23 and the other by Joe Lincoln in his Baby Bowlus. However, there was lots to be seen in the clouds. At one point, every Cu was serving as a background for at least one sailplane. Coverdale came streaking in from the east, hardly pausing to note the position of the panels, and streaked off again. Lyle in the Jenny Mae and Simmons in the Hummingbird also looked like they were wasting little time over the field. Actually, our major problem besides squinting through the glasses (courtesy of Coverdale) to separate the sailplanes from the hawks from the spots before our eyes, was to try to keep cool.

As of the end of the first day, here's how top guys stand:—

1. Maxey (Jenny Mae)	1,000
2. Thomson (RJ-5)	887
3. Bikle (I-23)	845
4. Schweizer (I-23F)	798
5. Smith (I-21)	768
6. Swierkowski (Nimbus II)	755
7. Mancuso (LK 10A)	746
8. Coverdale (Skylark II)	742
9. Forbes (Weihe)	735
10. Sawyer (Nimbus II)	730

August 1st.—Thoughts soon turned to the current weather prospects which were slightly dimmed by a scattered deck of Alto-Cu thrown up by evening thunderstorms. Nevertheless, the open day was retained as scheduled and the pilots drifted off to their incense and crystal balls to tell them what sort of flight to shoot for. The clouds cleared somewhat and sustaining thermals greeted the early launchers, who were soon out of sight downwind.

The lights burned late in contest headquarters that night as calls kept coming in from pilots and crews, the last connections not being made until after 10 p.m. Scorekeepers were up until 2 a.m. computing distances, bonus points and cumulative scores. When the smoke cleared, Lyle Maxey was still leading the scoring with 1,000 points for the day, by pulling a 343-

mile goal flight to Wichita, Kansas, municipal airport out of his hat. He landed in a thunderstorm just a few minutes before Dick Schreder (who named the same goal for his I-23D), and thus Lyle earned first call at a possible new National Goal record, exceeding the 333 miles set by Wally Wiberg, in 1951, by more than the required 10 km.

Take-off time and course seemed to play a large part in success on this day. Many were forced down by storm activity in northern Texas and Oklahoma. Next best flight was by Coder in the Weihe who made a goal to Enid, Oklahoma (256 miles). Bikle maintained 3rd position by "floating around the skies" until he landed at Roaring Springs, Texas (264 miles).

At the end of two days, the scores are:—

1. Maxey (Jenny-Mae)	2,000
2. Schreder (I-23D)	1,657
3. Bikle (I-23)	1,474
4. Coder-Janck (Weihe)	1,441
5. Thomson (RJ-5)	1,350
6. Schweizer (I-23F)	1,303
7. Forbes (Weihe)	1,210
8. Smith, S. (I-21)	1,153
9. Miller, D. (I-23)	1,143
10. Coverdale (Skylark)	1,126

August 2nd.—The Contest Board thought to make the 3rd day's task a bit more difficult, so they posted a 300-km. triangle run.

At what ordinarily would be take-off time, JP (Jupiter Pluvius) unfurled a big Alto-Cu umbrella which shaded beautifully an area of about 30 miles surrounding the take-off site. Then the old stinker baited the trap. Around the perimeter of the shaded area he put a frosting of nice building Cu's. His object was to entice the early starters into trying a run out from the shade. Many a man big and bold fell for this. Not hard, but they fell all the same—right back to start a second time, sadder, later, and (we hope) wiser. A few did escape the cool area but at a great price in time.

Those pilots able to extract themselves from this quagmire of sticky shade, found the going a bit more to their liking along the first 62-mile leg of the course to Mineral Wells, the first turning point. But "Jup" was setting up further road blocks along the second upwind leg. Here he turned on his blowers, huffing and puffing he'd blow some of the top scorers' house down.

Some 25 ships made the first turn; a few

of the meek seeing what was ahead, beat back to the starting point. Others pressed courageously ahead toward Lake Whitney, the second turn; a few gave up the race and settled for M. Wells. Spiralling up and drifting back, a dozen ships struggled onward at a snail's pace. Thomson and his sleek RJ-5 had masterfully escaped the take-off area without a put-in. He would shoot this course in par, if possible. His was the only flight to pass over the Whitney turn, his was the No. 1 flight of the day, his were the 1,000 maximum score points.

1. Maxey (Jenny-Mae)	2,860
2. Schreder (I-23D)	2,517
3. Thomson (RJ-5)	2,350
4. Bikle (I-23)	2,333
5. Schweizer (I-23F)	2,148
6. Mulloy (I-23)	1,979
7. Forbes (Weihe)	1,971
8. Smith (I-21)	1,928
9. Sawyer (Nimbus II)	1,898
10. Coverdale (Skylark II)	1,887



August 3rd.—The Contest Board, concluding that yesterday's task of 300 km. around had overmatched the pilots, thought to make this fourth day a bit easier. High winds and late starting had made it impossible for anyone to go the entire distance. So we will repeat the first day trip—Goal and Return to Mineral Wells and back, 124 miles.

Happy days are here again; Texas weather started back to living up to its reputation. Thirty-three ships put out to sea, ten or so either took a day of rest or put off in search of gold and diamond legs. Of the 33 tryers making off along the course, exactly 20 accomplished it. Desert man Bikle found it exactly to his liking—best conditions of the contest so far he thought. His average was 41.2 m.p.h.—not fast to be sure, but good all the same for the top score of 1,000 points for the day.

Thomson in the RJ-5 buzzed in across the finish line just seconds behind Bikle for an average of 40.25 m.p.h. Hutchinson was hot as a two-dollar pistol in his bunny-nose LK carrying a co-pilot for the third best time—even exceeding Maxey's score.

We think one of the most outstanding performances in this contest is that of young Ross Briegleb, our 17-year-old lad from sunny California. See his name there in 11th place: imagine that for a lad of his tender years! What's more, he is flying against this country's very best airmen. His sleek BG-12 designed by his dad Gus, is the prototype of this new line of Briegleb sailplanes.

1. Maxey (Jenny Mae)	3,719
2. Schreder (1-23D)	3,412
3. Bikle (1-23)	3,333
4. Thomson (RJ-5)	3,326
5. Schweizer (1-23F)	2,937
6. Mulloy (1-23)	2,750
7. Smith, Stan (1-23)	2,704
8. Sawyer (Nimbus II)	2,672
9. Forbes (Weihe)	2,667
10. Coverdale (Skylark II)	2,659
11. Briegleb Jnr. (BG-12)	2,636

August 4th.—396 - 351 - 351 - 341 - 338 - 330 - 327 - 320 - 315 - 315 - 310 - 310 - 310 - 310. Now we will start the 'rithmetic lesson. Get out your handy dandy little pocket univac—add this all up or down and it comes out to something near 5,000 miles which were flown by 14 pilots on this open day. Never was there such a day in soaring history. As you can see, it literally rained

diamond distances. Gold and diamond goal legs went as easy as circuits around the airframe. Nothin' to it.

A NEW TWO-PLACE RECORD.—Harold Hutchinson and passenger, in his LK, barely beat Texas Soaring Association's own Dave Malkemus and his passenger in a P-R, into Tulsa, Oklahoma's Muny Airport. This little caper was good for a beat of Dave Johnson's National Two-Place Goal Record of 221 miles. The Tulsa distance was good for 280 miles. Interestingly enough, neither of these pilots knew the other was in the air. They arrived over the goal with 10,000 ft. in hand, but stayed aloft awaiting this scalding hot day to cool down a bit before landing. It was in the landing pattern that each discovered the other, but Hutch was cleared to land number one.

The best score of the day was Del Miller's great 351-mile flight to a goal at Eureka, Kansas. This equalled but did not exceed Maxey's record goal flight to Wichita, Kansas, made earlier in this contest. Thomson put in also at Eureka but he had nominated another goal. Maxey had the longest flight, just under 400 miles, but Miller's goal bonus of 20% pushed him over for the 1,000 points of the day. Maxey's big flight held him safely in the No. 1 spot for the fifth consecutive day—and take my word for it, he will be a hard man to dislodge.

Hutchinson moved into first place in the two-seater division but with Dave Johnson within shooting distance. These two-seater boys are really slugging it out for the nice silver trophy given by Mr. Willis Naudane. Young Ross Briegleb completed his Gold C and becomes, as far as we know, the youngest man in the world to hold this coveted honour.

1. Maxey (Jenny Mae)	4,651
2. Thompson (RJ-5)	4,160
3. Bikle (1-23)	4,142
4. Schreder (1-23D)	4,062

August 6th.—After Saturday's killer-diller distance day, Sunday's big Air Show and the TSA-BQ and husking bee—we were all ready to get back to the war on this Monday the 6th day of competition. It would not be a really big day by Texas standards, but a day all the same when the skill kids might take a few scalps off the heads of some high scorer. The Board called the same 300 km. course again: Grand Prairie-Mineral Wells-Whitney-and

back to G.P. No one had accomplished it the other time, but this was another and slightly better day. One hundred and ninety point six hard grinding miles across, up and down a fairly strong S.W. wind. The course would score for gold distance and diamond goal, should there be anyone left who is still short these legs.

Chore that it was, eight men and *one boy* circumnavigated this tough course. White-thatched Pat Mulloy, ex-fighter pilot and genial gentleman from old Missipp, brought his fire-engine red 1-23 over the finish line in 4 hrs. 45 mins. after departing Grand Prairie. At 40 m.p.h. his time was top for the day. Dick Schreder landed next but his time was slightly less better than the old desert fox Maxey. He again played it smart and fully protected his top spot on the scoreboard for the sixth consecutive day. Coder, Smith, Caviani, Schweizer, Brown and *that boy* were the others to complete the course.

The results of this day shook the scoreboard a bit. Lady Luck did not even glance in the direction of Bikle and Thomson and she wasn't exactly chummy with a lot of other guys. It seemed that Grand Prairie-M. Wells leg was a pip: everyone made that turn very handily. But the M.W.-Whitney proved to be the fooler. Here was where the men were separated from the boys—but *one boy* wouldn't be separated.

1. Maxey (Jenny Mae)	5,644
2. Schreder (1-23D)	4,963
3. Thomson (RJ-5)	4,689
4. Bikle (1-23)	4,627

August 7th.—Task, Goal and Return; Grand Prairie-Waco Muny (cipal Airport), 160 miles. Seven is a magic number, they say, and so it was on this 7th day of competition on the 7th day of August here at the 23rd National. It would be a day of light winds, good thermals and plenty of building cumulus clouds.

There are many ships in the contest this year with excellent radio equipment. Waco radio at the turn point started picking up the pilots' signals as the herd moved southward in their direction. Having been told that 44 ships were attempting the task, the boys at Waco radio, having little knowledge of such goings on, fully anticipated all 44 in tight formation over their station. As a matter of fact 43 were above them at one time or another but at altitude scanning the ground for the identification markers. But as it worked out, the chaps at the radio

station were privileged to see very few ships in the air and only one close-up when one unfortunate pilot had to put in at the turn point.

We had barely cleared away the dinner (dinner in Texas is the mid-day meal) dishes and laid down for siesta when in screeched Paul Bikle in his Schweizer 1-23. His time was best of the day at 46.5 m.p.h., and that is real speed when you consider that his run to Waco was directly into the wind. Minutes after "Bicycle's" termination, waves of sailplanes swooped in over the finish line. The quite large crowd gathered to witness the finish was electrified with excitement. Five and six ships were diving on the field at a time. It was a great day in soaring—31 of the 44 starters accomplished this tortuous 160-mile out-and-back race. The score sheet will tell you which 'uns did and the ones that fluffed it.

THREE RECORDS this task established:— a Swiss record by Schwarzenberger in the Nelson Hummingbird, the world's only auxiliary-powered sailplane, with the owner Jim Simmons as passenger; Canadian by Yeates in his 1-23; and Argentinian by Araoz in the 1-23.

1. Maxey (Jenny Mae)	6,595
2. Schreder (1-23-D)	5,856
3. Thomson (RJ-5)	5,758
4. Bikle (1-23)	5,627

August 8th.—Task: Breckenridge and Return Grand Prairie. 217 miles. The regular Bulletin Editors are busy doing more important things today and the female element of the contest has been called on to pinch hit.

Honest to goodness these sweet little wives are tops. They spend weeks getting ready to attend these contests—getting all the buttons and bows on all the kids' clothes—the family cats and dogs farmed out—the old man's favourite flying clothes washed and ironed (they do start off fresh and clean as daisies); *then* when contest opening day finally arrives, do they find a nice cool movie to attend—or do they stay in an air-conditioned hotel room enjoying that long needed rest? *They do not.* They, like mad dogs and Englishmen, get right out in that mid-day sun and crew for their old men. But come nightfall, somehow they blossom out in their prettiest summer frocks and you'd never know the trials and tribulations, heat and frustration they've been through fetchin' their old man in.

Speed		Total	Final Placings	
m.p.h.		Points	Pilot and Sailplane	Points
1. Maxey	50.5	7,595	1. Maxey, L. (Jenny Mae)	8,595
2. Schreder	44.4	6,736	2. Thomson, G. (RJ-5)	7,607
3. Thomson	44.5	6,641	3. Schreder, R. (1-23D)	7,459
4. Bikle	43.3	6,486	4. Bikle, P. (1-23)	7,384
5. Schweizer	44.9	6,212	5. Schweizer, P. (1-23F)	7,002
6. Smith	39.6	5,928	6. Smith, S. (1-23)	6,738
7. Mulloy	37.5	5,711	7. Mulloy, P. (1-23)	6,519
8. Coder/Janczarek		5,700	8. Coder/Janczarek (Weihe)	6,369
9. Briegleb	40.3	5,588	9. Briegleb Jnr. (Briegleb 12)	6,358
10. Forbes	36.2	5,459	10. Forbes, R. (Weihe)	6,137
11. Miller	36.65	5,359	11. Miller, D. (1-23)	6,106
12. Sawyer		5,263	12. Coverdale, W. (Skylark II)	5,984
13. Coverdale	35.1	5,254	13. Sawyer, J. (Nimbus II)	5,925
14. Claybourn	33.5	5,062	14. Claybourn, M. (1-26-A)	5,699
15. Hutchinson	37.2	4,855	15. Hutchinson (LK-10A)*	5,611
Hutchinson (LK-10A) made the best two-seater speed.			16. Compton, F. (LK-10A)	5,400
			17. Araoz, A. (1-23)	5,298
			18. Johnson, D. (LK Flat-top)*	5,226
			19. Mancuso, D. (LK-10A)	4,959
			20. Cavaiani, G. (1-23D)	4,697
			21. Swierkowski (Nimbus III)	4,479
			22. Brown, R. (Weihe)	4,479
			23. McNay/Boone (LK-Flat-top)*	4,463
			24. Malkemus, D. (Pratt-Reed)*	4,318
			25. Yeates, C. (1-23)	4,076
			26. Gehrlein, L. (1-23C)	4,034
			27. Williams (LK-10A Flat-top)*	3,414
			28. Simmons, J. (Hummingbird)	3,402
			29. Pfeiffer (LK-10A)	3,363
			30. Ross, H. (R-6)	3,068
			31. Raspet, D. (Olympia)	3,008
			32. Jackson, R. (1-23)	2,802
			33. Reed/Oats (Mod. LK-TG4A)*	2,632
			34. Stickland/Thompson (Olympia)	2,450
			34. Kohls (1-26)	2,352
			36. Zauner/Rehr (1-26)	1,831
			37. Royce, W. T. (PJ-1)	1,822
			38. Sherman, P. (LK-10A)	1,732
			39. Jensen (Nucleon)	1,502
			40. Lincoln (Baby Bowlus)	1,419
			41. Boyle, et al (1-26)	1,183
			42. Perine, J. (1-26-A)	898
			43. Brown, D. (TG-2)*	811
			44. McKee (TG-2)*	188

* Two-seater.

Summary

The fact that this 23rd U.S. National Contest has been the greatest event of its kind ever held anywhere is evidenced by the following brief statistics—

Total Distance Flown, 42,200 miles; 2 Diamonds attained, 17 Diamond legs, 8 Gold C's, 11 Gold C legs, 10 Silver C's, 1 Silver C leg; 9 National Records broken (3 U.S.A., 2 Swiss, 3 Canadian, 1 Argentine).

In addition to the above, there were more than 15 flights of over 300 miles (one was 394 miles), five of which were goal flights. More than 45 flights exceeded 200 miles, 21 of which were goals. Nine pilots completed a 200 km. course on one day; 31 pilots completed a 93-mile triangle on the last day.

KRONFELD CLUB

All those interested in Gliding are reminded that the Kronfeld Club at 74 Eccleston Square (basement), London, S.W.1., provides a social centre where members can gather. Details of their lecture programme can be found on page 272.

Gliding Certificates

SILVER C CERTIFICATES

No.	Name	Club	Date
585	J. Butler	Midland Gliding Club	2.7.56
586	E. C. Smith	Surrey Gliding Club	19.5.56
587	P. J. Horrell	Midland Gliding Club	6.7.56
588	H. E. Burditt	Salisbury Gliding Club (S. Rhodesia)	24.6.56
589	M. Randall	Midland Gliding Club	26.7.56
590	C. Bentson	London Gliding Club	31.7.56
591	M. T. Catger	College of Aeronautics Gliding Club	31.7.56
592	M. J. Jobling	R.A.F. East Midland Gliding Club	31.7.56
593	J. P. F. De Salis	Empire Test Pilots' School	2.7.56
594	D. R. Hooper	Surrey Gliding Club	31.7.56
595	H. Page	Four Counties Gliding & Soaring Cl.	31.7.56
596	D. R. Lane	Salisbury Gliding Club (S. Rhodesia)	1.6.56
597	I. Paul	Newcastle Gliding Club	26.7.56
598	F. W. Allen	R.A.F. Wessex Gliding & Soaring Cl.	3.6.56
599	K. S. O'Brien	R.A.F. Moonrakers Gliding Club	2.8.56
600	A. S. Moore	Army Gliding Club	10.7.56
601	H. F. Hilditch	Surrey Gliding Club	11.7.56
602	W. R. Bradford	London Gliding Club	12.8.56
603	P. E. Berriman	London Gliding Club	20.8.56

C CERTIFICATES

Name	Gliding Club or School	Name	Gliding Club or School
P. J. Staff	RAF	R. Walker	Southdown
S. James	Geilenkirchen	L. J. Moulster	London
J. D. McColl	RAF Fassberg	L. F. McKinnon	Perak F.C.
A. Brazier	Oxford	H. P. Buckminster	RAF
J. Proctor	Perak F.C.	J. M. Harvey	RAF Gütersloh
J. H. Reid	HC Hawkinge	R. A. Smart	Surrey
J. McKenzie	No. 661 G.S.	F. C. Anderson	Derbyshire & Lancashire
V. Shaer	Cambridge	M. M. Wayne	No. 662 G.S.
F. A. Plumb	Wessex	G. A. Robinson	No. 671 G.S.
D. Roberts	RAF	G. D. O. Evans	No. 621 G.S.
F. Anderson	Oldenburg	E. J. Robinson	Midland
M. F. Doncaster	Middleton	D. A. Stuart	Dartmouth
R. T. Wheeler	RAF	M. J. Gibson	R.N. Camp
J. C. Gibson	Surrey	I. R. Harvey	No. 641 G.S.
M. P. Oldacre	Blackpool & Fylde	N. Revell	No. 621 G.S.
H. I. Marsh	RAF	H. E. Marples	No. 641 G.S.
R. E. Pettifer	Wildenrath	M. D. Hurrell	No. 621 G.S.
H. R. Terry	No. 611 G.S.	L. W. Jones	HCCG
C. M. Labouchere	No. 623 G.S.	R. P. F. Gregory	Hawkinge
M. S. Boatswain	Gamecock	H. Janssens	No. 621 G.S.
R. N. Boulton	Wessex	J. H. Abell	RAF Bruggen
P. M. Scott	No. 621 G.S.	A. P. Witherup	No. 621 G.S.
J. G. Croshaw	Blackcap	Anne Ince	Blackpool & Fylde
J. P. F. De Salis	Bristol	R. C. Forrow	Surrey
T. W. B. Corbett	Wessex	H. C. Teoh	R.N.
R. D. Frodsham	Empire Test Pilots' Sch.	J. H. Pickering	Portsmouth
Valerie P. D. Crown	RAF	C. E. Andren	Perak F.C.
W. T. Kwasny	Midland	H. B. Mason	No. 612 G.S.
J. Harb	Derbyshire & Lancashire	J. H. Scarborough	Surrey
F. J. Rogers	London	A. J. Head	No. 642 G.S.
H. Riedel	Surrey	C. R. M. Dobbie	R.N. Blackcap
J. A. K. Williams	HC Hawkinge	J. T. Day	RAF Biggin Hill
	RAF		No. 612 G.S.
	Gütersloh		RAF
	Imperial Col.		Gütersloh
	Southdown		



Slingsby S

*congratulate Nick Goodhart
brilliant victory in the two
World Contests in the SL*

With many other gliding enthusiasts we were thrilled by the outstanding and consistently good performance of Nick Goodhart and Frank Foster in the 1956 World Contests when they took their T-42B Eagle (fondly called "the soapbox") into 1st position on the 5th day, and maintained and increased their lead. Second only in performance to Paul MacCready in the single seater class.



H. C. N. Goodhart

*and the five pilots out of th
ir*

L. V. Juez (Spain)

G. H. Stephenson (Gr

M. Ara (Spain)

P. A. Wills (Great Br

J. Ortner (Argentina,

DESIGN
OF ALL TYPE

Pioneers



L. V. Juez, of Spain with his Slingsby Sky

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 ...-seater class in the 1956
 ...INGSBY T-42B Eagle



Frank Foster

...e first eleven in the single seater class who flew
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...eat Britain)	Skylark III	6th
	Sky	7th
...ain)	Skylark III	10th
	Skylark III	11th

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Geoffrey Stephenson, his wife Beryl, and his
 Skylark III



Philip Wills, is seen here in his Skylark III

THE RESTRICTED CLASS MARCHES ON

The Gliding Commission of the F.A.I., at their recent meeting at St. Yan, further crystallised their views on the proposals to establish a restricted class for future World Championships, and asked O.S.T.I.V. to make recommendations.

The basic idea is:—

(1) To lay down that the purpose of the class is to foster the development of high-performance sailplanes cheap to buy and to operate.

(2) To ask O.S.T.I.V. to put forward proposals to achieve this, split into (a) a set of compulsory requirements, to be of the simplest possible nature, and (b) a series of recommended practices.

(3) The ultimate intention would then be to have, in addition to the usual prize for the winning pilot in the class, a prize or trophy for the machine which, in the opinion of an international jury, most nearly met the aim laid down in (1) above. This aircraft might or might not be the one whose pilot had won in the contest.

To show the extent of the ground which has already been covered, we publish a copy of a paper circulated to and discussed by O.S.T.I.V., who have now, we believe, sent their proposals to the Gliding Commission (C.V.S.M.).

THE RESTRICTED CLASS OF COMPETITION GLIDER

by L. Welch

As it is considered by some that the modern high-performance glider has developed into a large and expensive device, it is thought by some that it might be wise to start using simpler and cheaper gliders in some types of international competitions.

This note considers various methods of defining a restricted class and suggests a formula for discussion.

There seem to be six possible methods:—

1. ONE DESIGN.—All gliders built to precisely the same design and possibly carrying the same equipment.

Pro: (a) The competition would be a genuine test of pilots' skill.

(b) The cost would be the same for all competitors; it need not be high.

Con: (a) Once the design has been established, no improvements are possible.

(b) There is no scope for new designers.

(c) There is considerable difficulty in

ensuring complete uniformity.

(d) Manufacturers do not like building to the design of others in materials with which they may not be familiar; further, it is difficult to obtain approval from the airworthiness authorities for a foreign design.

2. HANDICAPPING.—To allow virtually any design of glider to compete, but to handicap them all down to a common level.

Pro: (a) Any type of glider can compete.

(b) The man with the exotic aircraft obtains no advantage.

Con: (a) It is quite impossible to devise a handicapping formula which is fair in different types of weather.

(b) The designers' efforts are expended in trying to fox the handicappers instead of trying to build better aircraft.

3. LIMITED COST.—To permit any type of glider to compete, provided that it cost less

than a certain sum; alternatively, to limit the number of man-hours expended in its construction.

Pro: This is really what one wants, since the whole object of a restricted class is to keep the price down.

Con: (a) The manufacturer's selling price means nothing, since costs vary in different countries. It is difficult to stop manufacturers cheating by, for example, selling an aircraft half-built and then having it back for repair.

(b) Unlike a house, which a quantity-surveyor can cost to a fair degree of accuracy, no one can look at a glider or its drawings and say how many hours it cost to build.

(c) What is one to cost? The prototype, or the production job? An expensive prototype may be cheap in production, once the tools have been made.

(d) Once a glider has been built is one allowed to improve it?

4. PRODUCTION AIRCRAFT.—To permit the entry of all aircraft (possibly within certain

dimensions and with limited equipment) which are genuine production jobs. This could be defined by saying that at least, say, 20 aircraft of identical type must have been built.

Pro: (a) The gliders would be reliable and not nearly as expensive as one-off prototypes. Most countries have some suitable aircraft.

Con: (a) It is a rule which is unfair to the small countries; some countries cannot afford to build 20 simple gliders; others would be delighted to have an excuse for ordering 20 of the most complicated gliders in the world.

(b) It is difficult to define what modifications are allowed.

(c) Once a design has been built in sufficient quantity to permit its entry, the introduction of a new design would be difficult, since this new type could not be used until 20 had been built.

(d) The decision whether or not a machine may fly will depend on a certificate from the manufacturer

COSIM VARIOMETERS

were used by all countries competing in the **WORLD CHAMPIONSHIPS 1954** in England, and were also used on all British machines in the Championships in Spain which gained 1st, 3rd, 9th & 11th in a field of 39 single-seaters.

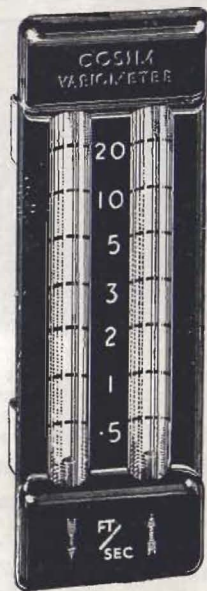
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saying that 20 have been built. This seems to go against one cardinal principle of all restricted classes—that one should be able to vet the device by looking at it and not at a piece of paper of doubtful truthfulness.

5. **RATING RULE.**—This system is used in certain international classes of racing boats. Various limiting dimensions are imposed, but the boats are not built to one design. A rating formula is used which is so devised that the factors which tend to make the boat go faster (e.g. length and sail area) increase the rating. The boats must have less than a certain rating, and therefore a long boat is not allowed as much sail area as a short one. This method results in very even racing but it could only be made to work with gliders if the factors affecting performance were fully understood. It is doubtful if it would be popular, since a glider with a good wing would have to carry a bad fuselage.

6. **RESTRICTED CLASS.**—In this method, which is widely used in small boats and in some measure with cars and motor cycles, the dimensions are limited and those features which experience has shown to be expensive are prohibited.

- Pro:* (a) Considerable freedom can be given to the designer.
(b) Either prototype or production aircraft can enter.
(c) Cost can be kept within reasonable bounds.

- Con:* (a) The features which have to be restricted or prohibited are those which, at the time of drawing up the rules, are thought to be expensive. These features cannot therefore be developed in the class, and unless there is active development outside it, progress may be held up.
(b) It is difficult to frame the rules.
(c) Having drawn up the rules, they have to be interpreted; this takes time and trouble.
(d) Designers spend their time building better gliders within the rules and not building machines which are cheaper or more practical.

Of these six methods the only ones which could possibly be applied to gliders at the present time, with any chance of success, are:—Production aircraft, and Restricted Class.

The production aircraft has serious dis-



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advantages, particularly because of the necessity of relying on some piece of paper proving that the specified number have been produced. If this production-aircraft method were employed, the rich nations would undoubtedly have a distinct advantage, as their aircraft would possess all the gadgets and be more elaborate than the aircraft of the simpler nations. After a year or two, some move to restrict the complications in the aircraft would be enforced and one would then have a restricted production-aircraft class. This seems to have few advantages and many disadvantages over a straightforward restricted class. Why not, therefore, go straight away to the restricted class pure and simple?

One is trying to keep down the cost of the aircraft, and the factors which affect this seem to be:—

1. Span: large span increases cost of both aircraft and trailer.
2. Weight: gliders, within limits, cost so much a pound.
3. Very low weight: if the weight is very low, the aircraft is expensive and needs constant attention (cf. Windspiel, Elfe).
4. Retractable bits and pieces (skids and wheels).
5. Flaps.
6. Adjustable controls, seats, etc.; also droopable ailerons.
7. Very thin wings (elaborate construction required).
8. Very high aspect ratios (elaborate construction required).
9. Elaborate methods of construction used to make very smooth surfaces.
10. Very fine finish.
11. Complicated control mechanisms.
12. Expensive materials.
13. Expensive equipment (Artificial Horizon, Oxygen, Radio, Cabin Heating).
14. The stressing requirements.
15. Prototype or limited-batch production.

Some of these factors can be easily limited or prohibited, whilst others cannot possibly be tied down. Obviously, one wants to tie down the minimum number of features consistent with obtaining simple, cheap and reliable aircraft.

To start with, one could lay down the following:—

- (a) Maximum span.

- (b) Maximum aspect ratio.
- (c) No flaps or droopable ailerons.
- (d) No retractable wheels or skids.

This would probably be satisfactory, although, when designing an aircraft to this rule, one would be tempted to have the minimum taper ratio, to avoid low Reynolds Numbers, and one might then employ a very expensive wing construction. This could be overcome by insisting on another requirement: some formula bringing in taper ratio, aspect ratio, wing thickness, and span.

Further, since one would be tempted to produce skids and wheels which hardly projected from the bottom of the fuselage at all, it might be wise to insist either on a minimum undercarriage deflection or alternatively to insist that the undercarriage projected a certain amount from the rigid fuselage. I would like to make the use of a wheel compulsory.

One would naturally have to insist on all the aircraft meeting some strength and handling requirements and having T.V. brakes. And there would be some people who would like to do more of the designer's work for him by insisting upon a minimum fuselage cross-section and pilot's view. One could make out a case for prohibiting radio, oxygen, expensive artificial horizons, etc., but I feel that the four items listed above would be quite enough to start with.

Having got this far and suggested the factors which should be restricted, we are now faced with the very difficult problem of putting actual numbers to the span and aspect ratio.

However, before doing this, it is as well to consider two-seaters. There is no reason why we need have a restricted class which is confined to single-seaters. We could allow two-seaters within the same limits, but this would result in all the competing machines being single-seaters since the two-seater would be too heavily laden (that is, unless the limits are put very high). It would seem to be much better to have two sets of limits—one for two-seaters and one for single-seaters—the limits being so chosen that both aircraft would have approximately the same performance. The two types of aircraft could then compete on equal terms, provided of course that the two-seater was not flown solo.

One would naturally like to put the limits in such a way that a large number of

existing aircraft would be eligible. But to a lot of people, the Weihe and Sky are too big and expensive, since we know that the smaller Meise, Skylark II, Moswey, etc., can put up very good performances. It seems therefore that it would be wiser to put the single-seater span at 15 metres, although the Americans with their 12½-metre 1-26s would say that 15 metres is too big. For the two-seaters, it looks at a first approximation that the maximum span should be 18 metres, since for the same aspect ratio and wing loading the all-up weights would be in the ratio $18^2/15^2$, which is 1.44. Since most single-seaters of 15 metres span are flown at about 650 lbs., a two-seater of the same shape but scaled up to 18 metres would therefore weigh 936 lb. In practice this figure could not be obtained, and to keep the same wing-loading the designer would reduce the aspect ratio. This would reduce the performance, but the Reynolds Number would go up, and it is possible that the two effects would more or less cancel out. In any case one does not really want two-seaters of more than 18 metres span.

We have, therefore, a very simple set of rules:—

- (a) Maximum span: single-seaters 15 metres, two-seaters 18 metres.
- (b) Maximum aspect ratio: say, 18.
- (c) No flaps, methods of varying wing-camber, or droopable ailerons.
- (d) No retractable wheels or skids (and I would like to see a compulsory requirement for all gliders built after 1957 to have a fixed wheel).

Most ordinary club gliders come within this framework, and this set of rules would not prohibit or encourage any unusual features. But it is as well to consider what form a special competition glider designed to these rules would take. The designers would be tempted to make the fuselage as small as possible, particularly if it were to be flown by a small pilot. He would also have as small a skid and wheel as he thought he could get away with. There would also be a tendency to reduce the taper ratio to the minimum at the price of an expensive wing. Further, if it were thought that a very light glider was an advantage, expensive methods of construction might be employed; a superlative finish might also be achieved at high cost. Again, if competitions take the form of races and out-and-returns, there might be a tendency to make the wing in one piece and put up with the difficulty of

retrieving such a large component; considerable weight would be saved at the price of great inconvenience. It might, therefore, pay to limit the length of any one component.

Apart from these comparatively minor retrograde steps, it is unlikely that the designer would be forced to design out-of-date machines or ones which, in order to win competitions, had to be impractical for every-day use.

The great advantage of a set of rules of the type described above is that one can inspect an aircraft quite simply and see if it is eligible; the measurements are simple and they do not involve the weight. Once weight is brought into the picture, the complications increase, since it is difficult to forecast the weight accurately, and even more difficult to decide exactly what is and what is not removable equipment.

Experience with restricted classes of boats has shown that great difficulties arise if the rules are loosely framed. It is vital that such simple terms as span and aspect ratio are precisely defined, and that the same is done for flaps and wing-camber-changing devices. For example, one could have an aircraft with both flaps and air-brakes operated by the same lever. Initially only the flaps would come down, and then the airbrakes would start to come out. The designer could argue that the flaps were necessary to avoid increasing the stalling speed with the brakes out, and he would be quite right if he put the brakes all along the top of the leading edge. Unless this possibility is borne in mind, when framing the rules, one would soon have all the aircraft with flaps, which would be used for circling as well as when the brakes were fully open.

EDITORIAL NOTE.—The foregoing paper by Lorne Welch was discussed one evening at the OSTIV Conference at St. Yan in July, under the chairmanship of K. G. Wilkinson, with many pilots from the World Championships and several sailplane designers in the audience. Mr. Wilkinson suggested taking the points one by one, starting with span—which eventually took up the whole evening and most of a subsequent meeting as well.

Wolf Hirth, from Germany, said that 5% of weight could be saved by making the wing in one piece; but trailers 15 metres long were not allowed in some countries, so

the span would in that case have to be limited to 12 metres (39.4 ft.). However, it was possible to make a 12-metre sailplane with a gliding angle of 1 in 30 and minimum sink of 0.65 m. (25.6 in.) per second.

Philip Wills, as vice-president of the F.A.I. Gliding Commission, reminded the meeting that the purpose of a limited class was to evolve a machine cheap to buy, to operate, and to repair (see his article in *SAILPLANE & GLIDING*, December 1955, p. 183).

B. J. Cijan (Yugoslavia) proposed that the weight (empty) of the machine should be limited; otherwise aircraft could go on getting heavier and more expensive.

Mr. Wilkinson considered the possibility of a lower limit to weight, to keep the machine cheap, but he doubted whether it would be worth anyone's while to reduce weight expensively. Heinz Kensche (Germany) agreed with him.


Weight, as Mr. Cijan pointed out, is bound up with certificates of airworthiness. F. G. Irving said that safety factors for cloud-flying in nearly every country are 8 or 9, though M. Cayla gave 10 as the figure for France.

A Czechoslovak speaker was for limiting aspect ratio rather than span, and another speaker asked what the designers can give us with 15 m. span with which it is not too difficult to do triangular or out-and-return flights (he was, of course, referring to the "penetration" needed for flying against or across the wind).

A German speaker was sure that, if span was limited, the most expensive machine would be the best; and another speaker cited the intricately-built 12-metre *Windspiel* of 1932 as an example of how price goes up when span is reduced, while yet another pointed out that reducing the size of the HKS-1 to that of the HKS-3 had made it more expensive.

As to 18 metres being the limiting span of a two-seater with equivalent performance to that of a 15-m. single-seater, there was little discussion except for a suggestion by Mr. Matschek that 19 m. or 20 m. was the correct equivalent.

Anyway, as Mr. Wilkinson pointed out, the meeting had not been called to make a decision, but only to guide the F.A.I. Gliding Commission, who would later produce a formula for the Restricted Class.



WORLD GLIDING CHAMPIONS PAY TRIBUTE TO VENNER ACCUMULATORS

Dear Sir,

It is with great pleasure that I am able to report success in the World Gliding Championship due in no small measure to your Venner cells.

On two out of the seven days on which contest flying took place, there were heavy thunderstorms and in each case we made climbs to about 17,000 ft. in these storms, depending entirely on an artificial horizon powered by your cells. On both days we scored very high marks, and as a result ended up as winners of the two-seat class.

While, no doubt, we would have had equally trouble-free results from lead acid cells, the weight would have affected our performance adversely, and might well have made a big difference in the results.

*Yours faithfully,
H. C. N. Goodhart (Cdr. R.N.)*

Venner lightweight silver-zinc accumulators are installed in leading sailplanes for driving the horizon and directional gyro and for radio transmission. They have proved their worth in International Gliding Championships.



Write for full details and brochure SG/A
VENNER ACCUMULATORS LTD
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Associated Companies:
Venner Limited Venner Electronics Limited

New Oxygen Equipment for Gliders

THE accompanying photograph of Commander Nicholas Goodhart, with the oxygen equipment he used at this year's World Gliding Championships at St. Yan, France, has been sent by the makers, Messrs. Normalair Ltd. of Yeovil, who write:—

The new equipment has been specially designed for use in light aircraft, small passenger machines and gliders. Its compactness and very low weight make it particularly suitable for these types. All the Slingsby sailplanes flown by the British team in the World Championships used the Normalair set and heights of more than 20,000 feet were achieved on several occasions.

The vital part of the new equipment is a flow selector consisting of a control unit and

a contents gauge mounted on a single panel measuring only 4½ x 3 ins. and weighing less than 1 lb. This unit allows the pilot to select flows of 1, 2, 3, 5 or 10 litres per minute—the first four being those normally required at 10,000 ft., 17,000 ft., 25,000 ft. and 33,000 ft. respectively. The 10 litres per minute flow is necessary only in an emergency. Control units giving flow ranges can be supplied and the equipment can be used up to 40,000 feet.

The complete system based on this flow selector consists of an oxygen storage cylinder and a face mask. The cylinder is charged to 1,800 p.s.i. and its capacity can be 400 litres or 750 litres. The total weight is respectively 8.8 lb. or 12.7 lb., and it is believed to be the lightest oxygen equipment available in the world.



Model Engineer Exhibition

It is twenty-three years since we last gave a report of the annual Model Engineer Exhibition, held in Westminster. This year we were honoured with a free Press ticket; but, before describing the single exhibit of gliding interest, let us give an extract from the *SAILPLANE & GLIDER*, of November, 1933, in which that year's exhibition was described:—

"At the stand of the Northern Heights model flying club . . . after disclosing our identity, we were treated to a thorough telling-off and dressing-down of the entire British Gliding Movement by the gentleman in charge of the stall. 'You gliders,' he told us, 'you never do anything, you don't think.' If we only troubled to think, he proceeded, we would long ago have fitted our machines with propellers worked by pedals. We tried to convince him, without much success, that most sailplane pilots found they could keep up very comfortably without any such mechanism. But he continued to assert that we should never make any progress until we started to think. For one thing, our aspect ratios were all wrong ('Look at the rooks!'). And then a previous visitor had suggested, and he had agreed, that sailplanes should be fitted with a vertical sail above the wings, 'to act in the same way as a ship's sail, and take advantage of the winds.' He himself had done some gliding as far back as 1900, and on the strength of this he fired his parting shot: 'Gliding! Why, I reckon I've had more experience of gliding than anyone else in this country!'"

After that, all we can find to write about the 1956 exhibition is just a tame piece about a large tailless model sailplane of 9 ft. 6 ins. span called "Pheon" and owned by a Mr. F. C. Smith. With it he had won the world championship in the motorless class at a recent contest at Arnhem for tailless models only, powered and powerless. The wing had a short centre-section with a Göttingen aerofoil, MVA-301, specially developed for models; and outer, longer, swept-back portions with a Clark Y8 section, incorporating 7° washout of incidence at the tips.

This time the man in charge knew what he was talking about and said it with quiet

confidence. At such a contest, he explained, the models are launched by a 50-metre line (164 ft.) and are timed up to a maximum of 15 minutes; anything beyond that does not count, so there is no point in designing them to catch thermals, if that could be done. Although the larger models have a device for turning the rudder slightly off centre after the launching line is released, this is done to prevent them flying away and getting lost.

Another device for large models is a "de-thermalizer"; in this a fuse burns through a strand of elastic after a pre-set interval, with the result that a flap opens and, in some cases, an off-centre parachute as well. This causes the model to spin down at a sinking rate of some 16 ft. per second, so that any thermal it may have blundered into will not carry it away.

We feel sure that some day, with modern advances in automatic guidance, model sailplanes will be designed deliberately to catch thermals; competitions may then be held for maximum height. But the gliders would have to be designed for "penetration", as well as for directional guidance, to keep them within sight of the airfield on a windy day. At present, as our demonstrator agreed, the competition rules ensure that they are designed only for minimum sink.

As to automatic directional guidance, we were told that slope-soaring models are being made with built-in "magnetic" control. These may have a "turbulator" in front of the leading edge of each vertical wing-tip panel (i.e. rudder) to ensure that it gets a grip on the air flow.

And here we come to the paradoxical fact that, while full-sized sailplanes are being developed with more and more laminar flow, the smaller models are designed for less and less. Laminar flow, for them, is the enemy of performance, for the air flow has slipped off the trailing edge before the wing has had time to make use of it for creating lift. Hence small models often have a wire strung across just in front of the leading edge, to create the turbulence needed before the airstream can act on such a tiny wing. Even power-driven models, we were told, may have threads stuck on the wing surface,

transverse to the airflow, in order to give the machine minimum sink after its motor has cut out, for the competition is for total time in the air, not for motor endurance.

Insect wings are known to carry devices for creating turbulence over the wing, such

as tiny hairs along the leading edge, or, in the case of the dragon-fly, a zig-zag wing section. But it is odd that model aircraft should need them, being comparable in size with birds rather than insects.

A.E.S.

From Here to Paternity

Notes for the use of Instructors

by Anon

(Reproduced by permission from "Lasham Gliding")

THE techniques for instructing husbands in handling infants have hitherto been haphazard and brutal. In the hope of encouraging standardization, I offer these notes to all gliding wives.

1. Heir Experience

The first introduction of the pupil to the infant is of great importance. It will have been on intimate terms with the instructor from an early age, but it must not be forgotten that the pupil's first reaction, if not properly guided, is likely to be one of pity and terror. The instructor should try to see the infant through the pupil's eyes, when it will become evident that, when new, the obverse resembles a small man from Mars, and the reverse looks unnervingly like a roast duck. If the pupil at this point shows signs of cold, fear, etc., instruction should be temporarily abandoned. Sympathy for the pupil must always be shown.

2. Handling—Elementary

At the time of writing, only two types of infant are in general use, but owing to the universal practice of one-off construction, handling qualities vary widely. The pupil should therefore be restricted to his own infant, and not be confused by having to handle those of other people. In extreme cases he may become very nervous, and be unable to remember whose father he is, and Accident Reports are full of splits, tears, nasty cracks, and even broken marriages due to this cause.

For his first attempts he should be seated comfortably, preferably in a deep armchair whence he can see out properly, but not escape, and he should have the same cushions each time, the supply of clean ones being limited. It must be impressed upon him that the infant should be held lightly, and moved only an inch or two at a time.

Neither attention nor grip should be relaxed, or a stall may ensue. This consists of considerable kicking and buffeting, followed by the nose dropping sharply, and if recovery is not effected in time considerable damage may result. Fortunately, audible warning of the approach of a stall is usually ample, though this is nothing to the noise afterwards. The pupil must therefore be taught to use his ears and not to stuff them up with ear plugs.



LO-150

**A high performance sailplane
at a reasonable price**

Cdr. G. A. J. Goodhart holds the International and British 300 km. Triangular Record for his flight in Australia in a LO-150 at an average speed of 76.6 km/h. Other outstanding flights have also been made in this machine.

Write for details and prices of the LO-150, two-seaters, the Grunau Baby, or the LO-100 (for Aerobatics) to:-

**WOLF HIRTH GMBH
NABERN-TECK
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3. Handling—Advanced

Two evolutions often cause trouble to the more advanced pupil: the Pottie and the Bath. They should be fully explained before he attempts them, or he may become confused between them, but it will be found that most pupils are quick to grasp the basic principles.

The art of landing the infant accurately on the chosen pot lies in mastering the hold-off. Too little or no hold-off results in the infant getting jammed, sometimes inextricably, perhaps with damage to the keel; while too much hold-off results in even more damage, though less to the infant than to its surroundings. Competence can come only through constant practice, opportunities for which are, fortunately, never-ending. The Bath is a more complex manoeuvre, but the troubles arise afterwards in most cases. It is regarded by many pupils with some apprehension, and once the instructor has dispelled this attitude, it is only too easy for the pupil to become over-confident or careless. Some of the more serious signs of this are listed below:

- (a) Omitting to check water temperature: the infant will afterwards be a red colour if the water was too hot, or white if too cold; in extreme cases it will also be lying quite still.
- (b) Slapdash handling of infant's night-wear, often resulting in both legs being inserted into one trouser-leg.
- (c) Carelessness in putting the infant down in unsuitable places, e.g. across the clothes line or on window sills.
- (d) Hurried and incorrect rigging of nappies: since safety pins replaced

split pins, there is no excuse for doing the infant up like a steamed pudding, and this should be discouraged.

- (e) Attempting manoeuvres for which he has not been properly briefed, such as feeding. Feeding, except by bottle, is a highly specialized operation, and should be attempted only by instructors.

4. Further Instruction

The pupil should by this time be capable of handling the infant in conditions other than calm. He will certainly have encountered some turbulence by now, but he should also have explained to him the effects of squalls, prevailing wind and the various kinds of precipitation: he should be quite clear about the effects of blankets in producing warm and cold fronts. Instruction on cross-countries may follow, with rigging and derigging of prams and navigation on crowded pavements, but he should be warned not to attempt the steam-roller technique adopted by lower-middle-class instructors until he is really experienced with the pram.

5. Conclusion

In reading the above notes, the instructor must constantly remember that the standard of safety depends greatly upon personal example. If she makes a habit of stowing the infant in the hood of her duffle-coat while riding a bicycle, she should not be surprised if her pupil does the same. Continual watchfulness and discipline are necessary to ensure safety, but married life flows much more smoothly if it is borne always in mind that All Accidents Are Inevitable.

Malvern Interlude

by M. Stather Hunt

SILVER C duration flights being rather hard to come by at Baginton, the idea of flying across country to a hill site had been at the back of our minds for some time, Dunstable generally being thought of as the best bet, as lying south-east of Coventry it would not be a difficult cross-country with the wind on the hill at Dunstable.

May 26th, 1956, looked like being a

reasonable thermal day after about 12.30; the wind was a modest north-easterly. Although it was my turn to fly Jacob's Ladder (Syndicate Olympia) I was not feeling delighted at the prospect of doing probably three to four hours in yet another attempt at the elusive "five hours", when suddenly the Malvern Hills flashed into my mind with the tantalising prospect of out-

lasting the thermals. An east wind would have been more encouraging, but I thought it was worth a try, even if only to prove that it was no good.

The thermals did not seem as good as I had hoped, and I stuck around the aerodrome for nearly two hours before taking the plunge at 3,700 ft. As soon as Baginton was safely out of reach I could almost hear the thermals chuckling to themselves as they faded to a fraction of their former strength. This experience is so well known to soaring pilots that I need not describe it: however, some thermals can play "Possum" with you for a limited time only; over Alcester in desperation I was clinging to a thermal which merely maintained my height when after a quarter of an hour of holding itself back it had to let itself go and I climbed to 3,500 ft. ("Soaring Pilot" will tell you that this is due to another thermal coming up the path of a weak one.)

From this height I could just see the hill through the haze (so I thought, for this part of the country was hitherto unknown to me), and I set course full of hope, turning my map over to show the Malverns. However, the nearer I got the less it looked like the Malverns, although three landmarks— aerodrome, river and town on the left—all assured me that it was. A quick check of the compass told me that I was flying due south instead of south-west, and turning my map back over again I realised that I was approaching Bredon Hill and it didn't look at all soarable.

As I had declared my intention of going to the Malverns I felt that I would rather

fail somewhere near my goal than make unsuccessful experiments with the wrong hill. With the 1,600 ft. I had left, I changed track 90° and determined to land as near the Malverns as possible.

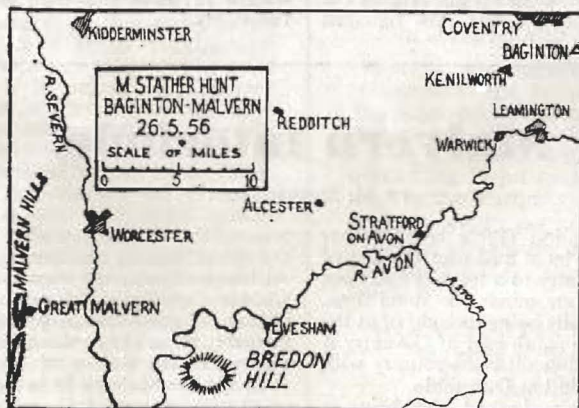
My luck changed: out of a blue sky came thermals and to my delight I arrived at the south end of the hill at over 4,000 ft., the highest point of my flight. However, I still had an hour to go and realised by now that the wind had a lot more north in it than I had hoped: the only chance seemed to be the north end of the hill where it faced roughly E.N.E. and was higher than elsewhere. I arrived there at 300 ft. above the top, after battling against a headwind component, to find I was still sinking.

This looked like the end, but I decided to fly back to the south end again, which might be giving lift at the lower altitude—the middle part of the ridge was much lower than the ends.

I arrived back at the south end still sinking, and once again turned north towards Great Malvern, looking for a suitable field. I was down to 700 ft. a.s.l. and well below the top of the ridge, when I struck lift close in to the hill and about half way along. This, the lowest part of the hill, was just working and carried me up to about 100 ft. above the crest.

This really is the end of the story. The lift improved later and I was able to explore all the hill; at hill-top level it was full of interest—it was clearly a very popular necking ground.

I landed at 19.50 hrs. after being airborne for 7 hours 10 minutes.





Above: A splendid study of an Olympia by P. J. C. Doran.

Below: Gérard Pierre, winner of the 1954 Championships, failed to keep his title as World Champion in 1956.



Up and Down

Good Companions

In a letter to *The Times* of July 18th, Mr. Aylett Moore writes: "On a recent cross-country flight in a sailplane I was surprised to observe a pair of house-martins sharing an up-current with me at a height of 4,000 ft. above sea level. This little incident occurred just north of Shaftesbury."

* * * *

New Records

In Poland on August 10th, Miss (or Mrs.) Majewska set up an international goal-flight record of 573 km. (356 miles) in a Jaskolka, beating the previous women's record of 315 miles by Mme. Choynet-Gohard, of France. Last May Miss (or Mrs.) Majewska was reported to have set up a world two-seater record for women by going round a 200-km. triangle at 66 km./h. (41 m.p.h.), beating her compatriot Mielowna's record of 50 km./h.

In France, about August 21st, M. Simeoni and M. Fontaine beat the French two-seater out-and-return record with 175 miles from Compeigne to Chartres and back.

* * * *

"Bill" Ivans

News from W. B. Ivans, Jr., who injured his spine on the last contest day of the World Championships, has been received from Mr. H. G. Buckingham. After his transfer from hospital at Crest to an American military hospital at Wiesbaden, he had an operation for removal of a ruptured spinal disc and a piece of bone, and is now "resting rather comfortably", though it is too early yet to forecast a full recovery. He writes about the "wonderful Olympia IV":—"I enjoyed each flight more than the previous one and can truthfully say that whatever catastrophic combination of foul weather, rugged terrain and pilot mis-judgment can be said to have caused the accident, the integrity and flying qualities of this ship are completely blameless."

* * * *

Two-seater Fauvel

Particulars of the AV-22, a two-seater version of the Fauvel AV-36 flying wing, are sent by M. Fauvel. Seating is in tandem, with the instructor mounted one foot higher

than the pilot. The position of the seat is adjustable longitudinally during flight to the extent of 4½ inches. The span is 15.2 m. (49 ft. 10 in.), surface 21.75 sq. m. (234 sq. ft.), and length 5.1 m. (16 ft. 9 in.). Owing to its size, the wing is no longer made in one piece ("monobloc"), and there is only a single vertical surface, attached to a prolongation of the fuselage. The wing section is the same, and aspect ratio almost the same, as in the single-seater. Estimated gliding angle is 1 in 25.

The "Coupe Survol," given annually for the longest distance flight in an AV-36 anywhere in the world, is offered again this year. It carries a prize of 30,000 Fr., or 40,000 Fr. if Eric Nessler's AV-36 record of 460 km. (286 miles) is beaten; there is also a second prize of 15,000 Fr.

* * * *

Contests in Belgium

To replace the famous Gordon Bennet balloon race of pre-war days, an international soaring competition for distance, the "Challenge Victor Boin," was held on July 15th at Temploux by the Belgian Aero Club, Mr. van Ishoven writes. Of 33 starters, 14 were Belgians. Furthest distances were: 130 miles by Cottar of France in an Air 100, 107½ by Gildemeyn (Belgium) in Sohaj, 93 by Marchand (France) in Bréguet 901, 88 by Lepanse (France) in Bréguet 904, 63 by Godreau (France) in Milan, 50 by Ordelman (Holland) in Sky. Persson, of Sweden, came 9th. According to Air Ministry charts, the wind was very light westerly in an anticyclonic "ridge".

A week later, the Belgian National Contest, "Journées Nationales de Vol à Voile", was held at the same place. Winner was Mme. Debauche with a Swiss Spalinger 18; nearest runners-up were De Sauvage with a Mu-13E, Xhast with Olympia, and Lafosse with Ka-6. Other types flying were Weihe, Sohaj, Ka-2, Rhönbussard, Spatz, Grunau Baby and Spalinger 15.

A new Belgian national out-and-return record is 149 miles by J. d'Otreppe from La Ferté-Alais to Blois and back, in France. Second Belgian Gold C pilot is P. Lafosse, after flying 199 miles from Temploux to Vizerny (France) in a Ka-2. A Fauvel AV-36 Flying Wing has been completed by the Antwerp Gliding Club after 2,000 man-hours of work spread over some years; on May 21st, the day after its test flight, it stayed up 5 hrs. 25 mins.

THIS GLIDING

Location and Allocation

"A 'wave' was known to exist over Table Mountain in the Cape Peninsula, and it was suspected that an upward current similar to others in the world existed in the Que Que region of Southern Rhodesia. Pilots were keen to find it. The Southern Rhodesian Government has allocated a special wavelength to the Federal Gliding Club . . ."—*Northern News, N. Rhodesia.*

In Reverse

"He recounted some of his narrow escapes, when he was drawn tail first by strong currents into cumulus cloud formations . . ."—*Droitwich Guardian, reporting a talk to Droitwich Rotary Club on Gliding.*

Any More for the . . .

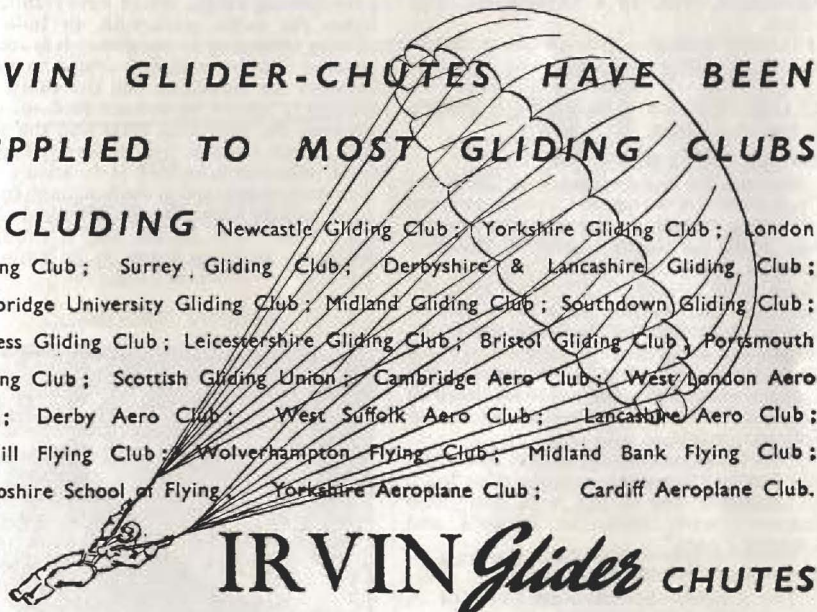
Details are announced in *Shell Aviation News* of the "Skylark 600". Thinking this was Slingsby's latest, we read on with interest: "deliveries can start in 1960," "cruising speed 609 m.p.h.," "basic price \$3,300,000," "take-off with 80 passengers after a ground run of only 4,000 ft." We were thinking that our winch would have to be overhauled when we noticed that the Skylark 600 was made by Convair and not Slingsby.—A.H.Y.

Sheer Ignorance

"It takes 30 minutes to launch a glider by winch or car—too long a time for safety if aircraft were forced to wait before landing. This is the view of Mr. J. H. Hill, manager of Greatham Airport, who told members of the Civic Airport Committee that he did not feel a suggestion by the Teesside Flying Club that they should incorporate a glider section with their present flying activities would be wise.—*Northern Daily Mail, Hartlepool.*

**IRVIN GLIDER-CHUTES HAVE BEEN
SUPPLIED TO MOST GLIDING CLUBS**

INCLUDING Newcastle Gliding Club; Yorkshire Gliding Club; London Gliding Club; Surrey Gliding Club; Derbyshire & Lancashire Gliding Club; Cambridge University Gliding Club; Midland Gliding Club; Southdown Gliding Club; Furness Gliding Club; Leicestershire Gliding Club; Bristol Gliding Club; Portsmouth Gliding Club; Scottish Gliding Union; Cambridge Aero Club; West London Aero Club; Derby Aero Club; West Suffolk Aero Club; Lancashire Aero Club; Redhill Flying Club; Wolverhampton Flying Club; Midland Bank Flying Club; Hampshire School of Flying; Yorkshire Aeroplane Club; Cardiff Aeroplane Club.



IRVIN *Glider* **CHUTES**

ICKNIELD WAY • LETCHWORTH • HERTS

BRITISH GLIDING ASSOCIATION NEWS

Records Homologated

BRITISH NATIONAL OUT-AND-RETURN: Cdr. G. A. J. Goodhart, R.N. on 7.1.56, Urinquinty-Warburn-Urinquinty, Australia, in a Lo-150, 205 miles.

UNITED KINGDOM SINGLE-SEATER SPEED TO 300-KM. GOAL: P. Bisgood on 23.5.56, Long Mynd-Great Yarmouth, in a Sky, 46.9 m.p.h.

UNITED KINGDOM TWO-SEATER OUT-AND-RETURN: D. G. Goddard and E. Hargreaves on 28.4.56, Petersfield-Lewes-Petersfield, in Gull II, 84 miles.

BRITISH NATIONAL TWO-SEATER OUT-AND-RETURN: Cdr. H. C. N. Goodhart and F. Foster on 27.6.56., St. Yan—Montlucon Aerodrome—St. Yan, France, in T-42B, 141 miles.

BRITISH NATIONAL SINGLE-SEATER SPEED ROUND A 200-KM. TRIANGULAR COURSE: P. A. Wills on 28.6.56, St. Yan-Maringues-Moulins-St. Yan, in a Skylark III, 33.3 m.p.h.

UNITED KINGDOM SINGLE-SEATER SPEED ROUND A 200-KM. TRIANGULAR COURSE: Lt.-Col. A. J. Deane-Drummond on 20.5.56, Lasham - Dunstable - Stanton Harcourt-Lasham, 20.5 m.p.h.

Airways and Control Zones

Extracts from a circular letter from the Chairman:—A recent near-accident between an air-liner and a service aircraft has made the whole matter of flying in Control Zones and Airways become very much more urgent . . . It is of vital importance that we now take some specific step to show that we are doing everything possible to avoid any infringement of these Regulations and, after full discussion, the Council has therefore agreed to lay down an additional Operational Regulation, as follows:

"No Cross-country flight may be carried out from a Club site unless the pilot has a C certificate and carries with him maps marked clearly with the Airways and Control Zones."

Instructors' Categories

The Council has decided that the A category shall be discontinued. In future the B2 category will be the only B.G.A.

Instructors' category normally issued; should any pilot want a B1 category, this will be treated as a special case, in view of the fact that solo training is now obsolete.

Fauvel AV-36

During the World Championships at St. Yan, several pilots, including members of the Technical Committee, were able to fly the Fauvel AV-36, which has undergone modifications to its landing and take-off characteristics. As a result of these further tests, when it appeared that these characteristics were normal, the Technical Committee are now prepared to consider the issue of a B.G.A. Certificate of Airworthiness for the machine. They point out however, that full flight tests would be required before a certificate could be issued. Photo below.

Over-riding Cables

Due to several recent incidents of gliders over-running cables, which have resulted in either the cable, parachute, or both becoming entangled in the glider, it is recommended that the weak link should be placed between the parachute and the cable, and that there should be at least 18 ft. of rope between the launching rings and the weak link. It still remains true, however, that the most effective safeguard is to ensure that all members engaged in the launching operations should know the conventional signal for "Stop" and should use it promptly whenever anything seems to be amiss.



BOOK REVIEW

Birds of the Gauntlet : by H. VON MICHAELIS. Published by Hutchinson & Co., London, Cape Town, etc., 1952. Original price, £4 4s. some copies now available for £1 1s.

This is a regal book for one's shelves—large, luxurious paper and type, and outstanding reproductions of the beautiful and sensitive bird drawings and paintings of the author.

Mr. von Michaelis has for many years been a leading light in South African gliding. Whilst most glider pilots have been facetiously described as "bird-men", in his case, after reading this book, one can really believe that it is apt.

He depicts his trained falcons and eagles as individuals, with characters of their own, each different, but all with basic similarities. Nowhere does one find the kind of sloppy sentimentality which pretends to give animals a kind of phoney anthropomorphism—a basic likeness to a fuzzy kind of human being. Birds have a different outlook on life, a different standard altogether. Only man tries to encompass such qualities as kindness, mercy, or charity—by however much most of us fail to achieve them. But birds possess to a lofty degree other qualities we admire—courage, for instance, in all its many facets, and a breath-taking mastery of their medium, the air. The characters of birds have obviously been moulded by the medium in which they have to exist—the air, and herein lies the main interest of this book to anyone who also has a love for flying. To anyone who also loves a beautiful book, *Birds of the Gauntlet* should be irresistible.

P.A.W.

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(See review by Philip Wills—this issue)

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Club and Association News



The experience of two members of the Lasham Gliding Centre, who, during a Summer visit to foreign parts, were privileged to fly waterborne gliders (shall we term them now gliderboat pilots?) somewhere on the Adriatic, may become of great value to the gliding movement in England if we are to experience similarly dismal wet weather in future Summers! From almost every British club correspondent has come the plaintive remark that news for this issue is scanty, and in one case it is reported that the Club committee is considering the purchase of aqualungs instead of parachutes!

All this, however, is but a temporary set-back, and as we remarked in the August issue there is no shortage of applicants for ab initio training. It is good news, also, that a club has now been formed in West Africa. Here the Gold Coast has taken the lead, but it will not be surprising if Nigeria is not far behind. We offer congratulations to the Accra club on their enterprise and good wishes for their success in the future. In the same way we wish many happy and successful flying hours to the gliding section newly formed by the Royal Jordanian Aero Club.

While still in the benevolent mood special attention should be invited to the quite delightful drawings of the Southdown club's premises sketched by one of their members, H. W. W. Hailstone. Apart from their artistic merit, which is not in question, these came as manna from Heaven to help fill the hungry pages of Club News. May we please hope that other clubs will persuade their artist members—there must surely be at least one in every club—to follow this example?

Mention of club premises reminds us of the fine new hangar on the Cotswolds erected by the Bristol club whose members received us so hospitably on a visit in July. This site at Nymphsfield (or Nymphsfield, as lettered on the local milk bottles) has great possibilities, and the clubhouse will, when conversion from former agricultural use as a barn is completed, provide very comfortable quarters for members and visiting pilots.

At the time of going to press it is probable that the 'deadline' for contributions for the December issue will be Friday, October 26th. Press Secretaries are asked to note this date and to send news and photographs punctually to 33B, Eccleston Square, London, S.W.1.

GODFREY HARWOOD,
Club & Association News Editor.

GLIDING STAMPS

Coloured sheets of stamps depicting various gliders are obtainable from the British Gliding Association, Londonderry House, 19 Park Lane, London, W.1. The sheets consist of six stamps and are available in green, blue and yellow at 6d. a sheet. Proceeds from the sale go to The Alex Orde Fund for Young Glider Pilots.



King Feisal of Iraq tried out the Olympia cockpit at the end of the Coventry Air Pageant while Mike Hunt held the canopy. He remarked on the quiet of gliding.

—Photo by "Aeronautics"

The Kronfeld Club

TALKS and films have now been arranged for every Wednesday evening up to the end of November and a list of these has been sent to all members with the Club's first Newsletter, which also contains details of the Thursday evening lecture course to be given by Dr. Scorer and Frank Irving entitled 'Flight and The Atmosphere'. The object of this course is to discuss the motion of the atmosphere on a scale which affects flight, the airflow in the vicinity of a flying machine and the forces acting upon it. The course will examine the relationship between air motions and cloud forms and the causes of types of motions peculiar to the atmosphere. Lectures will show with lantern and film illustrations the great extent to which properties of the atmosphere determine the design of aeroplanes and how the speed of sound becomes a major factor in high-speed flight.

The fee for admission to the course is £1 for non-members of the Kronfeld Club and

10/- for members and they are being held from 6.45 p.m. to 8.45 p.m., starting on September 27th for 12 consecutive Thursdays.

On October 26th we are holding our first Annual General Meeting in the lecture room at 8 p.m. and this will be followed by an informal discussion and then an equally informal dance.

Amongst items planned for the future is a Library, which is being organised by Gaynor Rees of the Derby & Lancs. and the Kent Gliding Clubs and if anyone has any books of gliding or flying interest, we shall be most grateful to receive these to add to our growing collection.

Finally, it is becoming the regular thing on Wednesday evenings to find amongst the members present at least three or four members of overseas Gliding Clubs and we hope that if people from abroad visit London they will drop in and see us, particularly on Wednesday evenings. The address is Basement 74, Eccleston Square, London, S.W.1., and the telephone number is Tate Gallery (TAT) 8740.

Kronfeld Club Lecture Programme Autumn 1956

- October 3rd, 8 p.m.
Peter Brooks on "London's Past, Present and Future Aerodromes."
October 10th, 8 p.m.
Talk on Popular Flying—to be arranged.
October 17th, 8 p.m.
Soaring Society Films on "Sailplane" and the "Hummingbird".
October 24th, 8 p.m.
Talks on Popular Flying—to be arranged.
October 31st, 8 p.m.
E. J. Furlong—talk to be arranged.
November 7th, 8 p.m.
Soaring Society Films—"The Mountain Wave".
November 14th, 8.30 p.m.
Francis Chichester on "Navigation Across the Tasman Sea in 1930".
November 21st, 8 p.m.
H. R. Presland—Travel Films.
November 28th, 8 p.m.
A. W. Bedford, A.F.C., of Hawkers—on Test Flying.
The Soaring Society Films are being loaned by kind permission of the Soaring Society of America.

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ARMY

As is known, we use Lasham as our base and share all flying with the other clubs based there. This appears to work extremely well and this year has proved very successful to date.

Lt.-Col. Sir Charles Dorman has now returned to this country from abroad and has undertaken the duties of Secretary/Treasurer in addition to his office of Deputy Chairman. Our Chairman, Major A. Deane-Drummond, who must have spent more time above 10,000 feet this year than any other glider pilot in this country, again climbed to 16,000 feet on August 28th whilst attempting a dog-leg Gold C Distance flight. We are pleased to welcome Mrs. Deane-Drummond back to the fold after an illness and she appears to be very much "At Home" in her family Skylark III.

Earlier in the year, Sgt. John Williamson completed his Gold C by flying to South Wales in the Surrey Club's Weihe. Our two-drum winch is almost ready after considerable rebuilding. The American Ford tow-car is now the mainstay of the Lasham launching organisation and we can highly recommend this vehicle to other clubs.

Many courses have been arranged for this winter and next year and we hope that a good number of our members will avail themselves of these.

W.A.H.K.

BELGIUM

AFTER several years, during which a total of some 2,000 hours has been spent on construction, the Antwerp club has completed the Fauvel AV 36 flying wing, which was test flown on May 20th, and soared for 5 hours 25 mins. on the following day.

A group of members of the Aero Club de la Meuse has bought a Schleicher Ka 6 "Rhönsegler", this club already owning a Ka 2. P. Lafosse, a member of this club has become Belgium's second Gold C pilot by flying 320-km. from Temploux to Vizerny in France in the Ka 2.

The Polish "Jaskolka" which was flown by Cartigny in the St. Yan Championships has been bought by a member of the Verviers Aviation Club.

Temploux was the venue for the National contest held in the last week of July when 14 pilots completed the tasks. The first six

were: Mrs. Debauche—Spalinger 18; De Sauvage—Mu 13 E; Xhaet—Olympia; Lafosse—Ka 6; Mojet and Pisscott—Weihe; Storrer—Sohaj.

A. VAN I.

BRISTOL

AT Nympsfield during July and August soaring conditions were confined to a few really concentrated periods. Several camps were held at the site, and these, plus the very occasional week-end, enabled five hour legs to be completed by Dennis Corrick, Peter Scott, Laurie Hughes and Hugh Moore. Pete Etheridge, however, after doing four hours in very mixed hill and thermal lift, went away, but had to land near Cirencester, 20 miles away, half an hour later.

Other cross-country efforts were 120 miles to Gatwick by Philip Willis in an attempt to reach Dover; 40 miles to near Oxford by Doug Jones, completed in 55 minutes. After leaving Nympsfield at 5.0 p.m. cloud base was rather low, but he was able to find lift by flying with one wing only buried in cloud. Lastly, Wally Weir was in range of his silver distance when he reached Burford, but he delayed to investigate local lift and eventually was credited with 30 miles. He claims that the first car he stopped for assistance contained five non-English speaking Chinese plus the driver.

Besides Kitty and Philip Willis, other visitors recently include the Navy with a Mu.13, which on one flight did 4½ hours towards a 5 hour leg; Rika and Godfrey Harwood, whose Olympia remained trailer bound during a particularly atrocious week-end; and Shiela and Dr. Gregg of Coventry, who managed a little local soaring.

Private sailplanes in the club are on the increase, and in addition to the Kite II and Olympia, Peter Scott now shares a new Olympia with Harry Daniels, whilst a Kite I syndicate is almost ready for initial flights. A ten member syndicate, including Keith Turner and Maurice Chantrill, has also been formed, and they are impatiently awaiting the arrival of a Skylark II.

Our summer courses continue to make good progress in the hands of Pete Collier, who now has over 100 hours' experience on the site. Our 1,000th course member arrived on September 3rd and received the award of a free course.

On the ground side, we have bought a Land Rover, after trying in vain to stay on a wildly bucking tractor, and our two single-drum winches somehow manage to keep going. We have abandoned parachutes on the cable, as frequently we have had to launch cross wind, and retrieving a cable from the woods on one side has proved to be most unpopular. Our new club house is making but slow progress, and it now looks as though our house warming party may have to be combined with a Christmas do.

M.G.

COVENTRY

FLIGHT activities at Baginton were curtailed for a month, partly owing to weather but mainly by work entailed by C. of A.'s. Members turned up in force to give a hand in preparing aircraft for the Summer Camp. The workshop looked like a funeral yard littered with 'dead' bodies and wings. As a result of driving the slave gangs we now have a resurrected fleet of gleaming cream and red aircraft.

The week before the camp saw all craft moved to Edgehill by trailer, except the T.21 which was flown there by Vic Carr and Louis Glover. The return journey was completed in the same manner by Jimmy Joss and Ivor Tarver. During our month's holiday we achieved some success in spite of bad weather. The ridge gave '5 Hours' to Mike Thompsett, Ivor Tarver, Richard Gregg, Ian Croft, Peter Berthelsen and John Graham who has now completed his Silver 'C'. M. Thompsett and Heather Gregg gained 'C's'. There was little thermalling, although the T.21 did reach 6,000 ft.

Two aerobatic displays have been given recently, one by Vic Carr in Dr. Gregg's Olympia at the Coventry Air Pageant, during which the guest of honour, King Feisal of Iraq, showed great interest in the glider, sitting in it and being shown the controls.

George Thompson has just resigned from his post as C.F.I. owing to the fact that, as he is soon to be married, he finds that he has not the time he considers necessary to give to so responsible a position. Vic Carr, until now deputy C.F.I., will take over. The Club extends its grateful thanks to George for his leadership during the past four years and wishes Vic every success in his new position.

B.H.C.

CROWN AGENTS'

WE have been able to afford a welcome to several members of the overseas civil service this Summer who have been introduced to the joys of gliding by Derek Piggott and Derrick Goddard at Lasham. Unfortunately the weather has retarded their full progress, as it cannot be expected of a man home for only three months' leave in England that he should spend much more than a week or so on gliding. Bristow, Ruhl and Stables, however, all from Kenya, are returning to their duties with a new zest for life and a determination to add their weight to the Nairobi club as soon as possible.

J.E.G.H.

DERBYSHIRE & LANCASHIRE

DURING the last two months we seem to have had too much weather; this lamentable excess has rather restricted our activities, and there has been little cross-country flying. But training has gone on steadily, and there have been more summer courses run, as last year, by Phil Leech. These seem to have fared well and enjoyed

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better weather during the week than we had at weekends.

On Sunday, July 1st, a day which started with a S. wind and heavy showers, and finished with the wind W. and still more rain, Bernard Thomas 'contacted' and got well over 6,000 ft. in a flight over the Dams to the North, but no-one else did so well. There followed several poor weekends; on July 25th Ernest Dennison did his five hours in a Cadet known as The Yellow Peril, of which he is part owner, the flight finishing at 9.50 p.m. The next week Wilfred Heginbotham got his Silver C height with a flight to 5,400 ft.

On July 28th a party from the club set off to explore a site in the Lake District; this expedition (a fuller account of which will appear separately) was particularly unlucky with its weather, but returned convinced of the great scope of the selected site for magnificent hill-soaring, having managed on the only good afternoon to soar both Skiddaw and Helvellyn.

On August 5th there was a light S.E. wind, and a little patchy cumulus, and Bernard Thomas set off crosswind, in the Sky, hoping to reach the Long Mynd and, if possible, return. But conditions failed to improve, and he finished by reaching Tern Hill, 45 miles away. The same day one of a party of Cranwell cadets who were visiting Camphill for some hill soaring also went away, hoping for Silver 'C' distance, which unfortunately he did not quite achieve. So unkind has the weekend weather been that this actually ranks as the best cross-country day in the last two months.

Later in August Jan Krasnodebski and Roy Birch both went solo, and on Monday, 20th, Harold Corney did his five hours in the club Olympia, using thermal and hill lift.

The club now has a new C.F.I. Gerry Smith, as a great many reading this will know, has been C.F.I. for about ten years and has been a familiar figure to all those taking part in the competitions, national and international, held at Camphill. He has given the club invaluable service, and it was with great regret that his resignation was received. The committee asked Bernard Thomas to take over the position, and he has now become our C.F.I. He has been in charge of *ab initio* training for years, and would seem to be a 'natural' for his new post.

A.H.B.

LONDON

WE have managed to do a considerable amount of flying this Summer, in spite of the weather. Recent Silver 'C's' are those of Chuck Bentson, Peter Berryman and H. Kuntze. Our Skylark II arrived during August, and is much in demand, having already done several cross-country flights. One of these was by Ron Dodd to Lyneham, when he reached 7,400 ft. en route.

Another Gold 'C' attempt was by Allan Stagg in the Meise, when he covered 105 miles to East Hornington. His retrieve must rank as one of the most complete 'fumbles' ever, as it involved two cars, one of which broke down, two punctures, and sundry other adventures over a period of 25 hours out and back.

Conditions for our task flying week were far from good, but much local soaring was indulged in by pilots trying to complete the tasks. John Everitt and Dick Ruffet entered a T.21b, but on account of the strong winds were prevented from covering any distance either up-wind or cross-wind, and remained for many hours in the Dunstable area. At least the navigator could claim that he was

never lost! Final results of the week were, Godfrey Lee, 1st; Dan Smith, 2nd; Dudley Hiscox, 3rd.

We have lost several members recently—we hope only temporarily—as they have been posted to Cyprus; Barry Gould and Colin Richardson with the R.A.F., and Mike Riddell with the Army. We wish them a safe and speedy return. David Spicer has gone to Canada, where May Marvin recently spent two months.

Our Summer courses have been full up, and have been well handled by John Everitt and Peter Berryman, with help from members who could spare the time. George Scarborough has now completed his 1,000th hour on gliders—an event which called for a party. We would like to give a special word of praise to Mrs. Linney and her helpers for the really excellent catering that has been provided. P.F.

MIDLAND

WE have not maintained the pace set in our last report, in that no one has succeeded in covering 300 km., but numerous pilots have tried. Two such

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Details from the Manager

attempts were made on July 6th, one by Dr. Barry Jones, who got as far as Cardington Airfield, Beds., 109 miles, the other by Ron Rutherford to Wolverhampton Airport, both flying Skylark IIs. The flights were made during a very successful camp held from June 30th to July 7th, in which two members completed their Silver 'Cs'; Paul Horrell flew to Alvechurch, near Evesham, 41 miles, and Dr. John Butler, to Tamworth, 54 miles, both in Club Olympias.

We entertained the Navy again this year from July 17th-25th. They had rather poor weather for the first three days but the latter half of the course was very good, several 5 hour and height flights being made. A club member who was also on the course, Mike Randle, took an Olympia to Honily Airfield, Warwickshire, 51 miles, to complete his Silver 'C'. On July 25th the Navy sampled wave flying most of the day and Doc Butler, who took off in the Club Skylark with the intention of either going round the triangle (22 miles) or to the East Coast, eventually climbed to 13,500 ft. near Welshpool in a wave and easily accomplished the triangular flight. He landed after nearly eight hours in the air and reported that the climb had taken two hours in a clear blue sky.

On the following day David Martlew nearly equalled the previous day's best height by climbing to 12,500 ft. in the Skylark, in rather similar conditions.

Good convection coincided with the August Bank Holiday, and on Saturday several pilots encountered severe icing at heights around 9,000 ft. in cumulus. The wind was light westerly. Sunday found us flying in similar conditions to the day before, but with an easterly wind and only the Skylarks could reach the lift, which in this wind direction is usually concentrated near the East slope. Monday was rather poor but Tuesday's weather rallied splendidly and small high cumulus dotted the sky most of the day and all this with negligible wind! The local triangle was well used.

John Simpson organised a camp from August 11th-18th, which produced 169 hours flying, but not a lot of the exciting kind, although Charles Green did manage 40 miles on one day.

Flying totals so far this year amount to 2,000 hours from 3,000 launches, which is running about the same as the last two good years.

J.H.

NEWCASTLE

ACCORDING to the ancient proverb, "no news is good news". If that be true the news from Usworth must indeed be excellent—but in truth, in common with the rest of the country, we have been suffering from a series of deep depressions, which have considerably hampered our flying activities.

The only noteworthy flight in the high Summer was that by Alan Pratt and J. Gardner, who were airborne in the T.21b for an hour, during which they just failed to reach 6,000 ft. in cloud.

The club hut which, since the beginning of our tenancy at Usworth, has had a rather bare look, recently suffered an invasion by the ladies. Thanks to the work put in by Mrs. Beckwith, Mrs. Marley and Mrs. Pratt, this dilapidated ex-R.A.F. billet has been converted into a comfortable rest room where men can congregate and converse about flying and the weather.

Both M.T. and aircraft committees have been busy, and their efforts have resulted in a new Beaverette and the club Tutor, much to the satisfaction of the 'B' pilots so far limited to the Cadet with its 3-minute circuits.

The rest of the news comes from our party of 14 who visited the Long Mynd with five aircraft ranging from a Scud III to the Kite II with mod. cons.'. Our congratulations go to Ian Paul who completed his Silver 'C' with a five hour wave flight. He related how he contacted the wave at 3,000 ft. above the launch and then, flying at 40 knots, proceeded to eat his way through his sandwiches up to his maximum height of 5,600 ft. Many other pilots who had contacted were dotted along the edge of the wave cloud. Coming down after 5 hours was apparently more difficult than going up. Three Silver 'C' legs—two duration and one height—were gained by other members of the party.

L.A.C.

OXFORD

As forecast in the last issue, the Oxford Club has now moved from Kidlington which had been our site since 1951. We managed to get a little soaring, however, in spite of the weather, and the upset of the pending move. 'Chuck' Pearson qualified for his 'C' Certificate in the G.B. W./Cdr. Holmes soared the Olympia for 15 minutes

in the late evening of what proved to be our last day's flying from Kidlington. As this was only his second solo flight, however, he was not able to claim his 'C' Certificate.

On July 28th, ably assisted by No. 47 Squadron's Tiger Moth from Abingdon, which aero-towed the Olympia and G.B. across, the Club transferred its activities to Weston-on-the-Green R.A.F. Station which is about four miles out from Kidlington off the main Bicester Road.

We are indebted to Group Captain Griffiths (Officer Commanding R.A.F. Abingdon) for obtaining permission for us to operate from Weston. In fact we could not have wished for more generous assistance both in making the move and providing us with the best available facilities at Weston. The field is larger than at Kidlington and we are able to get several hundred feet higher on the launch. The presence of a café and garage a few yards from the station entrance is another useful asset.

Having no powered machines operating, we hope to be able to use an additional cable run in due course in an effort to speed up the launching rate for the two-seater.

In the meantime we again extend a cordial

invitation to members of other clubs to visit us at our new site.

D.W.H.R.

SCOTTISH G.U.

OUR search continues for a new site. The most recent possibility is a piece of ground about four miles east of Balado, from which it would be possible to soar to Bishophill from a winch launch in a West or South-West wind and Benarty Hill to the south in a North wind. Inquiries are being made.

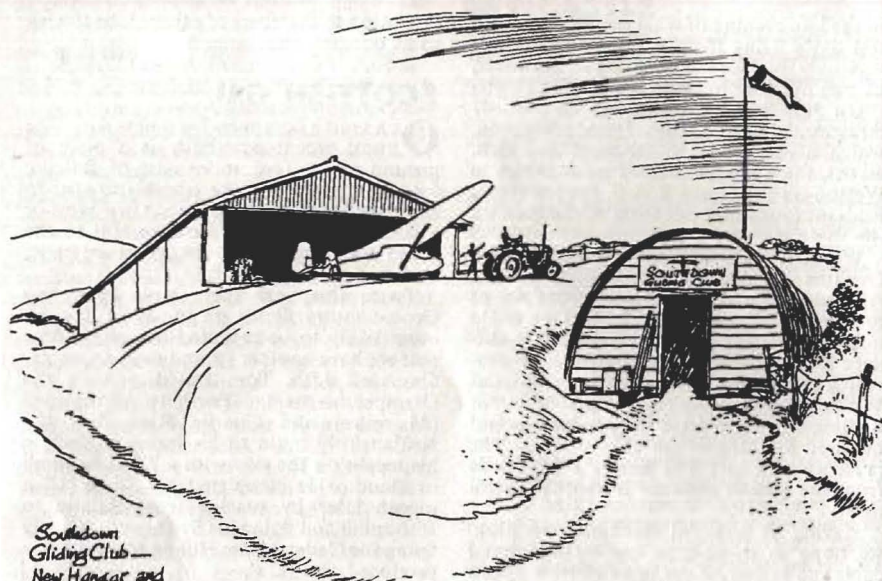
Twice this year there have been two Cross-country flights on the same day, an event likely to be repeated frequently now that we have another (brand new) Olympia. On April 15th, Tom Davidson took the Olympia across the Forth to Livingstone (25 miles) and Charlie Ross flew the Krajanek 40 miles to his home, collecting his height on the way with a 7,000 ft. climb in cloud. He completed his Silver 'C' a month later by soaring from Balado to Bishophill and doing his five hours. A party flying the Cadet on the Hill on the same day produced five 'C's'.

A week after our new Olympia arrived, Jimmy Rae took it to Fordoun (62 miles) to



The drawings on this and the following page are by H. Hailstone of the Southdown Gliding Club.

*Southdown
Gliding Club—
The Strage—
(Men's Bunk-house)*



Southdown
Gliding Club—
New Hangar and
Workshop.

complete his Silver 'C' and establish a new club record. Charlie Ross set out after him in the other Olympia, but the thermals gave out and he landed at Kirriemuir (40 miles) in some very tough country indeed.

Two more five hours were performed over Bishophill on March 4th by Bill Adamson in the Olympia and Ian Dodds in the Krajanek. Bill also collected his height leg, climbing to 7,500 ft. in wave.

Although only one flight of note was achieved, the Club's Easter trip to Oban was a great success, and we are hoping to return there in the summer for a week. The airfield we used is an old wartime one, among quite magnificent scenery, and has a built-in soaring slope at the north end of the runway. We were able to make use of this on the last day we were there, and Andrew Thorburn climbed to 4,000 feet in wave in a two hour Olympia flight.

Peter Scott, the well-known artist and naturalist, visited us on June 23rd and 24th and performed exemplary circuits in our Tutor. Having sampled the comforts of the canopy on our T.21 he hopes to persuade his friends in the Bristol Coub to invest in this boon to chilly bird-men.

D.H.

SOUTHDOWN

SINCE moving last year from Friston, on the cliff top near Eastbourne, to the present site near Firlie Beacon the membership of the club has greatly increased, and the amenities have been improved. We now have 139 members, of whom about 76 are active flying members.

The latest acquisition is a new hangar, which will accommodate four aircraft fully rigged. This is situated near the car park at the top of the Bentley Drivers' Club test hill. A small Nissen hut has also been erected to serve as a workshop and store.

The club house is in a large barn at the foot of the hill. For this thanks are due to a kindly disposed local farmer. He has in addition given the club the use of a cottage to serve as the men's bunkhouse, and this has now been redecorated throughout. Meals can be obtained, by arrangement, at reasonable prices at the farmhouse.

Flying takes place every week-end, and the field on the downs overlooking Alfriston is large enough for winch-launching in any wind direction, usual heights attained on the launch being between 700 and 800 feet. Northerly winds, most common, of course,

in the Winter months, give ideal soaring conditions along the ridge. Crossing the gaps along the South Down ridges presents some difficulties, but a few months ago our C.F.I., David Parsey, succeeded in reaching West Meon, near Petersfield, a distance of 54 miles. This better the flight by Chris Hughes on January 2nd, 1955, which was described in the Spring issue of GLIDING for that year, and also beats Robert Kronfeld's flight to Portsmouth in 1930.

We run courses from time to time for non-members, and visitors, especially from other clubs, are welcome—all the more if they arrive in their own aircraft.

H.W.W.H.

SURREY AND IMPERIAL COLLEGE

IN spite of the wintry conditions of this Summer, we are well up on launches, hours and miles over last year. This is mainly due to increased activity on weekdays, when it is not unusual on a good day for the whole club fleet to be airborne. The figures for the first eight months of the year are: Launches, 15,805; Hours, 2,674; Cross-country miles, 6,339. The corresponding figures for the first eight months of 1955 were: Launches, 12,923; Hours, 2,162; Miles, 3,652.

Recent attempts on the 'Dog-leg' Gold 'C' distance have been made by J. R. Mackenzie and D. Kerridge, who both managed 166 miles. Dave Kerridge, and Paul Minton, led an expedition in July to Jugo-Slavia, returning by way of Zell-am-Zee and the Wasserkuppe.

On July 28th we held a very successful "At Home" at which we entertained many friends and V.I.P.'s from far and near. The gliding demonstration organised by Lorne Welch was run to an exact timetable and was greatly applauded. (A full report appeared in the issue of "Flight" for August 10th.)

Our caterers, Mr. and Mrs. Bunny Rawlinson, are on the point of departure, as they are emigrating to Australia. They have done a fine job of work during the past two seasons, in rather difficult conditions, and we are sorry to see them go. We wish them all the best in their new life 'down under'.

Our customary Christmas Party will be held this year on Saturday, December 15th, when we hope to welcome at Lasham many of our friends from other clubs. H.T.

ULSTER

DURING July and August, weather conditions have not been especially kind, and it was not until late in July that cloud base lifted sufficiently above the ridge to permit soaring. On the last day of July, however, after a week-end of violent storms, Liddell drove the 70 miles to Magilligan with a scratch crew, and satisfied his soaring appetite with a four hours' flight during which he attained 3,500 ft.

During August several flights of from one to two hours were made, landings being made generally in the soft sand above high water mark. Beck, Hesslip and Rountree all had good flights.

W.L.

WESSEX R.A.F.

THE weather has not been kind to anybody recently, but we have had our moments. In June's strong weekend winds we used Inkpen quite a lot, Jim Brimfield, Lofty Eldridge and Arthur Braybon all getting their Silver 'C' duration, though not quite so easily as it appears in print. On the day Lofty got his, Andy's usual placid briefing persuaded the Treasurer that the evil-looking scud sliding moistly through their hair was really two hundred feet further up, and off went our financial expert to prove it. "If you get into cloud, just keep heading North", had said Andy, but after some pregnant minutes the Grunau re-appeared shamefacedly from the South, and Frank said he'd just like to sit quiet for a bit if nobody minded, and work it all out.

Lofty did his five hours when it lifted a little, but reported later that he'd spent a lot of his time flying by the modified horizon visible through the four inch square panel in the side of the Olympia's canopy.

We gave passenger flights at R.A.F. Andover's Garden Party one Saturday in aid of the Clement Dane Fund, and although the weather was very poor, there was never any lack of customers. It was a good example of what can be done with an efficient team, for with two gliders (our own Falcon and a Sedbergh borrowed from Bicester, for which we were most grateful), we achieved 59 launches in just 3½ hours. We used two winches and one retrieving vehicle, as is our custom, flights being around five minutes. I think we enjoyed

this high pressure operation as much as the customers enjoyed the flying, and it enabled us to hand over £9 to the fund. Andy Gough and S./Ldr. Scorer did most of the flying, and their spot landings were a joy to watch.

Air Commodore Moore got his Silver 'C' height during July, and Petty Officer Turner and young Labouche, a cadet from Marlborough College, their 'C', but attention was beginning to turn to the R.A.F. Championships by this time and our very hardworked sailplanes began to assume strange colours and unfamiliar, gleaming countenances.

For us, the championships proved successful but a trifle frustrating, there being only four real competition days. We had Andy Gough flying his Lasham Olympia in the Advanced Class, and in the Intermediate Class, 'No Trouble At All' Scorer in a very smart, canopied Grunau recently and beautifully repaired by Ottley Motors, Frank Allen in another, less trim Grunau, and W./Cdr. Kearon and J./T. Brimfield sharing a Sedbergh very kindly lent to us by the Royal Air Force.

Organisation at Netheravon was much on Lasham lines, a camp being established and a very good spirit prevailing despite the wild weather.

The first Competition Day made up for the gales of the previous three days and Andy flew to Hawkinge, where he landed in order to be sure of an aero-tow back, only to be extremely put out to see two Olympias sailing smartly past on their way to Deal and Dover respectively. S./Ldr. Scorer got to Tunbridge Wells on this day, Allen to Arundel, and W./Cdr. Kearon to Lasham (almost!).

Two bad days followed, then a free distance which sent everybody on the fairly short run South to the sea, and again on the

day following only with a bit of Easting added. Allen, after four vain attempts to get away, finally caught the last cumulus of the dying day and gained as his reward one long, long glide from 7,200 feet into Odiham where F./Lt. Swaffer, of Windrushers, very soon joined him.

On the last Competition Day, Allen was fortunate enough to get away early, just in front of a storm which grounded the rest of his class, and he flew North to Stow-in-the-Wold before the nimbus got him.

Final results gave Windrushers first place in the "A" Class with Andy a close second, and in the "B" Class we took the first three places with Scorer, Allen and Kearon/Brimfield, in that order.

On Sunday, August 12th, Andy put on an aerobatic display by invitation for a recorded I.T.V. programme at Kenley, where his manoeuvres in the Olympia were much enjoyed by the large crowd.

R.B.L.

WEST AFRICA

WHAT is thought to be the first gliding club in West Africa was formed at a meeting held in Accra on August 17th last. A committee of five under the chairmanship of Lt.-Col. R. E. S. Skelton (retd.) was elected to investigate the whole situation—particularly the financial situation!—and report back to a general meeting of members. Launches will be by car-tow from the flat open grasslands at a site provisionally approved by the Civil Aviation Authorities about 15 miles north-east of Accra. There are many problems yet to be overcome but if all goes well we expect to be flying some sort of two seater by early 1957 with perhaps an intermediate single seater for those members with the necessary experience.

P.G.B.

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