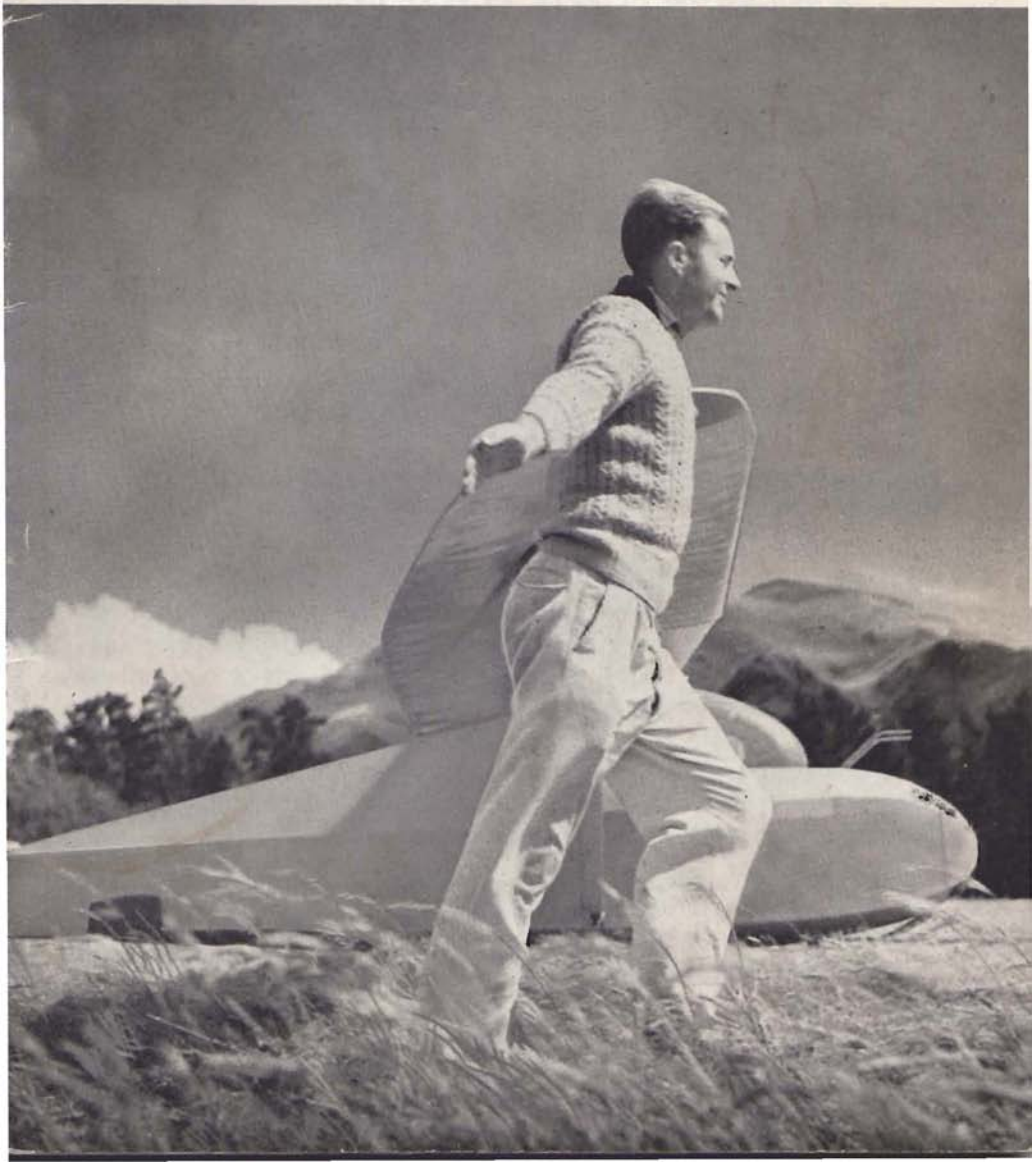
SAILPLANE & GLIDING

June — July 1969 4s 6d



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SAILPLANE & GLIDING

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Cover photograph: Looking forward to the soaring season.

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START THINKING ABOUT MARFA!

By DICK JOHNSON

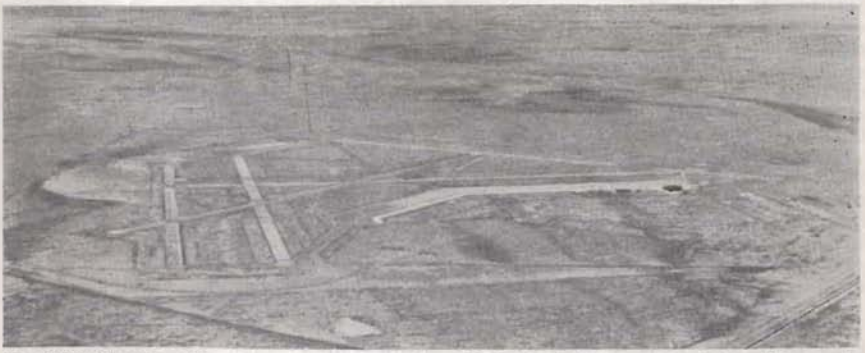
With the World Championships only twelve months away, we have asked Dick Johnson — a well-known World Championship pilot himself — to prepare these notes, which should be of interest to prospective teams.

MARFA is located in semi-arid SW Texas and is less than 70 km NW of the Rio Grande River, which is the US border with Mexico. The land is characterized by rough, rocky and thinly-vegetated mountains and high plateau areas, separated by gently rolling brush and grass-covered valleys. The mountain tops are mostly 6,000-8,000 ft. ASL; the valleys are about 3,000-5,000 ft. ASL in elevation. The valley summer daily highest temperatures average 90-100°F, and the nightly lowest about 50-60°F.

The land is sparsely settled, except for Marfa, and consists almost entirely of large cattle and sheep ranches. Marfa is the county seat of Presidio County and is made up of homes, county government buildings, a railroad station, hotels-motels, business houses and restaurants. Its population is approximately 3,000 persons, which is more than that populating the balance of Presidio County's 3,877 sq. miles. Outside Marfa the population density averages about one human and 20 cattle per four square kilometres of land area. Lack of water and vegetation discourages large increases in either.

But the arid land, which is poor for the farmer and rancher, produces excellent summertime thermals and high cumulus cloud bases, which are very attractive to glider pilots. Annual rainfall at Marfa is about 14 inches per year, most of which normally falls during the summer months from the not infrequent afternoon and evening thunderstorms. When the predominantly light southerly winds are from the SW, dry air brought in from the Mexican deserts produces high — and usually strong — thermals. Under these conditions the thermals will be either cloudless or topped by small cumulus at about 12,000-17,000 ft. ASL. Climb rates of 500-1,000 ft/min. are normal, and the best lift is found almost invariably over the mountains, where, occasionally, 1,500 ft/min. thermals are encountered.

When the southerly circulation is from the SE, unstable, moist air from the Gulf of Mexico, 700 km. distant, is carried into the normally arid Marfa area. Thermals are again excellent under this condition but thunderstorms form over the mountains early in the day, frequently stopping convection over large



Presidio County Airport — venue of the 1970 World Championships. (Photo by R. H. Johnson)

areas. Do not think a pilot is joking when he asks the met. man for the predicted winds at the 25,000-40,000 ft. levels; he is asking for the predicted drift direction of cu-nim clag blow-off which may be encountered during the day's flying.

Marfa is situated close to the dividing line that nominally separates the dry desert air of the west and the moist tropical maritime air normally swept up over the central portion of Texas and the US by a large stationary summertime high pressure cell, which is usually centred approximately over Bermuda, 3,600 km. to the east. The dividing line between these two air masses is appropriately called the "dew point front". This air mass demarcation line is not customarily carried on the weather maps as a front because little or no weather disturbances are normally associated with it, the temperature differences across it are small, and it is best identified by air dew point measurements. Many consider soaring conditions in the region of the dew point front to be the best attainable in the SW United States.

Flight planning is relatively easy when the dry air predominates. The convection will be principally over the mountains, where it will start early, go to great heights and generally continue almost until sunset. Gliding down from these high late thermals before darkness sets in can be a problem and must be considered for safety reasons.

When the dew point front is to the west of Marfa, a common occurrence in recent years, flight planning can be difficult because of the large thunderstorms which usually develop over the mountains. Again, convection is very strong above the mountains, and it is not unusual for cu-nims to form there before pilots are able to leave the valley-situated Championships site. A pilot may be able to soar until sunset, provided that he chooses the right courses, does his planning well, and has a fair share of luck, too. However, it is not uncommon to find oneself caught by rain and cloud cover, and having to land by mid-afternoon.

The Championships site is Presidio County Airport, located 15 km. SE of the town of Marfa. It is a large ex-WW2 bomber training base constructed in about 1941. Almost all of its old military buildings are gone now, but its multiple 7,500 ft. long paved runways and one large 120 ft. by 210 ft. hangar still survive, showing some effects of their age. A large concrete apron, approximately 500 ft. wide and 4,000 ft. long, exists in front of the hangar. This area is used for the Championships take-offs, and also as an alternative landing area after the launches have been completed. During the launch period, tow-plane and relight glider landings are made on nearby designated portions of the extensive long paved runways.

Because of Marfa's close proximity to the desolate deserts of northern Mexico, the Championships flying is performed almost entirely in the areas to the north. The basic competition area is that bounded by a line from Marfa to Van Horn Airport, 124 km. to the NW; to Pecos Airport, 129 km. N of Marfa; and to McCamey Airport, 183 km. NE of Marfa. Fort Stockton Airport, 118 km. NE of Marfa, is also a much-used turning point.

Excellent highways join all of these turn points, both with almost direct routes with Marfa and with each other.

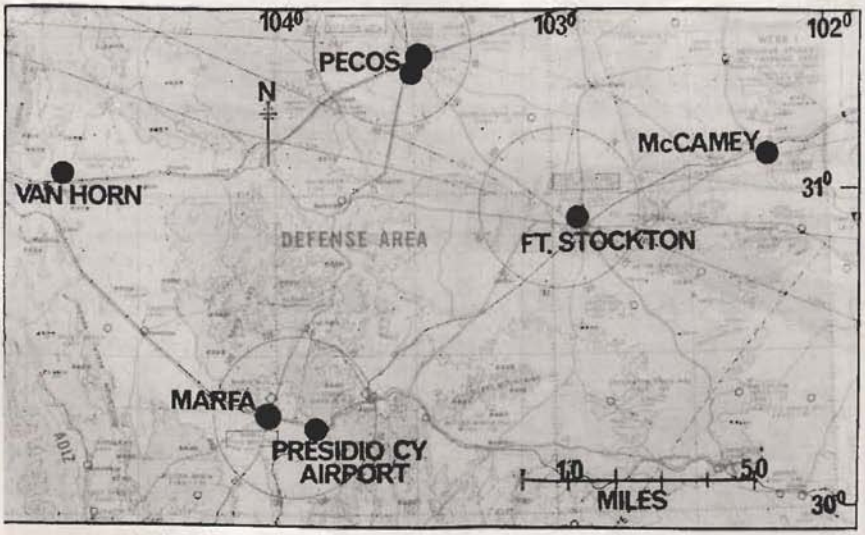
For this reason, the crew automobiles can usually stay within radio range of their pilots all day, and retrieves normally do not take very long to accomplish.

The highways also can serve as landing areas, when flying over bushy or rocky terrain that offers no other suitable landing field. The highways in this part of Texas are unique in that both the cattle fences and telephone-electric lines are set generally about 55 ft. out from the centre of a 30 ft. wide roadway. The brush usually has been cleared between the roadway and fences, or it is low enough to pass under the wings of a landing glider. Caution must be exercised, however, because of regrettably low visibility of the 5 ft. high slender steel stakes which the highway department places on the roadway shoulders at each drainage culvert and at each turn in the road. You cannot see them until down to low altitude, and they can do a large amount of damage to a glider's wing leading edges.

Road vehicular traffic is normally light and presents no significant landing problem, provided that care and judgment are used. Do not decide to land there as a last-minute decision, but carefully choose a suitable stretch of the roadway, and allow sufficient altitude so that you can wait for any oncoming road traffic to clear before landing. The exception to the light vehicular road traffic is the 130 km. stretch of major four-lane transcontinental highway running between Van Horn and Pecos. Here it would be rather risky to attempt a landing on the roadway, especially on a weekend, when traffic is heaviest.

Personally, I prefer to land off the highways, if possible, and generally there are suitable off-highway landing fields, although in places they may be 8 or 16 km. apart. If low, one simply should not leave the vicinity of the last good landing place until one has sufficient altitude to proceed on to the next. Airports located approximately 20-60 km. apart exist along each of the basic task legs, and perhaps half of the away-from-Marfa landings are normally made on these. Happily, soaring pilots are seldom low when flying there, so it is not often that one must be concerned with hopping from one landing area to the next.

The desert heat can be a problem to visitors, especially those accustomed to temperate and cold climates. The eleva-



The basic competition area, as described on opposite page.

Provided that care and judgment are used, landings may be made on the broad highways. (Photo by R. H. Johnson)

tion of the Championships site is almost 5,000 ft. ASL, so that the heat is not as intense as it might be in lower desert regions. The average daily highest temperature at Marfa is about 90°F, although it might seem hotter, because the sun's strong rays are filtered only slightly as it passes through the clear desert sky. One can stay quite comfortable by dressing lightly and keeping in the shade. Glider rigging should be done preferably either in the evening or in the morning before the pilots' meeting. Dark-coloured wings can become too hot to handle in the midday sun, and gloves might be required.

Pilots and crews alike should take salt tablets daily and drink plenty of water to combat the effects of the heat on their bodies. With the increased perspiration in the hot, dry climate, the body's normal salt balance is depleted because much of it is carried out as part of the perspiration. Without an adequate salt balance, the water one drinks will tend to stay in the body's bloodstream and not be assimilated properly into the muscle tissue, where it is needed.

Salt tablets sometimes make the unaccustomed nauseated, so it is good practice to start taking these before arriving at Marfa. Sunburn is another danger to be guarded against, as a couple of hours' exposure on a light skin can produce painful burns. Apply a suntan lotion at least once a day to exposed skin areas, fly with as little exposed to the sun as possible, and wear coloured glasses and a hat.

The most uncomfortable part of a pilot's day is that from cockpit entry until the take-off. The cockpit is heated to almost oven-like temperatures — approximately 130°F — and metal harness fittings can be painful to touch. Many install a sun umbrella over their cockpits until just before take-off to keep them cooler but, once in the air, a good cockpit ventilation system will soon have the pilot comfortable again, and the generally dry air quickly evaporates perspiration.

If the thermals go high, cold can be the pilot's new problem. For this reason, it is wise to wear light overalls or other suitable garments, and not dash off for a day in the sky dressed only with sandals and shorts. At least a pint of drinking water should be available to the pilot as an in-flight supply, principally to replenish that lost through perspiration during the early portion of flight. The organizers require an additional larger water supply to be carried in all gliders, for emergency use should a landing be made inadvertently in a remote area. This is rarely needed, but its presence aboard is comforting to pilots and organizers alike when flying over desert regions.

GLIDER PILOTS' MEDICAL STANDARDS

By PHILIP WILLS, VICE-PRESIDENT CIVV, FAI

AT a meeting of the General Council of the Fédération Aéronautique Internationale, held last November in London, I proposed that their Medical Committee should examine the possibility of putting forward a case to ICAO for a lowering of the medical standards at present recommended for different categories of sporting aviation. The General Council expressed unanimous support.

I had hoped that the BGA would have been able to write a supporting paper in time for the next meetings of the FAI Medical Committee and CIVV in early March but, unfortunately, there was not time. So, in order to avoid wasting possibly another year before the next General Conference, in 1970, I wrote one myself, and this was submitted to both Committees. It has been endorsed, and I believe will now become FAI policy, and will be recommended accordingly to ICAO.

We may hope, therefore, that in due course ICAO may relax some of their current recommendations. In the light of the facts now established, gliding bodies in those countries where quite severe standards are currently imposed should surely be able to convince their authorities that they may be relaxed.

In the ensuing month, I have been able to complete further investigations — with the help of John Ellis and others — and have further developed the case. The following is, therefore, the paper submitted to FAI brought up to date.

* * *

In regard to medical standards for glider pilots, at the present time a large discrepancy exists between nations. In the UK and the USA, no official standards are imposed, whereas in many European countries — and possibly elsewhere — quite rigid standards are required officially.

Both in the UK and the USA, however, sufficient research has now been done, and statistical evidence obtained, on which to found an unanswerable case in this matter.

The March, 1965, issue of *Aerospace Medicine* published a paper by Dr. R. L. Wick, Flight Surgeon of the Research Branch, Research and Education Division, Office of Aviation Medicine, Federal Aviation Agency, titled "A Five-year History of Sailplane Accidents". This paper was re-published in the June, 1965, issue of *Soaring*.

Extracts from this paper are recorded in Appendix 1. It is based on a total of 12 fatal accidents and approximately 110 serious accidents reported in the USA over a period of five years.

In most countries — including the UK — serious glider accidents have to be investigated by the official Ministerial body concerned. In the UK, however, the major responsibility for safety is delegated to the British Gliding Association.

In the field of accidents, remedial action can only be securely founded on an analysis, not only of serious accidents but of all accidents and *near*-accidents (or incidents). This is because, after an initial mistake or failure, it is often pure chance whether a fatal, serious or minor accident — or even no accident at all — ensues. If, therefore, an *incident* is reported, remedial action can often be taken in time to prevent a repetition and thus avoid a subsequent serious accident. By achieving a high standard of self-discipline amongst its pilot members, the BGA has managed to get them to report a much larger number of such minor accidents and incidents than, probably, in any other country in the world, and thus can produce statistics more informa-

tive and accurate than are available elsewhere.

The following table shows the total civilian launches carried out in the United Kingdom over the 10 years 1959-1968 inclusive, and the number of accidents/incidents reported and analysed each year.

	Civil Launches on Club Sites	Accidents/ Incidents
1959	121,196	90
1960	122,557	84
1961	139,826	70
1962	163,313	113
1963	152,676	79
1964	170,535	92
1965	183,527	98
1966	204,881	102
1967	195,610	106
1968	218,358	104
	1,672,379	938

Of these 938, 180 accidents were sufficiently serious to be legally reportable. This is a good measure of the degree by which the BGA analysis forms a reliable basis for accident prevention measures as compared with analysis based on accidents officially reported. Four of these accidents/incidents had a conceivable medical causation, of which two were suffered by pilots holding PPL's, with the official medical standard involved. The medical deficiency discovered in the other two accidents would not have been detected in a PPL medical examination. (See Appendix 2.)

Dr. Wick's paper concludes with the words ". . . there is no evidence to indicate that requiring (glider) pilots to possess medical certificates would lower the present accident rate."

The BGA analysis of over 900 accidents/incidents arising from over 1.67 million flights gives a sufficiently large statistical base on which further to strengthen this conclusion. There is now positive evidence to show that the imposition of medical certificates for glider pilots is unnecessary. Any such imposition simply restricts development and expansion of gliding with no compensating reduction in the accident rate.

The tendency amongst Ministerial Medical experts throughout the world is to shut one's eyes and dream up possible medical causes of future accidents and then to try and impose medical checks and restrictions to avoid their possible future occurrence.

The correct attitude, I submit, is the reverse — to investigate and analyse closely the actual occurrences over the past ten years, and draw conclusions from the facts thus revealed. These facts are now virtually established — no medical certificate is necessary.

Unfortunately, this is not the end of the problem. Hard as we try, neither Ministries nor the public can be made to realize that a sport involving the use of the air is no different from one taking place on the sea or on land. Although no Ministry requires medical certificates for underwater swimming, ski-ing or mountaineering, the ordinary man takes it for granted that some standard should be required before a man is permitted to fly. It would, in fact, be immensely more sensible if medical standards were imposed for the issue of a car driving licence.

Under pressure, the BGA has accordingly been requiring certain minimal procedures, particularly for instructors and pilots carrying passengers. It is currently engaged in up-dating these requirements, and I shall advise you of these in due course.

Appendix 1

"The hazard which a sailplane presents to persons on the ground is also one which must be considered. The following study covers a period of five years and, although more glider flying has been done during this period than during any similar period in the past, there is no incident which involved injury to anyone on the ground. Property damage during this five-year period was limited to several telephone wires which were inadvertently pulled down, a number of fences — mostly in the vicinity of airport runways — which were also knocked over, and one outhouse which had its door knocked from its hinges when a glider came to rest with the nose just inside the doorway. The risk to persons and property on the ground from sailplaining is apparently negligible.

"It is significant that, for a training flight in a powered airplane during early phases of pre-solo training, one hour is

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used as a standard instruction period. A student may make as few as one take-off and one landing during that time, particularly if airwork is practised during the hour. In a sailplane, however, a flight of ten minutes or less is common. Therefore, per hour of flying, the number of take-offs and landings is much higher in the sailplanes. This is reflected in the Civil Aeronautics Board figures for accident rates. Single-engine airplanes have approximately 40 accidents per 100,000 flying hours, while for sailplanes the rate is approximately 64. However, fatality rates show a different relationship. The rate for these is 3.41 and 2.56 respectively. In fact, the fatality rate for sailplanes is lower than for any other type of aircraft except multi-engine fixed-wing airplanes, which have a rate of approximately 2.05 per 100,000 flying hours. Sailplanes are largely flown by amateur pilots and multi-engine airplanes generally are flown by professional pilots. The trend seems to indicate that sailplanes are far safer than any other type of flying by amateur pilots.

"In view of the vicissitudes of sailplane flying, a question arises concerning the medical status of the individuals involved in fatal accidents. As will be seen in Table 1, most of the fatal accidents happened to pilots who did have medical certificates. (Actual figure seven out of 12 accidents.) Post-mortem examinations were performed on only two of the pilots involved and neither of these revealed any evidence which might point to physical incapacitation on the part of the pilot. Ample causes for the accidents were demonstrated.

"In a recent letter sent to all airmen in the United States, the Administrator of the FAA pointed out that 68 per cent of all accidents were caused by faulty flying technique and 31 per cent were caused by careless or reckless operation. This leaves only 1 per cent of the accidents which can be attributed to either a mechanical failure or physical incapacitation on the part of the aircraft or pilot, respectively. Therefore, in the entire five-year period only one would be expected to have been a result of a physical deficiency of the pilot. It is doubtful if requiring physical examinations of almost 1,000 pilots for those five years would be worth the effort, since it is by no means certain that the physical examinations would have prevented the one expected accident among glider pilots. Furthermore, since we are really speaking of the glider pilots without physical examinations, the time period could be extended to as long as 20 years."

Appendix 2

During the period of 10 years, in which over 1.67 million civil glider flights took place in the UK — resulting in over 900 accident/incident reports — there were four fatal accidents with a "medical" content.

The following table gives the details:—

Nature of Disease	Medical Standard
1 Epilepsy	PPL
2 Coronary artery disease	PPL
3 Coronary artery disease	Service officer
4 Coronary artery disease	BGA declaration

In relation to Nos. 3 and 4, the evidence available indicates that examinations to PPL standard would not have revealed either defect. In none of these four cases can it be said that the medical defect was the *certain* cause, but that it was a *probable* or *possible* one.

In the classes of accidents/incidents other than fatal accidents, there were no reported cases indicating medical causation. This does not, of course, prove that medical causation was entirely absent, but simply that it was not detected. However, any such cases must have been very few.

THE HP-15

By DICK SCHREDER

Following the introduction in our last issue of two new Open Class sailplanes — Nimbus and Sigma (under construction) — we now present the latest development in Standard Class design.

WITH the new Open Class sailplanes going to 21 metres (British Sigma) and 22 metres (German Nimbus and SB-9), it appears that flying in this Class may soon become as awkward and expensive as participating in the America's Cup Race and the pilot of limited means, muscle and acquaintances is consequently going to be forced to fly and compete in machines of reasonable size, weight and cost. The recent liberalization of Standard Class Rules to permit retractable landing-gear and fixed-hinge flaps now makes it possible for designers to build simple, low-cost sailplanes with outstanding performance.

The HP-15 is probably the first sailplane to be designed to the new Standard Class Rules. Its superior performance is provided by an aspect ratio of 33 : 1, with an all-metal wing of 15 m. span. The high wing-loading of 8 lb/sq. ft. at 600 lb. gross weight yields high-speed performance unobtainable hitherto in 15 m. designs. The high aspect ratio and low span-loading, combined with a new high maximum lift aerofoil — Schreder 69 180 — with fixed-hinge flaps and drooping ailerons, allow the HP-15 to circle at normal speeds but at lower rates of sink than those of most current Standard Class sailplanes.

Construction of the 23.2 ft. long fuselage and V-tail follows conventional HP-11, 12 and 14 configurations, except that the 1 inch square steel tubing cockpit framing has been replaced by aluminium tubing. The retractable landing-gear — utilizing a 500 x 5 wheel — has hydraulic shock-struts, and spring-loaded elevator trim, together with anti-balancing tabs, has been incorporated to provide adjustable control-stick loads. The tailwheel is steerable for easy ground handling and a flap-handle wheel brake is fitted. The outstanding feature of the HP-15 is that of its wing construction, in which all bending loads are carried in very heavy, rolled-to-contour wing skins. Each panel contains only three ribs, a plastic leading edge, two skins and two bent channel spars; the normal interior structure is replaced by high quality ureathane foam blocks, which completely fill the cavity enclosed by skins and spars. Assembly labour is thereby reduced drastically to about that normally required to produce a main spar.

The flaps are simple structures 4 ft. long of bent aluminium sheet and triangular prisms without framing, other than a rib at each end. The flap panels are attached with piano hinges to the bottom of the rear spar and are driven torsionally from the fuselage end. The ailerons are of similar construction and mounting, and are driven by push-pull tubes supported by guides attached to the aft sides of the rear spars; these tubes are readily accessible by lowering the flaps.

A very ingenious method of securing the two wings together makes use of two curved ¼ inch diameter pins, which pass through holes in interlocking fingers riveted both to top and bottom skins across the root of each wing panel. Flap drive and attachment of wings to fuselage is automatic when the wings are brought together. The wing and tail fairings are attached permanently to the fuselage. Folding of the tail surfaces is accomplished by pulling two lower spring-loaded tapered pins into detents.

Assembly and disassembly from or into the trailer can be carried out in under five minutes. The wings are supported on carts and the fuselage on a dolly, all of which are on wheels and engage automatically when pushed into the trailer. The trailer is all aluminium, designed for construction to be as simple as possible and weighs 550 lb. completely equipped with retractable tow-hitch, lights and colour-coded, easily-connected, quick-disconnecting wiring harness. Wheels and tyres are matched to the owner's car.

Both the HP-15 and its trailer are designed for easy assembly by the home

builder with only hand tools, drill, rivet gun and air compressor, construction time being estimated at 600 and 100 man hours each. Kits will be made available for both sailplane and trailer, priced at $2,995 and $695 respectively.

Calculated performance	Knots
Design speed	156
Max. speed, smooth air	130.2
Max. speed, rough air	104.2
Max. speed, aero-tow	104.2
Max. speed, winch/auto-tow	78.15
Stalling speed, no flap	39
Stalling speed, full flap	30.3

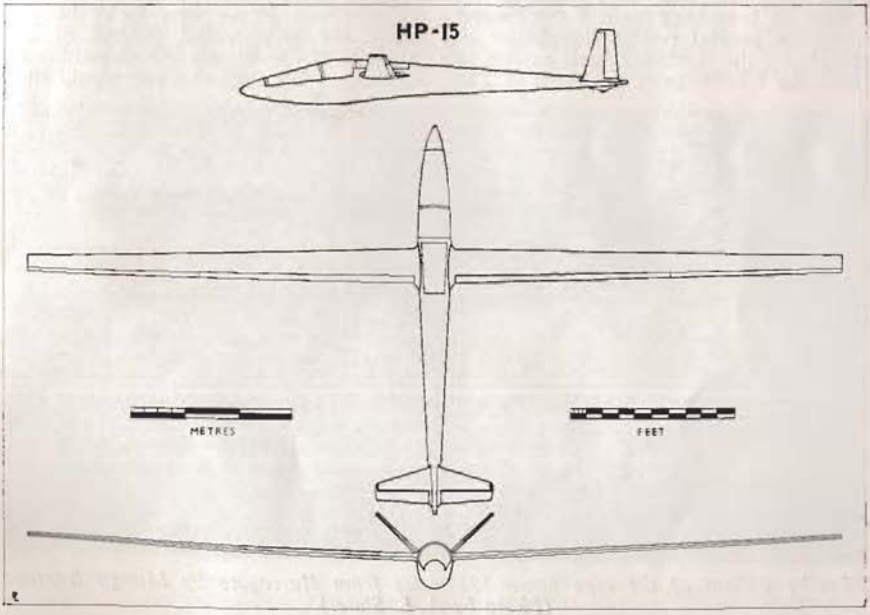
HP-15 SPECIFICATIONS

Span	49.2 ft.	Ailerons — fixed hinge	+15°—5° flap match
Length	23.2 ft.	Area — wing	75.0 sq. ft.
Height at tail	45 in.	Area — flaps	12.4 sq. ft.
Cockpit width	42 in.	Area — ailerons	4.6 sq. ft.
Cockpit height	33 in.	Area — stabilizers	7.0 sq. ft.
Dihedral	2°	Area — elevators	5.0 sq. ft.
Incidence	3°	Weight — empty	330 lb.
Twist	0°	Weight — gross	600 lb.
Taper ratio	2:1	Weight — wing panels	90 lb.
Flap — fixed hinge	+90°—5°	Weight — fuselage and tail	150 lb.

Max. L/D ratio 45 at 47.7
Min. sink 1.6 ft/sec. at 39

* * *

STANDARD CIRRUS :—The Schempp-Hirth Standard Cirrus has recently been test flown. The results in performance and flying characteristics were fully up to expectations and the construction of the moulds for fuselage and wings has been taken in hand at once so that deliveries can commence at the end of 1969. The price, without instruments, will be DM 22,000, ex-works. We hope to include a pilot's report on this machine and the HP-15 shortly.



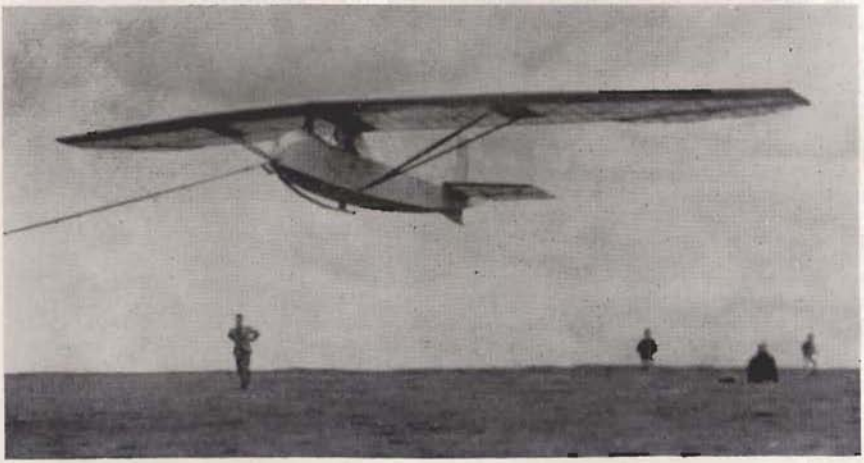
WALK! RUN! RELEASE! CRUNCH!!

By JOHN NEILAN

To mark the 40th year of existence of the British Gliding Association, we are publishing a series of personal reminiscences of the earliest days of organized British gliding. John Neilan, who eventually became a commercial pilot as well as a soaring expert, here describes how he began, and his encounters with a character who was extraordinary even by gliding standards.

MY first sight of gliding was the demonstration arranged by the Scarborough Gliding Club in 1930, when Robert Kronfeld and Carli Magersuppe were launched on the cliff top at Scarborough, Castle Hill. It was spectacular, for Magersuppe, who was launched first, got caught in the curlover, and ripped an aileron gap strip off on the cliff-top fence. He did, however, maintain control, and landed in the sea beside the Marine Drive, where he was rescued by a fishing coble. Kronfeld was then launched and, apparently realising that this was a big mistake, managed to slew round to the left before reaching the edge, and finished up amongst his frightened launching crew. I don't know what the general public thought of all this, but I didn't class myself as one of them, for I knew from the pages of *The Sailplane* that gliding held out far greater rewards for those few who could master the air than just crashery in front of crowds.

Later that year the Sunderland Gliding Club was formed, mostly through the energy and keenness of Don Hartness, and we bought a Cramcraft Primary glider from the Cramlington Aircraft Co. An enthusiastic pilot from the Newcastle Aero Club became our instructor, and I can well remember the form. A pupil would be strapped on — not in — and shown which way the controls worked, a wingtip being waggled to simulate the expected response to movement of stick and rudder bar. He would then be launched. If we were lucky he slid along the ground, but control of the strength of the launch left something to be desired. The unlucky one would sud-



Slingsby Falcon of the type flown 13¼ miles from Harrogate by Mungo Buxton. (Photo by A. E. Slater)

At the first International Contest in 1937 on the Wasserkuppe. John Neilan in the King Kite, talking to John Sproule, Joan Price and Jill Lawrence. (Photo by A. E. Slater)

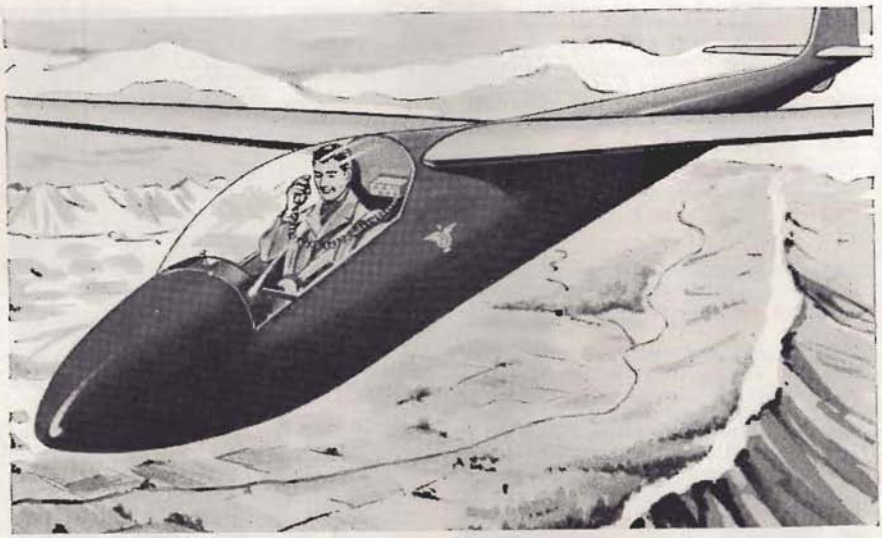
denly find himself airborne, freeze on to the stick, and stall. The musical twang of breaking landing-wires would be followed by the booming voice of the instructor: "Gather round, chaps, and I'll tell you what he did wrong." In due course, after too many of these "accidents", the few enthusiasts left told him what *he* was doing wrong, and, inspired by Lowe-Wylde, adopted auto-towing, building a nacelle to enclose the pilot, and fitting a pair of doughnut wheels. In this way we began really to get some self-taught gliding, but there were so few of us left that we could not continue much longer. Our tow-car, incidentally, was a Rolls-Royce converted into what would now be called a pickup. Petrol was about 1s. a gallon, or about 3d. a launch.

While studying at Newcastle, I managed a few slides with an enthusiastic group at South Shields, who had made their own Primary from plans in an American magazine. It was called the Rhön Ranger and was quite a good trainer, but we operated in a flat field, and had to limit flights to about a hundred yards.

Later I joined Eric Addyman, who had formed the Harrogate Aircraft Club. My first memory of him was at a demonstration at Saltersgate, on the moors between Whitby and Pickering, a lovely place, but with a wicked northerly near-gale blowing. Shortly after being launched, he was tossed by a gust, which caused him to leave the seat, his safety belt — tummy type — sliding up the front "gatepost", if I may describe it so, of his (Dickson?) Primary glider, so that his feet came off the rudder bar. In the subsequent serious crash he broke both legs and practically severed his right hand. About six months later, this amazingly tough man *walked* from Harrogate to Askam-in-Furness, a distance of about 70 miles of hilly country, to watch the BGA meeting there! The outstanding flight of that meeting was a hill-soaring distance of 13¼ miles by Mungo Buxton in Slingsby's Falcon.

Back in Harrogate again, Addyman soon completed a light-wind soaring machine of his own design, called the Zephyr, similar to, but not the same as, the Hols der Teufel type, and with this he organised a series of expeditions to explore many of the soarable hill sites in Yorkshire and the Lake District.

I well remember cycling from my home at Seaham, Co. Durham, to meet him near Ingleby Greenhow, on the North Yorkshire moors. There he was on the road, by himself, with the Zephyr on an open trailer. We tied the tow-bar to the seat pillar of my bike and continued walking towards the hill. Thankfully, we were soon overtaken by a man driving a horse and trap, and Addyman soon had the trailer hitched to the step of the trap for the long pull up the hill. This was his normal method of getting his machine about the country — one would find it parked on the roadside with a large notice saying "TOW WANTED", sometimes accompanied by a collecting



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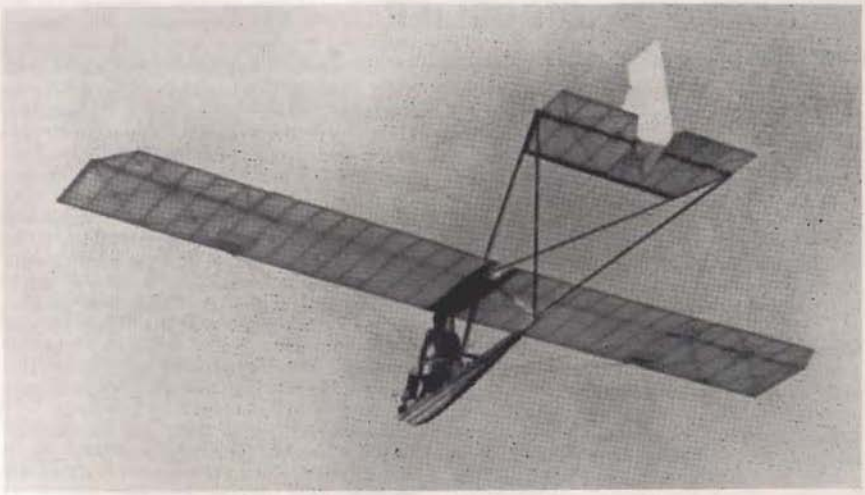

An early primary glider — the Dagling. (Photo by A. E. Slater)

tin for contributions. Talk about operating on a shoe-string!

If I remember rightly, the club subs. were 6d. per week, and those taking part in expeditions took their own tents and fodder. If enough spectators could not be gathered together to form a launching crew, he would soon manage to borrow a horse from the nearest farm. The usual form was for Addyman to be launched from the top of a likely site, but I can't remember him ever landing back on top. The next thing would be that the glider, having landed in a field, would be seen signalling by wing-waggling. We had a code of signals for such important messages as "I am going home", "bring grub", "bring trailer", "glider bust" and "horse wanted". It was very hard work, but it was good fun and, although the airborne time was often measured in seconds, it must be remembered that, away from Dunstable, then the Mecca of British Gliding, there were very few C pilots in those days. If the machine were O.K. and the field big enough, the helpers would be given slides or short hops to reward them for their toil. I think that in about two years I personally achieved less than 5 minutes total in the Zephyr. I didn't keep a log book in those days.

I hope I have not given the impression that this was all wasted time and effort. Addyman's enthusiasm for gliding, and his energy and leadership, were an inspiration to many young people. He knew how to run a club at absolutely minimal cost, and made an initiation to gliding available thereby to many who could not otherwise have afforded it. The slowness of progress in those days was really caused by the methods we had to use, the bungy-launching of Primaries on usually far-from-ideal sites, with the blind leading the blind as far as instructional know-how was concerned. The introduction of auto-towing, winch-launching and two-seat trainers made a tremendous difference by extending the time in the air from mere seconds, and enabling the instructor to correct faults before they led to crashery. It was only the very few "natural" pilots, or those who could already fly aeroplanes, who achieved much success with solo training methods. But the struggle was worthwhile, particularly for the friendships made during it, and the hardships and frustrations must, I suppose, have been good for the soul.

TO JETTISON DISBELIEF

By "DUNSTABLIGHTER"

THERE'S one thing to be said for meeting the rotor of a wave after a smooth half-hour of soaring — it thaws your feet out marvellously when you start whacking ailerons and rudder in all directions at once. Mind you, I couldn't really complain about the cold. I hadn't been expecting any lift at all from a flight which was to develop into the most educational of my life.

The place was Portmoak, time — Sunday morning, 9th March, weather — sunny, wind — N to NW at two knots gusting five, and the prognosis — thermals in the afternoon, perhaps.

At about 10 o'clock there was a long, straggling queue of gliders waiting not to take-off, since nobody believed that there would be wave in such a wind, but a club Capstan climbed away on aero-tow. People watched it vaguely, waiting for it to confirm our suspicions by landing quickly. An SHK took off and then, slowly, it dawned on pilots that the Capstan wasn't coming down at all. Then the SHK radioed back to say that it was at 3,400 ft., climbing steadily. Suddenly, everybody wanted to take-off. I was about fourth away in the Ka-6CR — vintage 1964, a good year — and was waved off at 2,500 ft. just downwind of the Bishop. There was wave there, weak but steady, coming off Bishop Hill itself, so I worked it to 6,000 ft., my feet getting colder and colder, until I lost it or it petered out. I had noticed one or two other machines making exploratory forays towards the Ochills, a range of potential wave-producers to the north-west of Portmoak, but all had returned, obviously without finding anything.

Aware of some puffs of thermal-induced cumulus forming far below me, I ventured upwind towards the steepest looking part of the Ochills, arrived at about 4,000 ft., and hunted around just downwind of the summits. I found a very weak wave, climbed a few hundred feet somewhat lackadaisically, then decided to head upwind north-west over the summit

for no real reason—just bored. I passed through the weak wave area, which was as smooth as they say in the text-books, then hit some severely turbulent lift as rough as rotor is said to be in the text-books. I bored on upwind through this, expecting — still according to the text-book — to hit a nice strong smooth wave and wondering, meanwhile, why I hadn't passed through the sink of the rotor before hitting the lift. I soon found out why — after a short period of more or less straight and level flight I hit the sink, which was as rough as the lift. I didn't like it, made a smart 180° turn to the south, and sought the comfort of my nice smooth wave while I tried to work out what was wrong. The sequence of smooth lift, turbulent lift and turbulent sink was classic for a wave system — but only if the wind were southerly and not northerly. Perhaps it might be at this height, and the whole thing could be a secondary wave generated by a hill to the south. The only possibility was Benarty, just south of Portmoak, so I headed back there but found nothing.

Later, Ansgar Sambale, Portmoak's professional instructor, said that the phenomenon could have been the result of a wind-shear — Lesson One.

By this time, there were at least a dozen gliders soaring in the Bishop's wave at about 5,000 ft. I worked my way up to them. Cumulus development was quite marked by now, with shallow puffs sprinkled over Scotland as though somebody had splashed milk on a ¼-million map. A number of the gliders were making big, waffly circles rather than flying along a beat and, as I got near to them, I found that the air was no longer smooth. It was choppy, with little areas of lift here and there — like any summer's day with thermals popping.

I pushed the idea out of my mind. Ridiculous! We were way above any thermal activity. Wandering about with the rest of the mob, I marvelled at the radio silence, so rare on a soarable day in the south of England, and gained a little height in the process. After a while, I hit a very strong 4-6 knots up-current. It felt just like a thermal. I chucked my disbelief out of the clear-vision panel, stuffed the wing down, cranked the Ka-6 round in the core and we went up better than we usually do back at Dunstable. Soon there was a whole gaggle climbing in the "thermal" while below, no doubt, some of the poor little cumulus stuck at 3,000 ft. wondered why *they* couldn't get as high as we. I broke off my climb at 6,500 ft., feeling nice and warm inside — but very puzzled. Local opinion was that the "thermals" were due to the wave breaking up. Lesson Two — and quite enough for one flight.

HOW HIGH CAN CU-NIMS GO?

TO assess the likelihood of supersonic airliners encountering cumulo-nimbus tops at their expected flying heights, Arthur J. Kantor and Donald J. Grantham (U.S. Air Force Research Labs., Cambridge, Mass.) took daily records over three years at 31 radar stations whose 57-cm. radars could each detect cloud peaks up to 70,000 ft. within a 100-mile radius.

Results were that, within 100 miles of any point in Florida, one would expect to find one cu-nim cloud extending to over 33,000 ft. for 55% of the time; and in the lower Mississippi Valley in July and August, at least one cu-nim reaches 60,000 ft. for 4% of the time within a radius of 100 miles.

Their frequency decreases northwards and is greater on the east coast than the west. The danger is not only from turbulence but from cloud particles hitting the leading edge of the wing at supersonic speeds.—*Science Journal.*

At a conference held in London some years ago, reports were given of tropical cu-nims very occasionally going up to 70,000 ft.

As to wave clouds, the rarely-seen "mother-of-pearl clouds" are at an average height of 75,000 ft.

A.E.S.

GLIDER MEETING IN BELGIUM

ON 8th June, 1969, at Balen, the largest centre for gliding in Belgium, the Aero Club "Keiheuvel" is organizing an air meeting and invites participation by British pilots — particularly those able to perform aerobatics. Those interested please notify the Secretary, Mons. van den Nieuwenhuyzen, Peperstraat 11, Retie, Belgium.

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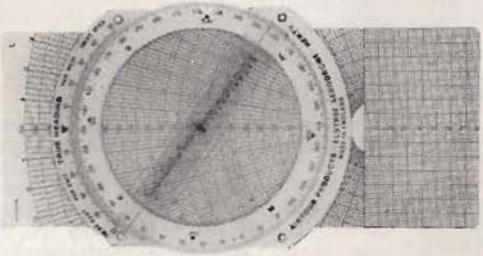

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The Tricolore Instant Protractor is designed for quick reference to glider heading and plotting on topographical charts, embodies nautical and kilometer scales and quadrantal rule. This Protractor is widely used and is especially suitable for glider pilots. **10s.**

KB-3 Glider Knee Board
Originally designed for the World Championship, 1965. They are now used extensively for Glider Competition work and cross country flights, made of white P.V.C. with valcro straps, pencil holders and sharpeners supplied with Glider Flight Log. **£1 15s.**

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ENTRIES OPEN CLASS NATIONALS

Lasham 17-26 May

Comp. No.	Pilot(s)	H'cap. %	Sailplane
4.	Kahn, W. A. H.	90	Dart 17R
9.	Ellis, C. A. P.	100	Skylark 3
10.	Scott, P. M.	80	BS-1
19.	Burns, Anne	82	Cirrus
20.	Carrow, D. D.	90	Dart 17R
24.	Plumb, F. A.	90	Dart 17R
25.	Gough, A. W.	86	SHK
26.	Waller, F. F.	96	Ka-6E
27.	Greaves, C. M.	86	SHK
36.	Watson, B. B. C.	98	Skylark 4
38.	Williamson, J. S.	80	Diamant 18
40.	Fitchett, B.	82	Cirrus
44.	Warminger, A. H.	78	Phoebus 17
66.	Delafield, J.	78	Phoebus 17
68.	Bird, M.	90	Dart 17R
72.	Evans, J.	96	Olympia 419
82.	Jones, R.	82	Cirrus
86.	Hogg, H. J.	96	Olympia 419
87.	Brownlow, J. B.	96	Olympia 419
90.	Marriott, S. H. C.	86	SHK
102.	Cousins, R.	90	Dart 17R
108.	Simpson, C. R.	90	Dart 17R
150.	Foot, R. A.	100	Skylark 3
174.	Goodhart, H. C. N.	86	SHK
197.	Ellis, J. J.	96	Ka-6E
202.	Dimock, H. R.	80	Diamant 18
260.	Pozerskis, P.	82	Cirrus
263.	Austin, D. G.	96	Ka-6E
264.	Purdie, P. G.	96	Ka-6E
272.	Cardiff, J.	72	ASW-12
301.	Brook, G. F.	102	Olympia 463
329.	Paddick, G. R.	90	Dart 17R
367.	Burton, G. E.	86	SHK
368.	Hanson, D. F.	96	Ka-6E
379.	Tanner, L. E. N.	96	Ka-6E
389.	Wilkinson, N. A.	96	Ka-6E
404.	Burgess, P. G.	98	Dart 15
415.	Tull, V. F.	80	Diamant 18
427.	Redman, S. J.	86	SHK
432.	Innes, D. S.	86	SHK
454.	Ince, D. H. G.	96	Ka-6E
457.	Marlow, T., and Bellew, J. B.	96	Ka-6E
470.	Lovell, C. D.	90	Dart 17R
477.	Day, C. G.	90	Dart 17R

Handicap in the Open Class applies only for Nationals Entry List purposes.

ENTRIES STANDARD/SPORT CLASS NATIONALS

Dunstable 7-15 June

Comp. No.	Pilot(s)	H'cap. %	Sailplane
12.	Hood, L. S.	102	Olympia 463
22.	Zealley, T. S.	96	Ka-6E
24.	Williamson, J. S.	90	Dart 17R
26.	St. Pierre, A. H.	96	Ka-6E
29.	Gough, A. W.	82	ASW-15
52.	Williams, D. W.	100	Skylark 3
68.	Withall, C. L.	90	Dart 17R
86.	Staines, R.	96	Olympia 419
107.	Cardiff, J. D.	106	Ka-8B
108.	Atkinson, G. B.	90	Dart 17R
109.	Zotov, D. V.	96	Ka-6E
110.	Jeffries, J. R.	110	AS-K 13
111.	Seth-Smith, M. P.	96	Ka-6E
116.	Smith, N. W.	110	AS-K 13
133.	Hale, R. J.	100	Skylark 3
140.	Carr, V. C.	90	Dart 17R
151.	Garrod, M. P.	82	AS-W 15
177.	McMullin, T. A., and Fairman, M.	96	Ka-6E
191.	Somerville, A.	96	Ka-6E
206.	Goldsborough, J. B.	112	Sky
258.	Lilburn, D. W.	98	Skylark 4
263.	Harrison, K. A.	96	Ka-6E
264.	Greaves, C. M.	96	Ka-6E
282.	Keogh, B.	96	Ka-6E
318.	Newall, R. W.	96	Ka-6E
320.	Davies, S., and Beer, L. E.	100	Ka-6CR
345.	Stevenson, J. N.	100	Ka-6CR
348.	Goldney, P. and Welsh, J. H.	102	Oly. 463
355.	Orme, H.	100	Ka-6CR
356.	Morrison, S. A. J.	100	Ka-6CR
361.	Burton, G. E.	90	Dart 17R
368.	Stanley, J. H.	98	Skylark 4
379.	Tanner, L. E. N.	96	Ka-6E
388.	Wheeler, J. H.	96	Ka-6E
389.	Strachan, I. W.	96	Ka-6E
407.	Livesay, M. H.	100	Skylark 3
420.	Lane, P. D.	100	Ka-6CR
433.	Shepherd, E. G.	96	Ka-6E
436.	Smith, M. J.	90	Dart 17R
454.	Deane-Drummond, A. J.	96	Ka-6E
470.	Brisbourne, R.	90	Dart 17R
494.	Watson, A. J.	96	Ka-6E
	Innes, D. S.	96	Ka-6E
10.	Scott, P. M.		

Provisional entry list — correct as at 1st May.

A WEEK AT WAIKERIE

By DAVID RYDER-TURNER

NO doubt many of you will have noticed the advertisement in S & G inserted occasionally by the Waikerie Club; some, perhaps, will have wondered what sort of show it is, way out in the Colonies, but those who have scanned the list of aircraft available would have realized that this club is alive and up-to-the-minute in its equipment. Even so, I doubt if anyone whose experience is limited to Europe would be prepared for the conditions which exist in this part of the world. Ground temperatures in summer are high — frequently over the century mark — and thermals abound, with cloudbase level often at five, six and even ten thousand feet. Close to the Murray River lie the irrigation settlements, with plantations of citrus fruits, apricots, peaches, nectarines and the ubiquitous grape but, far away from the limits of irrigation, are league upon league of huge flat paddocks with wheat or sheep according to season and location — no real problem for landing-out, but a long hike to the nearest telephone or road.

Having had a taste of gliding about four years ago, I was anxious to come to grips with it more fully, but the opportunity did not present itself until this summer, when, urged by the Club's advertisement, I made arrangements to join the course at Waikerie from 13th to 18th January. We have no gliding in Tasmania, where I live, so the trip involved a journey each way of over 700 miles by road, together with an overnight ferry across Bass Strait. However, it was worth it, as I managed to take in the last two days of the National Championships at Renmark, where I made the re-acquaintance of Richard and Mardi Gething and other members of the Mildura Sunraysia Club, first met four years ago. The gliders assembled for the competitions — Libelles, Diamant, Cirrus and Foka, not to mention a host of Ka-6's, Boomerangs and others — were an eye-opener after the Kookaburra and Ka-7 I had encountered previously. Richard introduced me to Bob Rowe, President of the Waikerie Club, as well as my future instructor. Although Bob was flying the Libelle on the last day and was understandably busy, it is typical of him that he should go to the trouble of organizing a flight for me in the Club's Blanik, which they had brought to the comps.

This was my first taste of real soaring. Geoff. Horwood, of the Port Augusta Club, took off, demonstrated the stability of the Blanik, and then headed us into 4-5 m/sec. lift straight up to over 4,000 ft. We were amused to see a couple of competing craft scratching around at about 1,000 ft. less than a mile away; if they had lifted their eyes from their instruments the chums might have seen the possibilities of joining us. After half-an-hour we went down so that Peter Martin could take advantage of the conditions to get his 5 hours for the Silver — which he did, sucking oranges, listening to his transistor and getting a numb rump.

The final get-together and prize-giving that night was huge fun. What with Waikerie winning the Team Trophy and John Rowe — Bob's son — being Australian Champion, the Club had brought home the bacon yet again.

Quite a mixed group arrived at Waikerie at the weekend for the course, among them being Peter M., a Commando officer from Singapore; Peter C., a Ph.D. student from Monash University; Gordon, an electrical design engineer from Hobart; Bruce, a research scientist; Dick, a Roman Catholic priest from Walgett, who has his power licence and many hours in gliders, and who delighted all of us with his humour and humanity; and Wendy, who, with her father, Alec, had flown down from Port Macquarie in Alec's 1928 Klemm, which he had restored himself — a wonderful old aircraft with a most entertaining owner who, in the cool of the evenings, would perform the most outrageous things with his plane. Finally, there was your scribe, a 46-year-old schoolmaster who should have known better, but who takes comfort from the fact that Peter Scott also

started gliding at that age — although I fear that that will be the limit of coincidence.

Methods of instruction do not, I suppose vary very much, but at Waikerie they believe that it should be given in high-performance aircraft like the Blanik, that so much time should be spent in the air, and that when a pupil is ready he should progress to the single-seaters as soon as possible. Launching is by aerotow to about 2,000 ft., so that, with the prevailing conditions, flights are of a reasonably long duration, thus giving ample opportunity for the pupil to settle down and to accustom himself to the surroundings.

How I love that Blanik! Stable and of excellent performance, it is a good type to learn on and a lovely one to fly. My two instructors, Bob Rowe and Bob Martin, were a perfect complement to it — tolerant, understanding, highly competent and good company. One afternoon the Blanik had taken us up to about 10,000 ft. in nice steady lift of about 3 m/sec. "I'm tired of this going round and round," I said to Bob Rowe. "Let's go and have a look over the vineyards." "Right," said Bob, "straighten up on this course and we'll have a look at Hardy's. Trim for about 50 . . . that's better . . . now that's the vineyard by that crossroad with the line of trees." One couldn't help feeling relaxed and confident with him, "See how the river channel winds . . . you've got too much bank on . . . that's better . . . these flats sometimes give some good lift. There's the Boomerang in our thermal." We discuss fruitgrowing, pesticides, gliding angles, winemaking, World Championships, barbecues . . . yet never once did I feel that Bob's concentration on *my* flying was ever lifted. The result was that when he said to me one afternoon, "Like to go by yourself now?", I felt absolutely no qualms but a quiet confidence that if Bob felt that I could, then I *could*.

Only two of us, Bruce and myself, were *ab-initio*, and consequently we stuck to the Blanik, while the others graduated into the single-seaters after a round of check flights or more advanced instruction. Peter M. completed his Silver C with an out-and-return to Renmark, and then went off in the Boomerang to Karawinna and return, which gave him his Gold Distance and Diamond Goal. Wendy got her Silver Height, while her father managed his 5 hours Duration. Gordon — who had his Silver C already — graduated to the Standard Austria and in the ten days he was there went on to complete the Gold and his Diamond Goal. With all the "jewellery" flashing around, that was quite a week, the beer flowing after flying had ceased for the day.

The social side was not neglected, with good company in the clubroom of an evening and a splendid barbecue on the Friday night — everything they do there, they do exceedingly well and with gusto. Two or three of us, Dick included, went off one very hot afternoon — after flying — to the winery and there, at an altitude of minus ten feet, in the cool cellar, we sampled Rosé, Riesling and Chablis. If ever we have the World Championships in Australia, Waikerie is *the* place.

On my last day, Saturday, I went solo and that morning Bob sent me up with David Schenke before checking me himself. David flies at weekends and is highly — although constructively — critical. He led me to understand that, even if reasonably competent, my flying was "rough" and horrible to watch, and then proceeded to put me through the hoop. It was salutary, timely and in the best of humour.

That first solo was a flop. Aero-tow to 2,000 ft. was the order and off we went behind the Piper Pawnee. At 1,000 ft. bang! went the tow-rope at the glider-end splice and there was yours truly on his own to sort that little lot out. Back to the airfield, into circuit and land, feeling quite happy but cheated. It was pointed out that with a winch launch I'd have been at less than 1,000 ft., so what was I complaining about? So off we went again, with a proper launch this time, a nice "burn" around for a short while, then into circuit, land, put the aircraft away for the evening and into the bar for the expected pushing out of the boat.

Next morning I set out for Melbourne and Hobart, but the May school holiday is organized already, the passage booked and accommodation arranged. It's back to Waikerie . . . and I wonder if I'll get my Silver?

WHAT'S THE SCORE?

By C. E. WALLINGTON

IN SAILPLANE & GLIDING, Aug.-Sept., 1968, Ann Welch suggested that FAI (CIVV) will need to produce basic international rules and a scoring system for future championships. There is no doubt about the wisdom of this suggestion, but what are the chances of any particular system gaining international acceptance? Why has the past 20 years *not* led to a universally acceptable version of the basic system?

Let us have a look at some features of the rules used in the last two world championships.

A Soaring Exercise

On many a successful race day in national and international championships, the speeds attained by pilots who complete the course usually decrease in approximately regular steps from the top speed to the slowest speed. In a big championships with a large number of pilots, the slowest few sometimes tend to be very slow, but, broadly speaking, the decrease in speed is approximately linear over the range of positions from first to almost last.

On a good soaring day the slowest pilot to complete a course usually attains an average speed *through the air* of about 55-65% of that of the fastest competitor. On mediocre days this percentage is usually about 45-55%. So, for a paper exercise, we can specify a field of competitors by the number of competitors, and the speeds through the air of the fastest and the slowest, the intermediate speeds being taken to decrease linearly between these limits.

The average speed a pilot makes through the air depends not only on his skill but also on scoring conditions; a world class pilot makes about 90 km/h. through the air on a good soaring day, but only about 40 km/h. in conditions that are just good enough for a contest day. To this speed through the air must be added the effect of the wind. So, if we specify thermal soaring conditions as the speed attainable by the fastest and slowest pilots for a given duration, and specify a wind speed and direction, we can calculate how fast and how far our hypothetical competitors would go along any set course — and calculate how many points they would be awarded in any given scoring system. Let us consider a few examples.

EXAMPLE 1

Number of pilots	50
Fastest speed through the air km/h.	80
Slowest speed through the air km/h.	40
Wind	nil
Duration of soaring	6:14:00

Task: 500 km. race (open or closed circuit).

In this example the fastest pilot lands just short of the goal and the points on the 1965 World Championship system range from 1,000 to 468, as shown by the straight line marked "500 km. 6.14" in Fig. 1. If the duration of soaring had been one minute longer the fastest pilot would have reached the goal and gained a bonus of 200 points. The graph of points plotted against order of merit for the day is labelled "500 km. 6.15" in Fig. 1.

Now consider a 120 km. race (open or closed circuit) with the duration of thermals limited to 1 hr. 29 mins. With the same speed range of 80 to 40 km/h. and no wind, no pilot would reach the goal, but points on the 1965 system would range from 1,000 to 332. Again, one minute more soaring time would allow one pilot to complete the course and

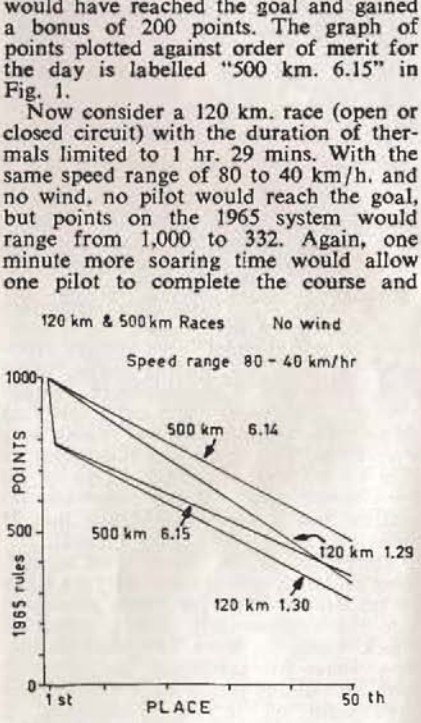


Fig. 1

gain a 200 point bonus. The points/position graphs are shown with their appropriate labels in Fig. 1.

Of course, the durations of thermals in this example have been chosen to illustrate the difference one minute can make on the points curves, but it is perhaps more interesting to note that the long task is devalued by comparison with the shorter course, the devaluation being produced not by a lowering of the maximum points, but by raising the minimum.

It could be argued that, as the longer task provides a more prolonged test of competitors' skills, it should be given more weight than the shorter task, i.e. it should produce a bigger range of points. On the other hand, it may be thought that the limited time available on the shorter task is a more exacting test. I think that most pilots would agree with the former argument, but, whichever view prevails, this extra weight given to short tasks by the scoring system was probably not intended when the rules were written.

EXAMPLE 2

Number of pilots	50
Fastest speed through the air km/h.	90
Slowest speed through the air km/h	54
Wind 180° km/h.	30
Duration of soaring	4:00:00

Task: 300 km. race (a) down wind (b) into wind.

In this example all pilots reach the goal if it is downwind, but no one completes the course if it is into wind. Fig. 2 shows the points graphs for these two tasks, using both the 1965 and 1968 World Championship rules.

Under the 1965 rules the downwind race is virtually devalued because the

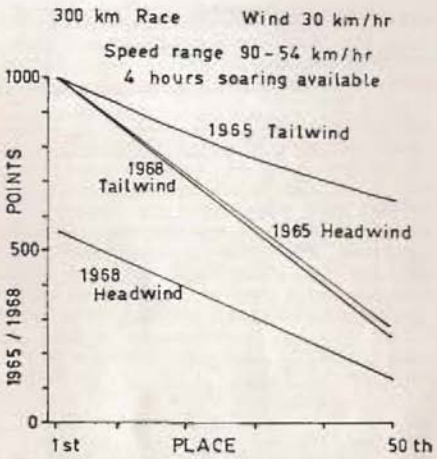


Fig. 2

range of points is only from 1,000 to 643. Under the same rules the into wind race completed by no one is worth nearly twice as much to the leading pilots, the range of points being from 1,000 to 314. The 1968 World Championship rules award better value to the downwind race; these rules devalue the into wind race because the average distance covered by the competitors is only about half of the set 300 km.

It is possible to devise arguments for or against these products of the two sets of rules, but the main point to note is that differences in the calculated scores are due entirely to the rules and the direction set for the course. As a group, our hypothetical pilots fly in a very similar manner to a group of real competitors. In real competitions the average speed a good pilot makes through the air depends almost entirely on his own ability and thermal soaring conditions; it does not vary much, or in any systematic way, with the wind over a route. Of course, tailwinds or headwinds can raise or lower both his cross-country speed and his morale, but they do not make much difference to his average speed through the air. If we take this speed through the air as a measure of a pilot's soaring efficiency, then, in these 300 km. race examples, the group of pilots fly just as efficiently up wind as they do down-

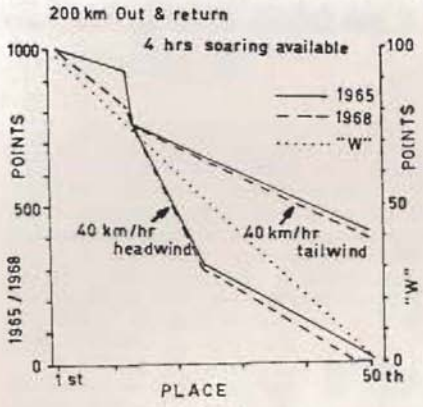


Fig. 3

wind, but the scoring scale used to measure this efficiency obviously depends on the choice of rules and the direction the task setter chooses for the task.

EXAMPLE 3

Number of pilots	50
Fastest speed through the air km/h.	80
Slowest speed through the air km/h.	48
Wind	180° km/h. 40
Duration of soaring	4:00:00

Task: 200 km. out-and-return (a) first leg into wind (b) first leg downwind.

These conditions represent moderate to good thermal soaring, but only for a limited period of 4 hours. Only 12 pilots complete the task (a) or (b). In a real contest this low number may indicate that the task setters were optimistic, but only a slight improvement in these conditions, say, an extra 10 km/h. for the speeds through the air, together with 10 km/h. off the wind speed and an extra 30 minutes for the duration of thermals, would allow about 80% of the competitors to complete the course. But we need not digress on the problems of weather forecasting and task setting.

The principal object of this example is to illustrate how much the task setters' choice of direction can affect the scores of pilots who do not complete a task.

The full and broken lines in Fig. 3 trace the distribution of points for tasks (a) and (b), using the 1965 and 1968 World Championship rules. There is not much difference between the results for the two sets of rules, but the direction of the task makes a disconcertingly large difference. In this pair of examples, the 50 pilots as a group fly with just the same efficiency in one direction as another, and this is not an unrealistic postulate. But in task (a) these scoring systems award competitors far fewer points for the arduous into wind leg than for the relatively easy return to base. In fact the choice of tasks makes between 100 and 400 points difference to 65% of the pilots.

The dotted line in Fig. 3 represents the marks on the placing system I described in SAILPLANE & GLIDING, Aug.-Sept., 1968, with the trivial difference that marks are reckoned upwards from 0 for the lowest place, instead of downwards from 100 for top place. These marks for tasks (a) and (b) are identical; it makes no difference which direction is chosen for the task.

EXAMPLE 4

If terrain and airspace regulations allow, an out-and-return race is best directed in a cross-wind rather than along-wind direction. But wind directions are not easy to predict with great accuracy and when the wind speed is greater than about 40 km/h. an error or change in direction can produce unintended results, especially if it is coupled with slight changes in soaring conditions.

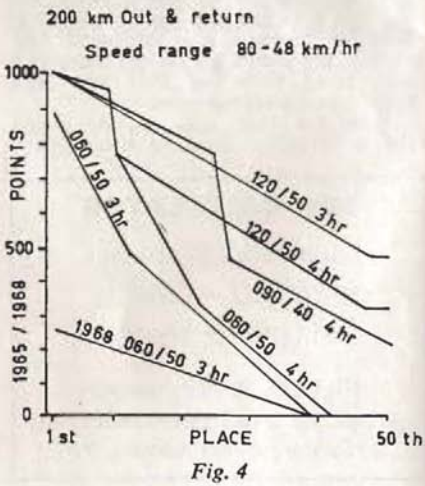


Fig. 4

To illustrate this let us consider the following conditions:

Number of pilots	50
Fastest speed through the air km/h.	80
Slowest speed through the air km/h.	48
Wind	090° km/h. 40
Duration of soaring	4:00:00

With these conditions a 200 km. out-and-return cross-wind task could be completed by 50% of the pilots. The line labelled "090/40 4 hr." shows the resultant 1965 World Championships plot of points if such a task were set.

Now suppose that, instead of being 090° 40 km/h., the wind is (a) 060° 50 km/h. or 120° 50 km/h. This difference of 30° and 10 km/h. (about 5 knots) is not uncommon for a difference between a predicted and actual wind. With these winds and all the other factors in the example left unchanged, we get the points curves labelled 060/50 4 hr." and "120/50 4 hr." in Fig. 4. The difference between the two curves is between 100 and 400 points for 70% of the competitors. The corresponding points curves for the 1968 World Championship rules are not shown in Fig. 4, as they do not differ very much from the 1965 rules.

If, as well as a wind change, the duration of soaring is cut down to 3 hours instead of 4 hours, we get the two graphs labelled "060/50 3 hr." and "120/50 3 hr." for the 1965 rules in Fig. 4. No one completes the course in 3 hours with a wind of 060° 50 km/h. or 120° 50 km/h. and the day is considered to be devalued for the 060° wind. But, with the 060° 50 km/h. wind, this devaluation is in name only; with a range of 880 points between the first and the last ten pilots, who do not score, this uncompleted task carries more weight than any of the others in this set of examples.

The points curve under the 1968 rules for 060° 50 km/h. wind and 3 hour soaring duration is labelled in Fig. 4 as "1968 060/50 3 hr." In contrast to the 1965 rules, the 1968 system considerably devalues the task in these conditions.

Example 5

A common sight in world or national championships nowadays is to see an array of gliders and pilots ready at a launching grid waiting for the organisers to give the signal for take-off. Multilingual mutterings of, "What are they waiting for?" filter through the grid, although it is usually understood that choosing the optimum time for a mass start or a time for opening a starting line is difficult. Local soaring conditions and visibility must be good enough to allow a large number of aircraft in the air without an abnormally high risk of collision. In practice this usually means that some soaring time is lost, and even with excellent organisation the lost time may be anything between a few minutes and several hours; the loss is not merely a fault of organisation.

What effect can a loss of soaring time have on the day's results? Let us have a look at this set of examples:—

Number of pilots	50
Fastest speed through the air km/h.	80
Slowest speed through the air km/h.	40
Wind	nil
Duration of soaring	(a) 2:30:00
	(b) 2:45:00
	(c) 3:00:00
	(d) 3:15:00
	(e) 3:30:00
	(f) 5:00:00
	(g) 1:00:00

Task: 200 km. race (open or closed circuit).

Fig. 5(i) shows the points curve for these tasks under the 1965 World Championship rules. The duration of soaring times are marked alongside the curves to which they apply. Fig. 5(ii) shows the corresponding curves for the 1968 rules.

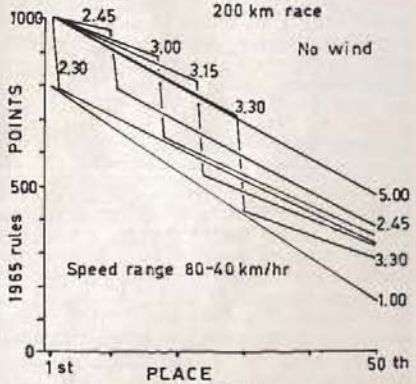


Fig. 5 (i)

With the duration of 2 hr. 30 mins. for soaring, only one pilot completes the course. In the 1965 rules he gets a bonus of 200 points, whereas in the 1968 rules the day is devalued both in name and in fact.

The more interesting curves are those for soaring durations between 2 hr. 45 min. and 3 hr. 30 min. During the interval of 45 minutes, which can easily result from a delay in starting rather than a variation of actual weather conditions, approximately every 2 minute delay in the starting time costs one more pilot between about 150 and 250 points on the 1965 system and slightly less under the 1968 rules. The tailenders, however, benefit from delay; their points increase as the starting time is delayed.

Looking at the points curve for the 1 hour and 5 hour soaring durations, we see that, under the 1965 rules, what may be the popular concept of a highly successful race completed by all competitors in times between 2 and 5 hours, is, in fact, slightly less valuable than what would probably be considered an unsatisfactory hour in which pilots achieved distances of between 40 and 80 km. only.

Notice, by the way, that the points curves using the 1965 system are almost straight lines over the sectors covering pilots who complete a course. Although the 1965 rules use $(\text{speed})^2$ in the speed marks formula, the usual range of speeds these days is such that there is scarcely any curvature in the speed marks graphs. The $(\text{speed})^2$ term in the formula does not serve much useful purpose other than increase the range of points between the fastest and the slowest speeds — and this could be done by a simpler and more direct method.

With the 1968 rules, the 1 and 5 hour soaring durations produce quite different points graphs. The 1 hour limit yields a considerably devalued day, but the 5 hour duration, which allows all pilots to complete the course, makes the contest day a particularly valuable one, with points decreasing rapidly from 1,000 to the winner to 0 for the last ten places.

Acceptability of a Soaring System

The foregoing examples are a few of about 500 examples for which calculations have been made using the 1965 and 1968 World Championship rules. They are by no means freak examples; they illustrate distinct characteristics of the systems. Points curves have been calculated for more complicated situations, e.g. examples in which soaring conditions vary during a task from mediocre to good then back to mediocre again, and for examples where wind and soaring conditions vary over a course, or where a sharp wind and weather change moves

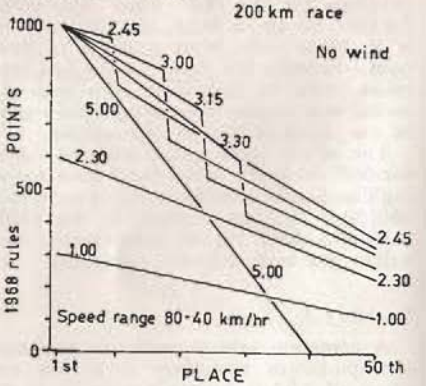


Fig. 5 (ii)

across a course. But, although these more complicated examples are interesting, the simple situations are adequate for the present discussion.

In these uncomplicated examples, pilot efficiency is represented by speed through the air on a simple linear scale from the fastest to the slowest and all pilots have precisely the same duration of soaring time available. In these simple circumstances, it should be hoped that the graphs of points plotted against position should reflect the simple linear scale of efficiency, without being too sensitive to the choice of rules or slight variations in task, weather or organisational factors. But this is not so. These factors can (and in reality often do) affect the value of a contest day more than is commonly supposed. There is a sort of "snakes and ladders" element about the current scoring systems; if a pilot achieves X he may ascend a points ladder to Y — but he may also find that the elements or organisers have virtually shifted the board so that he slithers down a snake to Z. Of course, any organisation is entitled to use whatever rules it wishes, and it is up to pilots to fly according to these rules. Complications and uncertainties that arise by design or uninitentionally can add excitement to the game, but when they appear to be unduly significant, and perhaps unplanned, products of local opinion, we must not expect any particular version of the basic rules to be universally acceptable.

Aims of a Scoring System

The reason why modern versions of the current scoring systems are not converging towards a universally acceptable system is that rules committees try to build in a piecemeal way on a system that was not designed to measure modern techniques. Rules committees appear to either meekly accept a system or ask themselves: "What recent results of the current basic system do we dislike, and how can we modify the system to avoid such results?"

If we are to arrive at international agreement on rules we should start by trying to pose and answer elementary questions of principle. We must not expect complete agreement in detail, but amongst the various views and opinions throughout the gliding world there is enough common ground to establish a few principles — and we do not need many guidelines to form a simple system.

The placing system that I have been advocating is a logical outcome of simple concepts. Evolution of the current points system also points towards a placing system. In fact, only slight simplification of the speed and distance marks and devaluation formulae in the 1965 World Championship rules is needed to make the points system practically identical to the placing system for high standard tasks on good uncomplicated soaring days. But experience and reasoning suggest that the current points system cannot be modified to cope in a generally acceptable way with commonplace complications associated with wind, weather and organisational problems.

We could avoid these problems by being ultra-cautious in setting tasks, but we should be trying to broaden, not restrict, the ranges of tasks and weather that can be used in a championship. This means devising one or more scoring systems that are universally acceptable for all operational conditions.

AUSTRALIAN NATIONALS 1968-69

By C. E. WALLINGTON

"ONCE you have tasted the Murray River you will always return to it," so I have been told by Australians who live near this great waterway that winds its way from the Snowy Mountains through irrigated farmland, vineyards and citrus groves to the Australian Bight. For glider pilots here this is almost certainly true, for a number of gliding clubs are situated in this region, and several are at sites suitable for the National Championships. For the 1968-9 Championships the site was Renmark, 100 miles ENE of Adelaide.

This year there were 27 competing gliders, with 48 pilots to fly them. Five of the gliders were in the Open Class, the remainder — mostly Boomerangs and Ka-6's — were Standard Class. The drop in numbers was due to several factors — some of the Open Class gliders on order had not been delivered, the pilot qualifications for entry had been raised, and Renmark is a long way for pilots in northern New South Wales and Queensland to come.

In the Open Class were two Libelles — one flown by Bob and John Rowe — a Diamant, flown by Malcolm Jinks and Bob Martin, a Cirrus delivered just one week before the competitions and an Austria SH.

After a practice week of unusually windy conditions, the championship opened on 28th December with a ceremony at which the Minister for Civil Aviation praised gliding in general and the Mayor of Renmark praised the local Riverland oranges in particular. But this did not take long and, at midday, launching started for a 200 km. out-and-return race to Blanchetown, ESE of Renmark. With dry thermals to 7,500 ft. in a warm northerly wind of 12-15 kts. it was a fairly easy day, all but two of the fleet completing the course. John Rowe set the pace with an average of 90 km/hr., followed by Malcolm Jinks, with 83 km/hr. In the Standard Class, Bill Simpson, with 75 km/hr. in a Ka-6, was just half a minute better than Derek Reid, flying a Boomerang.

The next day showed only slight change in the general weather pattern and John Rowe again won the day, with 88 km/hr. around a 321 km. triangle. John Buchanon was first in the Standard Class, with 70 km/hr. in a Boomerang. Although all but four aircraft completed the course, conditions were not all that easy. A marked change of wind at 5,000 ft. had distorted thermals and, although a few thermals reached 7,000 ft., it was scarcely worth trying to use them above 5,000 ft.

Approaching from the west was a "cool change" — a sort of cold front heralding a sudden change to cool south-westerly winds. By 30th December it was past Renmark and the south-westerlies were strong. Dry thermals were plentiful but very distorted and limited in depth and even the pundits could not have made much headway against or across the wind, but to the north and north-east of Renmark is a vast region of uninhabited scrub and semi-desert, so it was "no task" for today.

On the 31st the strong wind was still with us, but was now southerly and a cross-wind race was set to Stonefield, site of the Barossa Valley Club, 127 km. to the WSW. But even this was too much of a struggle. A number of pilots managed to battle about 100 km. across a 25-30 kt. wind in very distorted thermals to 5,000 ft., but a strengthening of this wind along the western side of the Murray made the last 15-20 km. almost impossible. However, Bob Rowe kept the Waikerie Club Libelle in front, with 110 km.

Peter Hanneman and Wally Wallington deal with the task and met. at briefing.

New Year's Day saw a further decrease in the wind, but with cold air and low levels and a sharp inversion at 3,000 ft. during the morning, only a short 165 km. triangle, via Waikerie and Pata to the south, was set. John Rowe came first again, with 87 km/hr. In the Standard Class, John Evans won the day, with 77 km/hr. in a Boomerang.

As in the previous championships, there were two pilots for nearly all the gliders, and the organisers had drawn up a schedule of the days on which pilots were to fly. If a pilot did not have a partner, he could also fly on days which were not scheduled for him, if he wished, and if he gave 24 hours' notice of his intention.

The met. flight, which I made every morning at 7 a.m., revealed a very sharp inversion again on 2nd January. In the chilly southerlies the temperature on the ground was down to 66°F (19°C) and it was pleasant to get up into the high seventies at 3,000 ft. But, although thermals were limited to 3,000 ft. until midday, they then developed quickly to 9,000 ft., with patches of cumulus from 7,000 ft. Furthermore, the wind structure was ideal for cloud streets. A 345 km. triangle was set via Mildura to the east and Alawoona to the south; the first leg of the course was a long straight road for 90 miles, but the second leg cut across scrub country. It is advisable to have a water supply in case of being forced to risk a landing in such country, but on this task conditions were so good that pilots could fly safely right along the course. Peter Hanneman, who won the Standard Class day with 88 km/hr. in his Foka 4, used a dry thermal street to great advantage, while Bob Rowe, on a parallel course just a mile or two away, lost some time by getting too low. Malcolm Jinks made 107 km/hr. in his Diamant, to win the Open Class. This would have beaten his own Australian 300 km. triangle record of 97 km/hr., but the triangle was not of an official shape.

The next day's task was a 191 km. task via Taplan, to the south-west, and Waikerie. Although the general weather situation had not changed much during the past 24 hours, slight changes of detail in winds and temperatures made it a relatively difficult day and a low-level inversion kept thermals down to about 2,500 ft. until mid-day. During the afternoon thermals got up to 5,000 ft., but there were big patches of dead air and only 10 pilots completed the course. G. Hayes brought his Libelle home to win the Open Class with 73 km/hr., while Derek Reid made 71 km/hr. to win the Standard Class.

There was still no change on the 4th January, and 15 pilots completed a

216 km. triangle via Morkalla and Waikerie in times between 2¾ and 5 hours. After making good speed along a cloud street, John Rowe headed the field with 78 km/hr., followed by Max Howland, with 69 km/hr., in his Boomerang. This was John's fourth contest day and his fourth 1,000 points. He was the undisputed favourite for the Open Championship, but no one had a commanding lead in the Standard Class. Lone Queensland pilot Max Howland had chosen to fly on every task so far and had maintained a consistently high standard. John Buchanon, Derek Reid, Peter Hanneman and Mauri Bradney had also been consistent in achieving high places on their contest days.

The 5th January saw the same pattern of south-westerly winds, with thermals developing late and only to 5,000 ft.; the set 200 km. triangle via Waikerie and Alawoona was possible, but only just. Four pilots completed it in times between 3½ and 5¼ hours and P. Nicholls, flying the Cirrus delivered the week before the championships, was the only Open Class pilot to get back. Max Howland, Tommy Thompson — Australian Team Manager for the World Comps. — and Dick Deane all struggled gamely in their Boomerangs, to be the only three Standard Class pilots to complete the course.

On 6th January it was just as well that most non-flying pilots and crews were on the airfield, because one of them discovered that he, and not his partner already *en route*, was scheduled to fly. Fortunately, a hasty radio call brought the aircraft back at about VNE. and off it went again with the right pilot. I won't say who it was, but he went on to win the day in the Standard Class in his Foka 4 — well done, Peter. Malcolm Jinks was back in form, to win the Open Class.

While John Rowe, winner of the Open Class, talks to his wife, Beryl, his mother holds the sunshade.

The anticyclone which had been over the Australian Bight was now moving steadily north-east and 7th January brought deeper thermals. Some went up to 9,000 ft. and were capped by isolated puffs of cumulus. John Rowe earned his fifth 1,000 points by completing the set 300 km. triangle via Lowaldie — to the south — and Blanchetown at 88 km/hr., and all but two pilots got home; Derek Reid led the Standard Class, with 83 km/hr.

No task was set on 8th January, but came the 9th, with another anticyclone over the Bight. Thermals started late and were limited to about 5,500 ft. after mid-

day. Another flat triangle was set, this time 290 km. via Lake Cullulleraine — half-way to Mildura — and Waikerie. Malcolm Jinks beat John Rowe by one minute, to take the Open Class daily prize, and the Standard Class was headed by John Buchanon, who had to leave with his wife on the next day to make the 2,000-mile journey to his RAAF station at Perth.

Navigation on all the tasks was very easy. Visibility was always good and navigational features were big and uncluttered. Even a section of the State border between Victoria and South Australia really is a north-south straight line — just as the map shows; on one side of this section is unbroken scrub, on the other are the cultivated fields of South Australia. The newcomer must not expect to find towns or villages at each place name on the maps; he is just as likely to discover one isolated homestead — and on landing he may possibly find that the owners are away on their Christmas holiday.

A competing pilot equipped to face the sun at Renmark.

On the last championship day the task was twice around a 119 km. triangle via Pata and Taplan. The main factor in choosing such a course was to get the day's results completed in time for the prize-giving ceremony at 6.30 p.m. Of the half-a-dozen close contenders for the Standard Class championship, Derek Reid had now emerged as the likely champion and he needed only to complete the course in a reasonable time to secure his crown. Dry thermals reached up to 6,000 ft. but these were scattered: finding the going not as fast as anticipated, many pilots returned from a few miles out to make several fresh starts. One of them was Derek Reid desperately holding out at 800 ft. over the airfield but it really was a dead patch of air and soon he was down — then off on aerotow to start all over again. Hearing of Derek's bad luck by radio, Max Howland took it easy, to make sure of completing the course; Derek's first lap of his second attempt was in good time, but it was too late in the day to complete the course. He landed 12 km. short of Renmark, and dropped from a potential 1st to 7th place in the final results.

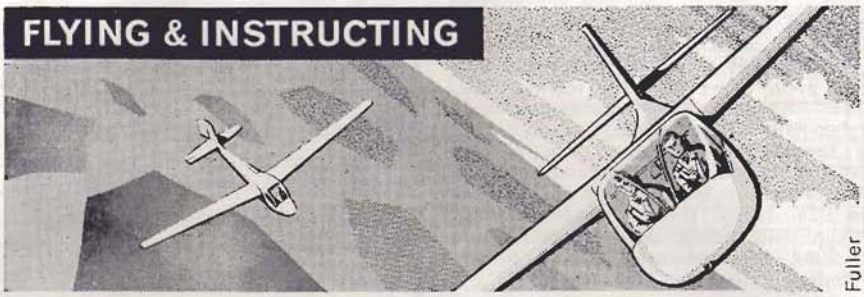
On this last contest day the Open and Standard Classes were won by Bob Martin in the Diamant and Dick Deane in a Boomerang.

Moss Potter, who had directed operations very smoothly and efficiently during the championships, rounded off his splendid achievements by having duplicated copies of the entire championship results ready for all pilots at the prize-giving. Sir Don Anderson, the Director-General of Civil Aviation, presented the prizes and John Rowe had his usual problem of carrying an armload of

trophies, including, of course, the Open Class championship prize. Waikerie pilots did not get *all* the prizes, but Bob and John Rowe won the team trophy. The championship organisers could relax with the knowledge that, with only a few people, they had run a very smooth and happy championships, the 48 competitors having flown 38,000 miles in 1,240 hours. It was a warm, moonlit night, with eating, drinking, music and dancing — and a drive of several hundred miles home the next day.

Final leading results

Open Class		**Final score**
1. J. Rowe	Libelle	999
2. P. Nicholls	Cirrus	942
3. M. Jinks	Diamant	911
4. R. Martin	Diamant	891
5. R. Rowe	Libelle	835
Standard Class		**Final score**
1. M. Howland	Boomerang	939
2. M. Bradney	Ka-6	909
3. J. Buchanon	Boomerang	887
4. R. Deane	Boomerang	881
5. P. Hanneman	Foka 4	869



Fuller

Airbrakes v. Spoilers

Generally speaking, the characteristics of airbrakes are :—

(a) They are speed-limiting (i.e. they can be used to prevent the glider exceeding its maximum permissible speed).
(b) They cause a great increase in drag and a small decrease in lift.
(c) They increase the stalling speed by 2 to 5 knots.
(d) They do not cause a change of trim.

Spoiler characteristics are :—

(1) Not speed-limiting.
(2) They cause a small increase in drag and decrease in lift.
(3) They increase the stalling speed slightly.
(4) They normally cause a nose-down trim change when opened, and a nose-up when closed.

Conversion from Spoilers to Brakes

The effect of the brakes should be shown at altitude and the pupil told to notice the decelerating effect and the amount that the nose has to be lowered to maintain speed. The lack of trim change (after the nose-down effect in a T-21, for example) should also be pointed out. The pupil should then practise opening and closing the brakes while keeping the speed constant by lowering and raising the nose, as appropriate.

Approach Considerations

As with all types of instruction, it is best to try to split up the functions of the controls to simplify the pupil's task. The best method for dealing with the approach path is to think of the airbrakes as controlling the rate of descent and the stick controlling the speed. If the brakes are opened, the nose must be lowered to maintain speed. This is in sharp contrast to a T-21, where a back pressure of the stick is required to counter the nose-down trim change when spoilers are opened. This, in fact, is how most faulty approaches occur, with the pupil failing to lower the nose, or even raising it when airbrakes are opened, thereby causing speed to drop to a dangerous extent. The amount by which the nose of a modern glider has to be lowered when full brake is applied is surprising to a new pupil and he will tend not to keep the speed up.

Aiming Point Technique

In order to achieve a reasonable spot landing, the pupil must be provided with a method of judging where he is going to touch down. The use of an aiming point is as old as flying itself and has worked very well.

For every approach there is a point on the landing area which will maintain a constant relationship with the approach path of the glider. It will, in fact, appear to be stationary, with the ground nearest to the glider moving down below the nose and the ground beyond the point, and is the place where the glider would strike the ground if there were no round out. In practice, of course, the glider rounds out and touches down a distance beyond the aiming point determined by the glider's speed over the ground.

To achieve a landing within a given area, an aiming point must be selected (a hedge, mark on the ground, perimeter track, etc.) which will allow the glider

to be landed properly and still remain in the area desired. Having selected the point, the pilot must then use the airbrakes to make it appear stationary in relation to the approach path, the stick being used to keep the speed right.

The sequence of events would be as follows. The aiming point is selected on the downwind leg or earlier. On the crosswind leg the glider is flown so that the final turn position would cause an overshoot if brakes were not used. Before the final turn is started the speed must be increased and the glider retrimmed. If the final turn has been made in the right place, the aiming point will appear to be drifting below the nose. The brakes are now opened an arbitrary amount (as experience is gained, the pilot will be able to judge how much brake to use from the start of the approach).

Following the opening of the brakes, the nose is lowered to maintain speed. After lowering the nose the aiming point is observed to see if it appears stationary. If not, the brakes are used as appropriate ("in" if the point is moving above the nose and vice versa). Each time the brakes are adjusted the stick must be used to position the nose *before* checking on the aiming point.

When the ground is getting close, the brakes may, if desired, be moved to the half-open position if more than half brake is being used. If less than half, maintain the position. This is to allow more time for the round out and landing. The round out is made normally and the glider landed. During the round out the brakes must not be moved, except towards the closed position in the case of a bad landing. They must *not* be opened further as this, with an inexperienced pilot, almost inevitably leads to a heavy landing.

Full Brake Landings

If approaching into a restricted length field, it is very useful to be able to approach with full airbrake, especially if there are any tall obstructions on the downwind boundary. The very steep approach which full brake gives enables quite tall trees to be cleared safely without unduly lengthening the landing run.

The technique for using full brake is the same as for a normal approach, except that the round out must be made closer to the ground because of the rapid deceleration when the nose is raised with full airbrake out. Because of this, an extra 5 knots should be added to the approach speed. This extra speed will hardly affect the landing distance and will greatly lessen the chances of a heavy landing due to a high round out.

The Landing Run

After the glider is firmly on the ground, the airbrakes should be fully opened to give maximum drag. The stick must be moved back until on the stop to hold off the nose skid as long as possible to avoid wear and splitting of the skid rubbers. If the absolute minimum landing distance is required (running out of field, etc.) then the skid can be rubbed in gently easing forward on the stick. It must be stressed that this procedure is for emergency use only. Some care should be exercised when moving the stick back after touchdown, to avoid the glider leaping into the air again.

ROGER NEAVES

ARGENTINIAN NATIONALS
Cordoba 18—31 January

Resumé of article by Dr. Wolfgang Gross in the April issue of *Aerokurier*

Translated by Rika Harwood

WITH the great variety in sailplane performance, the championships were scored on a handicap basis. All retrieves were carried out by aero-tow and with 51 pilots taking part this sometimes meant waiting for long hours in the pampas.

The German party included Rudi Lindner (Phoebus 15), Wolfgang Gross (Vasama), and Reinhold Stuhr (Phoebus 17). Two pilots from Chile were towed over the Andes, one of them, Carlos Perez, in a Libelle 301.

The championships started on a sad note. On the opening day, 21-year-old Carlos Ruiz was to have aero-towed a competitor from Buenos Aires to Cordoba. Early that morning, having been warned about the ground mist, he took off from Bolivar and, following a 360° turn, hit a wingtip on the ground, burst into flames and was killed. The competitor in Buenos Aires had to withdraw his entry as he could not get to Cordoba.

The weather in general was not outstanding, some very difficult days being encountered when either increasing winds and/or thunderstorms made completion of the tasks very difficult or impossible for most pilots. On many days convection did not start until after one o'clock and pilots often had to sit in the sweltering sun waiting for launching to commence.

The only "day of days" occurred on the 23rd January when, unfortunately, four pilots were still awaiting retrieves from the previous day's flying and so the day had to become a rest day. The task had been a 186-km. out-and-return and all but three pilots had to land out because of a massive thunderstorm. Only Carlos Perez and Rogelio Berreta managed to return, but with difficulty; flying in pouring rain and heavy sink, they came in from very low over the town. When the rain had ceased nobody believed it possible for anyone else to get home. However, just behind and above the hangars of the next-door Service airfield a glider was suddenly spotted and it only just managed to scrape in and stopped short of the finish line by about 200 m. The pilot, Reinhold Stuhr, jumped out and with all his strength tried to pull his Phoebus 17 by hand, in the thunderladen heat, to get to the line. The spectators cheered him on as if he were a matador, but the organisers would not allow anyone to help. At the line he collapsed, utterly exhausted, and he had to be carried away in an ambulance — blue lights flashing and sirens blowing — recovering only after an hour-and-a-half of intensive medical treatment. Alas, his dramatic effort was to no avail. He was told later that the rules did not cover an arrival at the finish line on foot! The bitter pill he had to swallow came the next day, when he realised that after all this he had only managed 21st place for the day.

The most noteworthy performance throughout the contest was by a talented 21-year-old, Roberto Rizzi; flying a very old Sky he did extremely well to finish in the first 10 places on 5 days, and winning two of them. No doubt we shall see his name crop up again.

On the 30th January a Std. Austria made a false start and rolled into several parked gliders, damaging Araoz's Foka; because of this he was delayed for three hours and lost all chance of finishing the task, a 276 km. out-and-return, which was completed by 46 of the 51 pilots. He had already won two days and was placed high on several others! Reinhold Stuhr's machine was also damaged by the same accident and he had to withdraw for the day. Rudi Lindner, after a hard day's flying, rolled up his sleeves and helped with the repairs, which had to be carried out in primitive conditions and took all night. The temperature in the shade was 104°F on this day.

The very high temperatures of the last few days were extremely exhausting, especially for the European team from Germany. In a way the pilots were quite happy not to have to fly any more, although the last day's task was an exciting 315 km. out-and-return. These were the sort of weather conditions we had all been waiting for and the best time was by Carlos Perez, with 3:23:15. Roberto Rizzi, however, won the day in the Sky.

Uwe Bocksch (Vasama) was the highest placed Argentinian and thus became National Champion. Perez, from Chile, was the winner of the championships and also took the Walter Georgii Trophy.

The tasks were: Day 1 — 100 km. Triangle. Day 2 — 204 km. Out-and-Rreturn. Day 3 — 100 km. Triangle. Day 4 — 186 km. Out-and-Return. Day 5 — 203 km. Triangle. Day 6 — 302 km. Triangle. Day 7 — Twice 112 km. Out-and-Return. Day 8 — 207 km. Out-and-Return. Day 9 — 276 km. Out-and-Return. Day 10 — 315 km. Out-and-Return.

The first day was not a contest day, as the rules required more than one Argentinian pilot to complete the minimum distance of 100 km. On this day only Urbanic and Perez, of Chile, completed the course. The final results given here include the unofficial score for this day, as during this contest the Walter Georgii Trophy was at stake.

Final Leading Results

	H'cap		Points
Perez (Chile)	0.73	Libelle 301	9574
Urbanic	0.88	Ka-6CR	8350
Lindner (Germ.)	0.75	Phoebus 15	8323
Bocksch	0.86	Vasama	7443
Hossinger	0.68	Phoebus 17	7338
Gross (Germ.)	0.86	Vasama	7318
Stuhr (Germ.)	0.68	Phoebus 17	6911
Frene	0.72	HP-14	6753
Milani	0.88	Ka-6CR	6724
Araoz	0.88	Foka 4	6691

The next Nationals will probably be held at Pehuajo in early 1970 and will be the final test for selecting the Argentine for the World Championships at Marfa.

A group formed by Berretta is investigating the possibility of offering to hold the 1972 World Championships at Pehuajo.

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WHY NOT AOSTA ?

Rhoda Partridge

ONLY one reason why not. The crazy bureaucratic taradiddle of getting an Italian licence to fly their club gliders solo. I went out on the spur of the moment. I'd booked in at Portmoak for three weeks in March. My Broomstick was optimistically equipped with oxygen. A week after I should have gone, there was still no let-up in the blizzards and the roads up to the Mynd were still packed with ice-hard snowdrifts. I phoned Jack and he said, "If it starts to thaw tomorrow, which it won't, you might get her off in ten days," which wasn't going to leave much of my holiday. So off I went to Aosta, with the happy conviction that I could con my way into a solo glider. I coaxed and

wheedled and nagged and oozed charm and would happily have burst into tears if it would have helped. When they got it through to me that if a government official turned up and found me cavorting around the peaks solo, the professional CFI would be out on his ear, I realised that I'd had it. I watched a three Diamond type fight the same battle (different tactics) and lose. He was very good about it. To get the flaming licence you have to send to the airport Aosta, Italy, for a form. They ask for three photos, one certified by the Air Attaché at the Italian Embassy in London. Photostat copies of all pages of your gliding certificate. Your gliding certificate itself. A medical certificate. Your CFI's signature, not to mention date and place of birth, occupation, hours, aero-tows, launches, types and club. Is it worth the trouble? I'll tell you a bit about the flying and the prices and you can decide for yourself.

The flying first. I suppose it's no good writing an article for S & G and, when it comes to describing the flying, saying "words fail", but after my first trip in their Blanik, I went around in a daze and words did fail. And they don't often.

The Aosta Valley is in the mountains north of Turin. It runs east-west for about 30 miles and at the airfield it's about one-and-a-half miles wide; down each side is a great steep wall of real genuine mountains, up to 10,000 ft., and more. First, little farms and villages, then scrub, oak and birch, then pines and recent snowfall, then no pines and the eternal snowfields and dirty great jagged bits of rock and glaciers. Either one side or the other of the valley works, ridge lift and thermal. Two metres most places and you fly back and forth five or six metres in the gullies and you turn tightly. It's so smooth and easy that you have a giddy feeling that it's not you going up, it's the mountain going down. Cloudbase is normally above 10,000 ft., so in due course you are lifted clear of the valley and there they are, all around you. Those are genuine jagged peaks and those eternal snowfields and Mont Blanc and the Matterhorn and the whole lot looking brighter and shinier than the brightest, shiniest coloured postcard, and you in the middle of it, your mouth hanging open and your eyes bulging. Do you wonder words fail? You can bumble up and down side valleys — it's easy to find your way back to the airfield. Signor Balbis, the CFI, gave me a flight to show me the place, swooping about between the peaks. I'd never have dared to go so close. We were joined by three eagles, which looked enamel-bright against the

snow. Fascinating watching them doing the swing-wing thing and turning up their dark finger tips and generally showing us how, then they dropped away with a hair-raising burst of speed.

The club is annoyed and embarrassed by the licence nonsense. All the Italian clubs are. If you haven't got the licence and they think you fly O.K., they will provide you with a club member who has a passenger-carrying rating and will sit in the back and shut up. (If he gets too cold and stamps his feet and you've forgotten he's there, you think the wings are coming off.) I found the staff quite specially helpful and kind and they speak

French. But there is a certain lack of urgency and the airfield is closed all day Monday.

Now for some facts and figures. This is their fleet and there are two prices. I give the prices in lire and when I was there (March, '69) one got about 1,435 lire for £1. One price is for ordinary days, the other for 'festivo' days. The 'festivo' days are Saturday and Sunday and a whole heavenly choir of unheard-of Saints. I got caught out on a Thursday by Saint Guiseppe.

Fleet	*Ordinary per hour*	*Festivo per hour*
2 Blaniks	2,400	3,000
2 M-100 (solo)	600	1,500
1 CVV8 (two-seater)	1,500	3,000
1 Foka 3	2,000	2,500

Aero-tows to 600 metres, 1,800 lire; to 1,000 metres, 2,800 lire.

As you see, the bargain is the solo M-100 (old Ka-6 standard) at 600 lire an hour About 8s. 6d.! The gliders are all equipped with oxygen and while I was there no-one took a club solo machine out, except on "festivo" days, and not much then. It was dead tantalizing.

Of course, if you take your own glider you have a site check and you're away. There were about six visiting German gliders and two privately owned by Italian Club members — a Diamant and an Italian high-performance job like a Foka 4. This latter has its identification letters painted large and red down its white fuselage and when I tell you that it was called India dash Foxtrot Uniform Charlie Kilo you can imagine the effect it has on English-speaking visitors as it sails proudly past on tow.

There are nice rustic little hotels around in the villages, where you can get bed and breakfast for 17s. 6d. and the district is extremely beautiful and characterful and peppered with castles on crags and Roman bridges and arches and theatres, and chair lifts to mountain tops and super ski-ing. There is no club social life. There's a classy and expensive airport restaurant and a nice bar but not that rather tatty, friendly atmos with gossiping pilots, "and there I was with my air brakes jammed". I missed it. They don't seem to like you to work much either. The gliders, which always land on the runway, are retrieved back to the launch point by paid staff in a smart black saloon car and no one walks

Fuller

by the nose. I was never even allowed to hold a wingtip. Maybe they were being gallant, or perhaps they thought I'd drop it. Restful, anyhow.

I haven't mentioned wave flying because it was only on early one morning and they were so slow getting started that only a Ka-8 contacted and got 4,000 m. It is, of course, a famous wave site and I'm told that the rotor is larger and less fierce than at Fayence because of the parallel ranges of mountains that set it up. At Fayence you've got jumbled mountains and you certainly get jumbled rotor.

You need Bronze C and a bit of aero-

tow experience to fly solo, but whatever your standard you get super, words fail, flying. I'm certainly going to try for that Italian licence (it takes at least four months to get it). I've got my eye on a non-festivo M-100 at 8s. 6d. an hour.

INVITATION TO FINLAND

AS stated in the Overseas News Section, the Finnish National Championships will be held this year from 1st until 15th June, and British pilots will be welcome to take part. The Secretary-General now confirms this invitation, adding :—

"In order to familiarize foreign glider pilots with gliding conditions in Finland and to obtain their opinions on the possibility of arranging larger international competitions — maybe even the World Gliding Championships in Finland in the future — competitors are invited to our 1969 Championships, either Open or Standard Class."

Costs given by the Secretary-General vary slightly from those stated in Overseas News:— Entry fee 100 FM, aerotows 10 FM, accommodation in clubhouse 3 FM per night and two hot meals 5 FM. The site is 60 miles from Helsinki. Write to :— Juhani Horma, Poltinahontie 13 A 3, Hämeenlinna, Finland.

THE KRONFELD CLUB

BY the time you read this Newsletter the Club will be resplendent in its new wallpaper and everything spick and span for the summer. It would seem, too, that restoring the regular function every Wednesday is slowly bringing members back to the Club for a drink, an interesting talk and a chat afterwards with members of other clubs and interests; which is, after all, the reason for the Club. Our energetic tracker-down of people to give us the evening talk is, as ever, hard at work and she, Mae Marven, would appreciate news of anyone who could provide one of the talks.

Rosamund Hervey, who took over from Mary Overton as membership secretary in December, will, by the time you read this, be in Hong Kong! For the short time she was with us she did much well-appreciated work. Who her relief is, at the time of writing, is unknown, but we welcome her, or possibly him.

The Nationals are upon us and the results will be well advertised, but so that other flights may not go unnoticed, it would be of undoubted interest if members could bring news of their clubs' achievements in the previous week's flying, where the inter-club plates and pots are, etc., for report at "Round the Clubs" on Wednesdays. News from members abroad would also be most welcome.

J. H. S.

Diary of Lectures and Film Shows
Wednesdays at 8 p.m.

June 4. Flying Overseas, by Commander Murray Hayes, R.N.
„ 25. Reports on the Nationals.
July. See Kronfeld Club poster.

AVIATION ART SOCIETY

THE Kronfeld Aviation Art Society Transatlantic Exhibition has been on show at Heal's, of Tottenham Court Road, W.1, from 1st until 14th May and then was at Biggin Hill Air Fair from 15th until 18th May. It consists of some 25 paintings, depicting many of the famous transatlantic attempts, and includes four showing the accomplishment of the first successful non-stop crossing by Alcock and Brown. Included are Gerald Coulson's "*Spirit of St. Louis* and the Atlantic" — showing Lindbergh down to 10 feet above the waves, six water colours by John Blake of the Royal Aero Club and John Stanley is exhibiting "Alcock and Brown Approaching Ireland". The commemorative collection may now be seen at the Club. The majority of the paintings are for sale at prices ranging from 10 to 175 guineas. All enquiries should be addressed to Mrs. Yvonne Bonham, 11 Great Spilmans, Dulwich, London, S.E.22. Telephone 01-693 3033.

Y. C. B.

INTERNATIONAL GLIDING RECORDS (Correct as at 1.4.69)

Single-Seaters

Distance	A. H. Parker (USA), 31.7.64, Sisu-1A	1,041.52 km.
Height Gain	P. F. Bikle (USA), 25.2.61, SCS-123-E	12,894 m.
Absolute Altitude	P. F. Bikle (USA), 25.2.61, SGS-123-E	14,102 m.
Goal Flight	W. A. Scott (USA), 23.7.64, Ka-6CR	837.75 km.
Goal & Return	K. Striedieck (USA), 3.3.68, Ka-8B	767.02 km.
100-km. Triangle	H. M. Linke (Germ.) (in USA), 30.7.67, Libelle	135.66 km./h.
300-km. Triangle	A. Roehm (Germ.), 4.6.67, BS-1	138.30 km./h.
500-km. Triangle	M. Jackson (S. Africa), 28.12.67, BJ-3	135.52 km./h.

Multi-Seaters

Distance	J. Kouznetsov and J. Barkhamov (USSR), 3.6.67, Blanik	921.95 km.
Height Gain	S. Josefczak and J. Tarczon (Poland), 5.11.66, Bocian	11,680 m.
Absolute Altitude	L. Edgar and H. Klieforth (USA), 19.3.52, PR-G	13,489 m.
Goal Flight	P. Antonov and A. Oplatchko (USSR), 24.4.64, Blanik	702.74 km.
Goal & Return	K. Keim and Bachmann (Germ.), 28.12.67, Kranich 3	620.66 km.
100-km. Triangle	S. Kluk and A. Wyrzanowski (Poland), 2.9.64, Bocian	107.78 km./h.
300-km. Triangle	V. Tchouvikov and J. Logvin (USSR), 1.8.64, KAI-19	92.56 km./h.
500-km. Triangle	Helmut and Heinz Sorg (Germ.) (in SA), 7.1.64, Ka-7	83.74 km./h.

Single-Seaters (Women)

Distance	Olga Klepikova (USSR), 6.7.39, Rot Front 7	749.20 km.
Height Gain	Anne Burns (GB) (in SA), 13.1.61, Skylark 3B	9,119 m.
Absolute Altitude	Betsy Woodward (USA), 14.4.55, PR-195	12,190.2 m.
Goal Flight	Tamara Zaiganova (USSR), 29.7.66, A-15	731.60 km.
Goal & Return	Yvonne Leeman (SA), 28.12.67, Phoebus	620.66 km.
100-km. Triangle	Yvonne Leeman (SA), 4.1.66, BJ-2	110.19 km./h.
300-km. Triangle	Yvonne Leeman (SA), 14.1.66, BJ-2	106.18 km./h.
500-km. Triangle	Anne Burns (GB) (in SA), 25.12.63, Std. Austria	103.33 km./h.

Multi-Seaters (Women)

Distance	T. Pavlova and L. Filomechkina (USSR), 3.6.67, Blanik	864.86 km.
Height Gain	A. Dankowska and M. Matelska (Poland), 17.10.67, Bocian	8,430 m.
Absolute Altitude	A. Burns (GB) and J. Oesch (in USA), 5.1.67, 2-32	9,519 m.
Goal Flight	I. Gorokhova and Z. Koslova (USSR), 3.6.67, Blanik	864.86 km.
Goal & Return	P. Majewska and R. Sokolowska (Poland), 14.7.68, Bocian	467.2 km.
100-km. Triangle	Y. Leeman and M. Human (SA), 27.12.67, Kranich 3	90.95 km./h.
300-km. Triangle	O. Manafova and V. Lomova (USSR), 12.6.64, KAI-19	74.31 km./h.
500-km. Triangle	T. Zaiganova and Lobanova (USSR), 29.5.68, Blanik	69.5 km./h.

SUBJECT TO HOMOLOGATION

INTERNATIONAL

Single-Seaters

Goal & Return	B. Clifford (SA), 1.1.69, Libelle 15R	approx. 784 km.

Tentative claim for homologation has been filed with the FAI for this flight.

UNITED KINGDOM

Single-Seaters

400-km. Triangle	A. D. Purnell, 19.4.69, Cirrus	approx. 65.9 km./h.
100-km. Gl. Speed	K. A. Harrison, 13.4.69, SHK	approx. 129 km./h.

Multi-Seaters

200-km. Triangle	B. J. Wilson and H. Daniels, 20.4.69, Blanik	62.5 km./h.
100-km. Triangle	B. J. Wilson and H. Daniels, 19.4.69, Blanik	77 km./h.

New records have to exceed the old ones by:

Distance	10 km.
Heights	3%
Triangles	2 km./h.
Straight Goals	5 km./h.

Conversion factors:

Multiply km. by 0.621 to get statute miles
Multiply km. by 0.54 to get nautical miles
Multiply km./h. by 0.539 to get knots
Multiply km./h. by 0.621 to get m.p.h.
Multiply metres by 3.28 to get feet

The Flying Committee has decided that all British National and United Kingdom records will be officially recorded in metric units so as to fall in line with the FAI.

BRITISH NATIONAL RECORDS (Correct as at 1.4.69)

Single-Seaters

Distance	P. D. Lane (in Germ.), 1.6.62, Skylark 3F	741	km.
Height Gain	G. J. Rondel, 18.6.60, Olympia 2B	8,870	m.
Absolute Altitude	H. C. N. Goodhart (in USA), 12.5.55, 1-23	11,500	m.
Goal Flight	H. C. N. Goodhart, 10.5.59, Skylark 3	579	km.
Goal & Return	A. H. Warminger (in S. Africa), 13.1.66, Std. Austria ..	602	km.
100-km. Triangle	A. H. Warminger (in S. Africa), 21.12.65, Std. Austria ..	115.1	km./h.
300-km. Triangle	E. Pearson (in S. Africa), 3.1.69, Cirrus	104	km./h.
500-km. Triangle	Anne Burns (in S. Africa), 25.12.63, Std. Austria	103.3	km./h.

Multi-Seaters

Distance	L. Welch and F. G. Irving, 14.5.55, Eagle	408	km.
Height Gain	R. P. Saundby and B. Roberts, 7.6.64, Blanik	5,410	m.
Absolute Altitude	Anne Burns and Janie Oesch (in USA), 5.1.67, 2-32	9,519	m.
Goal Flight	W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle ..	312	km.
Goal & Return	A. H. Warminger and R. Tucker (in SA), 4.1.69, 2-32 ..	362	km.
100-km. Triangle	G. Camp and Delphine Gray-Fisk, 21.8.64, Eagle	63.2	km.
300-km. Triangle	A. H. Warminger and R. Tucker, 29.12.68, 2-32	72.3	km./h.

Single-Seaters (Women)

Distance	Anne Burns (in S. Africa), 31.1.61, Skylark 3B	524	km.
Height Gain	Anne Burns (in S. Africa), 13.1.61, Skylark 3B	9,120	m.
Absolute Altitude	Anne Burns (in S. Africa), 13.1.61, Skylark 3B	10,550	m.
Goal Flight	Ann Welch (in Poland), 20.6.61, Jaskolka	528	km.
Goal & Return	Anne Burns (in S. Africa), 6.1.66, Std. Austria	545	km.
100-km. Triangle	Anne Burns (in S. Africa), 12.1.63, Skylark 3B	84.0	km./h.
300-km. Triangle	Anne Burns (in S. Africa), 31.12.65, Std. Austria	93.6	km./h.
500-km. Triangle	Anne Burns (in S. Africa), 25.12.63, Std. Austria	103.3	km./h.

Multi-Seaters (Women)

Absolute Altitude	Anne Burns and Janie Oesch (in USA), 5.1.67, 2-32	9,519	m.

UNITED KINGDOM RECORDS (Correct as at 1.4.69)

Single-Seaters

Distance	H. C. N. Goodhart, 10.5.59, Skylark 3	579	km.
Height Gain	G. J. Rondel, 18.6.60, Olympia 2B	8,870	m.
Absolute Altitude	G. J. Rondel, 18.6.60, Olympia 2B	9,300	m.
Goal Flight	H. C. N. Goodhart, 10.5.59, Skylark 3	579	km.
Goal & Return	J. S. Williamson, 30.8.64, Olympia 419	441	km.
100-km. Triangle	G. E. Burton, 20.8.67, Dart 17R	85.9	km./h.
200-km. Triangle	J. Firth, 20.8.64, Skylark 3F	71.9	km./h.
300-km. Triangle	H. C. N. Goodhart, 25.6.57, Skylark 3	66.3	km./h.
400-km. Triangle	Anne Burns, 5.8.67, SHK .. .. (see opposite page)	60.6	km./h.
500-km. Triangle	D. B. James, 9.6.68, Diamant 18	53.8	km./h.
100-km. Gl. Speed	M. Bird, 4.8.62, Skylark 3F .. (see opposite page)	114.3	km./h.
200-km. Gl. Speed	I. W. Strachan, 2.6.63, Skylark 4	114.3	km./h.
300-km. Gl. Speed	E. A. Moore, 27.5.57, Skylark 2	92.1	km./h.
500-km. Gl. Speed	H. C. N. Goodhart, 10.5.59, Skylark 3	90.7	km./h.

Multi-Seaters

Distance	L. Welch and F. G. Irving, 14.5.55, Eagle	408	km.
Height Gain	R. P. Saundby and B. Roberts, 7.6.64, Blanik	5,410	m.
Absolute Altitude	R. P. Saundby and B. Roberts, 7.6.64, Blanik	5,800	m.
Goal Flight	W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle ..	312	km.
Goal & Return	F. A. O. Gaze and Rosemary Storey, 7.8.59, Eagle	273	km.
100-km. Triangle	G. Camp and Delphine Gray-Fisk, 21.8.64, Eagle (see opp. p.)	63.2	km./h.
200-km. Triangle	F. A. O. Gaze and Rosemary Storey, 30.4.60, Eagle (see opp p.)	43.6	km./h.
300-km. Triangle	B. Willson and H. Daniels, 15.5.66, Blanik	55.8	km./h.
100-km. Gl. Speed	D. B. James and K. O'Riley, 27.5.57, Gull 2	96.5	km./h.
200-km. Gl. Speed	J. S. Williamson and D. Kerridge, 9.4.55, Eagle	56.2	km./h.
300-km. Gl. Speed	W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle ..	69.2	km./h.

Single-Seaters (Women)

Distance	Anne Burns, 10.5.59, Skylark 3B	454	km.
Height Gain	Anne Burns, 10.5.59, Skylark 3B	5,100	m.
Absolute Altitude	Anne Burns, 10.5.59, Skylark 3B	5,600	m.
Goal Flight	Anne Burns, 12.4.58, Skylark 3B	309	km.
Goal & Return	Anne Burns, 26.5.63, Olympia 419	215	km.
100-km. Triangle	Anne Burns, 25.7.59, Skylark 3B	60.0	km./h.
200-km. Triangle	Anne Burns, 22.8.64, Std. Austria	69.3	km./h.
300-km. Triangle	Anne Burns, 28.6.66, SHK	60.2	km./h.
400-km. Triangle	Anne Burns, 5.8.67, SHK	60.6	km./h.
100-km. Gl. Speed	Rika Harwood, 27.5.57, Olympia 2B	83.0	km./h.
200-km. Gl. Speed	Anne Burns, 2.6.63, Olympia 419	85.5	km./h.
300-km. Gl. Speed	Anne Burns, 12.4.58, Skylark 3B	63.9	km./h.

GOLDEN RULES FOR RULES

By ANN WELCH

WHERE there are too many rules, more time and energy may be spent in learning them than in learning about whatever it is that the rules are in aid of. When this happens rules can have the opposite effect to that intended, since a person may end up less competent than he would have been without any rules at all.

We live in an age of excessive rule making and, taking together all the rules we can break in our normal lives, our masters have achieved a situation when it is no longer possible to know every one of them. In addition, some rules, or their presentation, are ambiguous, which creates further difficulty. But — apart from this — there is a real danger that too many rules actually increase the hazards of life by reducing the need of the individual to think for himself and to develop his own judgment. It is quite possible to reach a state where people have learnt to depend on rules to such an extent that they are no longer capable of being responsible for themselves. In some respects we are there already — people kill themselves unnecessarily every weekend to the bleats of safety societies saying, "Be careful and obey the rules." They would be better saying, "Learn to look after your own neck, no one else will."

In gliding we have remained remarkably free of rules, both state and home made, and, generally, glider pilots have a well-developed sense of responsibility and self-discipline as a result. But even with us the insidious canker is beginning to spread, and new-rule makers must be watched vigilantly to see that they do not weaken the need for competence and self-help. Some rules obviously are necessary, for there are too many people around doing too many things to have Stone Age freedom, but they must be good rules only.

To be of any value, a rule must comply with certain conditions. If it does not accord with all of them, it is better that it should have only advisory status. A rule should:—

1. Be the best way of achieving the object.
2. Place responsibility for compliance on a single person, or body. (It should not require shared or divided responsibility.)
3. Be comprehensible (easy to understand) and have an obvious reason.
4. Be enforcible by public opinion and by penalty or withdrawal of privilege.
5. Be practical to administer (including making it known).
6. Be applicable to everyone at whom it is directed, without need for exceptions, exemptions and dispensations.

An example of a good rule is :— "When two aircraft are approaching each other, head-on or approximately so, each shall alter course to its right." It achieves the object of avoiding unnecessary head-on collisions, it is obeyed universally by individual pilots and is administered by the participants themselves, it is comprehensible, it is completely acceptable, and is enforcible by law.

An example of a rule which fails the test abysmally is :— "Members may not fly if they have taken any intoxicating liquor within the previous eight hours." If the object is to stop the drunken pilot it does not achieve it. The pilot who will fly drunk probably does not care about rules anyway, and is unlikely to be in full command of his senses. Should the occasion arise that a pilot "under the influence" wants to fly, he will be prevented from doing so only by the vigilance of the duty instructor and other members. This rule is comprehensible only in words, and according to the letter and is likely to be broken by the very people expected to uphold it. For example, the Wednesday evening instructor falls out at the last moment, so the CFI rings another competent instructor, who agrees to take over, having completely forgotten that he had a beer with his lunch, five hours before. It is impractical to administer (get pilots to sign the book?). It is unenforcible by public

opinion because it is unworkable, and almost impossible for a club to enforce since, should it find itself with a drunk on its hands, he would defend himself by proving that at least one club officer had technically broken the same rule.

Should a rule be required to add force to the duty instructor's vigilance — which is the only safeguard — then it should be something like: "It is the responsibility of every member to abstain, prior to flying, from any alcohol or drugs which may in any way impair his judgment or competence." This may not be such a black-and-white rule, but it puts responsibility where it belongs — on the pilot himself, it gives the necessary authority to the duty instructor, and it removes the illogicality of one beer 7¾ hours before being wrong, but a drunken orgy ending 8¼ hours previously being all right.

In gliding we need, generally, three sorts of rules :—

For operational safety (daily inspections);

For the maintenance of standards (e.g. instructor ratings); and

For competitions (e.g. maximum height over start line).

In competitions, more rules are needed than in the others because pilots want to compare their proficiency directly, so a comprehensive and unambiguous set of regulations is required, with appropriate penalties to make infringement not worth while. But these rules must still fulfil the basic rules for Rules. If they do not, the results of the championships could depend on the relative honesty of competitors instead of the relative soaring skill. For example, it is a sensible rule to say that any competitor entering cloud shall announce himself on the official radio frequency and keep other pilots informed of his whereabouts. But it is not sensible to say that a pilot *must have* and carry a serviceable radio on every flight, even if he has no blind flying instruments or there are no clouds. What happens if pilot A declares that his radio is u/s? The organisers can either ground him or break their own rule and let him fly. In the meantime pilot B, also with an unserviceable radio, keeps quiet. It is no answer for the organisers to check

all radios, because one can go wrong immediately afterwards. This sort of situation easily leads to suspicion and unfairness. A better rule would be :— "If a pilot is unable to announce his entry into cloud on the official frequency — and thereafter maintain intelligible speech contact with other competing aircraft in the area — he must keep completely clear of cloud." If he breaks the rule, it is true that he may not always be found out but, if he is apprehended, it is a clear case of infringement by him, and the responsibility is not blurred by checks or actions that the organisers may or may not have taken.

Rules for operational safety and the maintenance of standards provide a more difficult problem. People are not competing against each other, and have different ideas of what is necessary.

Rules for the maintenance of standards are seen in principle to be useful and fair, but they must inevitably be a compromise between perfection and a level which fails to achieve the desired results. But, here again, they must fulfil the requirements of a good rule, as, for example, the BGA Airworthiness Regulations do. While allowing people to work on their own aircraft, and not being too expensive, they achieve the standard of safety intended. The paperwork is comprehensible, the administration straightforward and, if the aircraft is not up to standard, a C of A is not granted. It may be said that here lies a weakness, since the *Law* does not prevent a person flying a glider without a C of A. Nevertheless, this rule is accepted and complied with because clubs and pilots do not like having possibly unserviceable aircraft on their patch or in the air with them, and because responsible people know that anarchy inevitably leads to more restrictions. The BGA C of A rules work because they are obviously right and the standard is pitched at a sensible level.

Perhaps the most difficult rules of all to make and enforce are those dealing with operational safety, since both conditions and competence are variable. For example, experienced pilots can fly safely from a worse site than can inexperienced ones; so, if you want to make rules about sites, what do you do? The answer is that you do not make a *rule.*

I am sure that the greatest operational safety in a sport like gliding comes with the absolute minimum of rules, but with the maximum of information and shared experience. The few rules must be good rules, with any poor rules ruthlessly avoided. But everything else, all the good ideas, the recommended practices, the conventions (do not use a split pin twice, etc.), should not be turned into rules. The information should be made readily available for all to use, and the reasons explained to new pilots; but they should not be rules to be learnt by rote, and used instead of common sense.

BGA NEWS

Welcome !

We are pleased to welcome Gillian Howe to the British Gliding Association as Assistant Secretary. She is a member of the Cotswold Gliding Club and, as you may remember, won for her club a Ka-6E in last year's Wills' Gliding Competition. Gillian has her Bronze C and Silver Height and is hoping to take an Instructors' Course later this summer. Meanwhile, she's soaring a desk in Artillery Mansions and trying not to look too longingly at the cu. nims forming over Victoria Street. We wish her a long and happy stay.

Artificial Horizon Instruments with Adjustable Pitch Datum Facility

MANY light fixed-wing aircraft are equipped with artificial horizon instruments in which the basic relationship of the artificial horizon bar to the reference aircraft symbol is adjustable by the pilot. Misuse of this facility can prove dangerous. The Air Registration Board require the adjusting knob to be made inoperative when such instruments are fitted to all new types of aircraft exceeding 6,000 lb. AUW submitted for certification in the transport category. It is not considered practicable to insist on the same requirement for all light aircraft. It is, therefore, essential that pilots should be aware of the dangers of misuse of the adjusting facility in flight.

If the horizon datum is altered, while flying on instruments the pilot's reference for corrective action is no longer valid and the chances of a prompt, or even, in extreme cases, a successful recovery to normal flight are jeopardized.

The occasions when a pilot may be tempted to adjust his horizon datum in flight will usually occur during prolonged turns, climbs and descents, or during cruising flight, when there may be a gap between the horizon bar and the reference aircraft. It is not considered that such adjustments are either necessary or advantageous to successful instrument flying. In fact, it is a necessary adjunct to good instrument flying that a pilot becomes familiar with the appropriate pitch attitude of his aircraft in various phases of flight. Any variation of the basic reference will interfere with the acquisition of such knowledge.

It is, therefore, recommended that, in fixed-wing aircraft fitted with artificial horizon instruments which have a pitch datum adjusting facility, the reference aircraft symbol should be centred in the instrument case before flight, regardless of the position of the horizon bar, and that no further adjustment should be made during flight.

This information is issued by the Aeronautical Information Servic — No. 14/1969, of 3rd February, 1969 — and published by the Board of Trade for information, guidance and necessary action.

Annual Awards

At present, flights for BGA Annual Awards cover twelve months from 1st January until 31st December. In future, they will cover the period 1st October until 30th September, in order to coincide with the BGA Financial Year.

For 1969, therefore, claims will cover nine months only — from 1st January, 1969, until 30th September, 1969. (See February/March issue of S & G for 1968 awards.)

Certificate Claims

Now that we are again in the Soaring Season, the BGA office will be inundated with Silver, Gold and Diamond claims — we hope, for this indicates the achievements of our movement.

Last season there were nearly 1,000 claim forms received but, horror of horrors, nearly 30% had some error which necessitated return to the pilot with a query or a request for the registration fee.

It is hoped that instructors and official observers, as well as pilots, will make every endeavour to ensure that claims in 1969 are correctly completed and submitted with appropriate evidence and fee.

Common errors were :—

(a) No fee or wrong fee (£1 per leg).
(b) No barograph trace. This is required for :—
All legs of Gold and Diamond.
Silver height, unless claim is endorsed by a specifically approved Senior Observer.
Silver duration and distance, unless flight is observed throughout or claim is endorsed by a specifically appointed Senior Official Observer.
(c) No calibration chart. This is required for :—
Gold and Diamond height.
Silver height if gain is less than 3,800 ft., except when claim is endorsed by a specifically appointed Senior Observer.
(d) No landing certificate or an incomplete one.
(e) No name and address of pilot claiming (believe it or not!).
(f) Gain shown on barograph trace different from gain entered on claim form.
(g) No gliding certificate number entered. This sometimes causes difficulties in tracing record cards.
(h) Certificate not forwarded when claim completes Silver or Gold C.

Official Observers should not sign forms until they are completed correctly in every respect, and certainly should not sign a blank claim form which is filled in later.

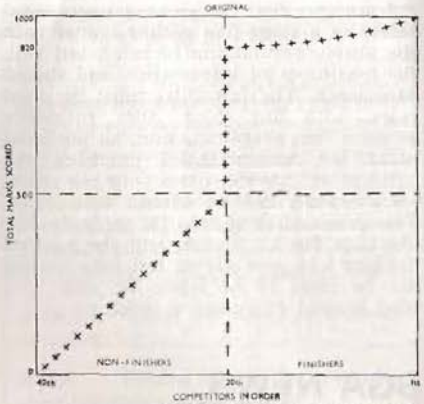
Lilienthal Medal for 1968

The FAI has announced that the Lilienthal Medal for 1968 has been awarded to Alejo Williamson, of Chile.

Amendment to BGA Competition Race Scoring

PREVIOUS BASIS

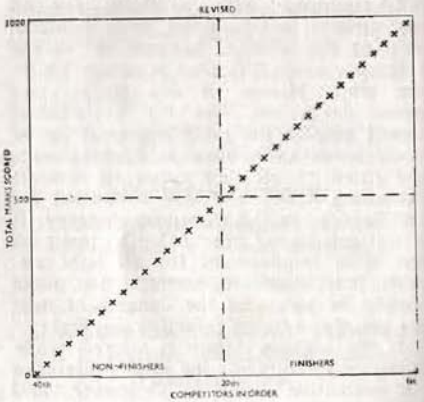
For a number of years speed marks have been awarded to race finishers in the proportion of the square of their speed to that of the winner. Squaring has the effect of widening the separation between the marks of the faster finishers,



but it is considered by many to be a complicated device without any theoretical justification. It also leads to a substantial step between the slowest finisher and the furthest non-finisher.

REVISED SCHEME

The BGA Executive Committee have now approved a revised system of scoring in which speed marks are allocated directly in proportion to speed, spreading the available speed marks proportionately between the speeds of the fastest and slowest finishers. Distance marks will be scored as previously. The slowest finisher will not get zero speed marks but rather the maximum speed marks divided by the number of finishers. (This ensures, amongst other things, that there is no anomaly when there is only one



finisher and he is, therefore, both the fastest and slowest finisher.)

ILLUSTRATIVE EXAMPLE

Out of 40 gliders, 20 finish, therefore 500 speed marks. Assume finishers' speeds are spaced at equal intervals — say 100 k/hr., 99 k/hr., 98 k/hr., etc., down to 80 k/hr. for the slowest finisher. Assume non-finishers are also equally spaced, with the furthest only one yard short of the finish and the worst pilot scoring one-twentieth of total distance marks. Graphically, the old and new systems of marking may then be illustrated as follows:

MINOR POINTS

1. To avoid the leading pilots' scores being "squeezed-up" by an isolated very slow finisher (who might even do it deliberately), a bottom limit is fixed at 60% of the winner's speed. Below this all finishers will be marked equally.
2. A further amendment is that the remaining "cut-off" — which previously limited speed marks to a maximum of 700 — will be abolished. Thus, e.g., if conditions are so good that 90% finish, then distance marks will be only 100.

T. S. ZEALLEY,
Chairman, Flying Committee

OBITUARY

BRUCE GILLIES

THE untimely death of Bruce Gillies in a motor accident is a great loss to gliding in New Zealand. A dynamic personality, his sporting activities included also mountaineering and ski-ing. His interest in gliding commenced after I met him in 1953 and resulted in his founding of the North Otago Gliding Club, followed, in 1958, by the establishment of the now famous gliding site at Omara. He organized subsequently the first gliding camp to be held at Mount Cook and, soaring over the peaks which he was accustomed to climbing, went on to complete his third Diamond in January, 1965. Bruce's mountaineering prowess was put to dramatic use in 1960, when he co-ordinated the successful operations to rescue Matthew Wills, who had crashed in his glider on top of a 5,000 ft. mountain. Over the last three years his attention had turned to jet boating and, as Secretary to G. T. Gillies Ltd., he had completed recently a successful visit to Canada to market a New Zealand invention. Bruce Gillies will be missed by many — in the realms of sport and also by his business friends in New Zealand and overseas. To his wife and family we extend our sympathy.

S. H. GEORGESON

GLIDING CERTIFICATES

DIAMOND HEIGHT

No.	*Name*	*Club*	1968
3/88	G. A. Thomson	U.S.A.	31.12
3/89	J. A. Evans	Army	1.12

GOLD C HEIGHT

Name	*Club*	1968
Mrs. Dorothy Thomson	U.S.A.	31.12
R. A. Cole	Cranwell	1.1.69
R. J. M. Clement	661 G.S.	9.2.69
B. D. Jackson	Derby & Lancs	25.2.69

SILVER C COMPLETE

No.	*Name*	*Club*	1968
2348	R. Jackson	Clevelands	18.8
2349	P. R. Redshaw	Lakes	7.4
2350	P. J. Dunmore	Cranfield	18.8
2351	V. D. Vanson	Southdown	6.4
2352	C. E. Hughes	Cranwell	1.1.69
2353	M. J. Drybanski	Cranwell	2.2.69
2354	M. J. Field	Mendips	22.9.68
2355	R. Knight	Heron	12.4.68
2356	M. R. Emmett	Airways	8.3.69
2357	D. G. Day	Norfolk	30.3.69
2358	D. A. Vennard	Bristol	2.4.69
2359	A. B. Webb	Culdrose	7.4.69
2360	Lynn E. L. Brown	London	3.4.69
2361	B. Wyman	London	4.4.69
2362	R. L. Clemo	Clevelands	4.4.69
2363	M. G. Throssell	Essex	8.4.69
2364	N. F. Cunningham	Surrey/Hants.	8.4.69

GLIDERS BEFORE 1914

By A. E. SLATER

HOW many gliders were built in Britain in the early years of this century? No doubt there were many backyard builders whose efforts are lost to history, but a surprising number — approaching fifty — are listed, and many of them illustrated, in a recent book, "British Aircraft 1809-1914". Its author, Peter Lewis, who was unknown to the writer of this article when it began to be prepared, has now — before it is finished — joined the Editorial Staff of SAILPLANE & GLIDING.

Naturally, gliders were scarce in the nineteenth century, and not until 1908 did their recorded numbers begin to pick up, coincident with the number of aeroplanes flying — or trying to fly — in Europe. They reached a maximum of 13 in the year 1911, then faded away rapidly, perhaps due to aeroplanes becoming more reliable. Gliders were, in fact, regarded as useful preliminaries to powered flight, and, with the exception of José Weiss, only Percy Pilcher seems to have set soaring flight as his ultimate goal. Even this statement is not to be found in history books, and I only heard it from Jack Dewsbery after he had visited the Bray family, on whose estate Pilcher did much of his flying trials. They said that the engine, which he was preparing to install when he was killed, was to be used to enable him to reach heights where, he had observed, there were air currents used by the birds for soaring.

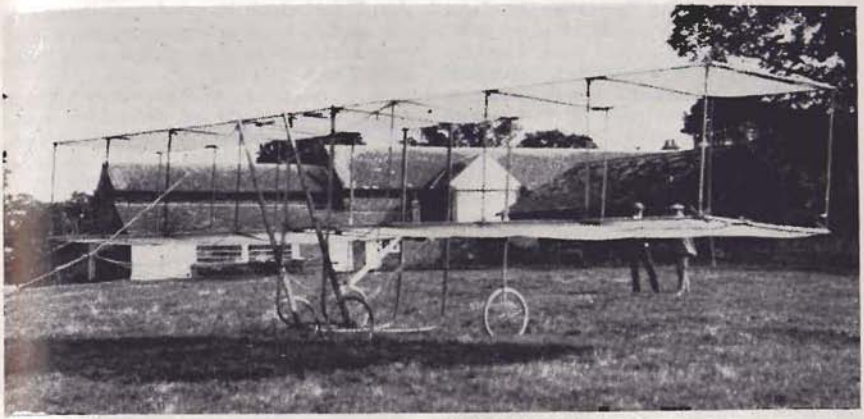
The "1809" in the book's title refers to Sir George Cayley's first glider, of 300 sq. ft. area, which made many glides with inanimate ballast and occasional short hops with human ballast. There was a gap of 40 years from this to his second glider, and his third, in 1853, made the first real human glide known to history, with Sir George's coachman aboard.

Next, in chronological order, comes F. H. Wenham, whose glider was a multiplane with five superimposed surfaces divided spanwise into eight bays; a two-view drawing is given.

Next come Pilcher's Bat and Beetle of 1895 and Hawk of 1896, after which we enter the 20th Century.

The great Samuel F. Cody had, of course, to try his hand at gliding; his 1905 biplane glider had "narrow-chord diamond shaped ailerons mounted on slim fins below the leading edges of the lower wings", and these functioned also as elevators until a rear elevator was added.

Frederick Handley Page at the controls of his glider at Barking, where it was tested during 1908.



Earliest of J. T. C. Moore-Brabazon's aircraft, his glider at Chelmsford in 1908.

Its span was 51 ft., the wings had an enormous area of 807 sq ft., and empty weight was 116 lb.

If Cody had lived, he would surely have been a conspicuous figure in British gliding when it revived in 1930, but what would the BGA Technical Committee have done about his bamboo main spars?

Now, after a two-year gap, we come to 1908, with no fewer than six gliders.

Although J. W. Dunne, famous for his tailless aeroplanes with swept-back wings, started experimenting in 1900, his first man-carrying glider, the D.3, a swept-back biplane with rudders between the wing-tips, did not fly until 1908; one pilot rose to 15 ft. and another flew 44 yards and later crashed it. Dunne's trials, sponsored by the War Office, were carried out secretly on an out-of-the-way estate in Scotland, called Blair Atholl, but spies soon got wind of it; so, to make it difficult for them to distinguish the machines from a distance, this glider, like the aeroplanes, had its wings camouflaged "in white stripes and linear patterns to break up the continuity . . ." Before this, a triplane glider, to be called D.2, was projected by Dunne, but never built.

Other historic figures also come into the picture this year. Handley Page produced a glider with a crescent-shaped wing, based on José Weiss's inherently stable wing with wash-out of incidence on the swept-back tips; but he seems to have distrusted the inherency of the stability, for he fixed a similar but smaller wing in front to act as elevator. There were no other controls!

Moore-Brabazon (later Lord Brabazon) had a biplane at Brooklands which was so unsatisfactory that he removed the engine and tried it as a glider, with hardly better results.

Alec Ogilvie, a great friend of the Wrights, who took part in Orville's 1911 soaring expedition, produced a quadruplane glider in 1908. Towed behind a car, it had reached about 30 ft. when the rope broke and "the builder's brother, who was piloting, fell through the wings."

The Short-Wright glider was virtually a motorless Wright aeroplane, Eustace Short having seen Wilbur flying at Le Mans. It flew well in the hands of Alec Ogilvie and the Hon. C. S. Rolls.

As in the previous year, 1909 is represented by six gliders. Ogilvie is now flying a Clarke-Wright glider, built by T. W. K. Clarke, of Kingston, and based on the Wright brothers' No. 3 glider of 1902. Ogilvie wanted to put in some practice before taking delivery of a Short-Wright aeroplane.

The Porte and Pirie biplane, which ran down Portsdown Hill and then pitched forward, throwing out its two naval officer designers, has been illustrated in many history books. J. C. Porte later designed flying-boats, and W. B.

Pirie had a son who flew with the Cambridge Gliding Club nearly 30 years later; oddly enough, his father told him nothing about the Portsdown escapade until Pirie Jnr. heard about it from another source and made his father own up.

This was the year in which Gordon England made the first British soaring flight, in a Weiss glider at Amberley Down; it lasted 58 seconds. Twenty years later he became first chairman of the BGA.

The three Bush brothers were aged 17, 16 and 13 when they built the first of a series of biplane gliders in 1909. It was of ash and calico, doped with a paste made from sago. No. 4 was built at Cambridge by the eldest brother when an undergraduate there in 1910. Successive designs were based on Wright, Curtiss and Farman types, and when they finally built an aeroplane, it resembled the Caudron.

In 1910 the number of known gliders rose to seven. T. W. K. Clarke produced a biplane which is now in the Science Museum at South Kensington. We hear of a Hampshire Aero Club, formed in April, for which its president, Patrick Y. Alexander, built a biplane without control surfaces; it was flown as a man-lifting kite.

E. W. Twining, well-known as a model maker, particularly of successful model aeroplanes, which still sold well in 1920, built a biplane glider in 1910. A versatile character, he was later designing stained-glass windows, and in the '39-45 war became a project draughtsman with the Bristol Aeroplane Co.

A biplane glider designed by Charles Lane was used in 1910 at Brooklands "for instruction in gliding". It was a single-seater!

In 1911 Bristol comes into the news again, with a "Bristol and West of England Aero Club", to which its president, Sir George White, presented a glider of Wright type designed by G. H. Challenger and used "for primary training on a hillside at Keynsham." A single-seater, of course.

Another organization was the Conisborough and District Aero Society in Yorkshire. The Sheffield Aero Club presented it with a 42 ft. span biplane glider, but as it rose with a pilot to 20 ft. when

Walter Davies, of Dudley, Worcs., seated in his Glider No. 1.

pulled by hand into a light breeze, its span was wisely reduced to 24 ft. before using it for training. Two club members then built a monoplane glider of Demoiselle type.

Charterhouse School had a biplane glider constructed by G. T. Cooper, who then made another one at Edinburgh, which he presented to the East of Scotland Aero Club.

Birmingham Aero Club built at least three gliders in 1911—a monoplane and a biplane, and another biplane, in which either the upper wingtips or the lower ones could be turned up for stability.

Among this year's gliders, numbering more than a dozen, was also one designed by Charles E. Dawson "for the use of his wife, Gertrude Robins, the actress", whose name was painted on the wing.

Gliders begin to peter out but in 1912 a flimsy biplane was built by H. Beer at Cardiff, another biplane by F. Woods at Fleetwood, and the Bush brothers were still at it. A curious type was the "annular" biplane of Cedric Lee and G. Tilghman Richards — later to be curator of the Science Museum aeronautical collection and a member of the first BGA Council. It was modelled on their circular-wing aeroplane of 1910, but in the photo of it flying at Kirby Lonsdale, the top wing does not appear to be a full circle.

In 1913 the Bristol and West of England Aero Club acquired another glider, Walter Davies, of Dudley, produced a second version of his 1911 type, Windsor Model and Gliding Club built two biplane gliders—in one of which they hoped to install an engine—and that was all. There are no entries for 1914; the motors had the air to themselves.

POLISH GLIDERS

FOR HAPPIER, SAFER GLIDING

HERE ARE JUST TWO GLIDERS—BOTH DESIGNED FOR PERFORMANCE FLIGHTS UNDER VARIOUS ATMOSPHERIC CONDITIONS.

SINGLE-SEATER, FOKA 4 is built to conform with the standard class of OSTIV, and is designed for performance flights under any atmospheric conditions.
Wing span: 15 metres. Aspect ratio: 18.5. Best gliding ratio: 34
Never exceed speed: 260 kilometres per hour. Flying weight: 386 kilogrammes.

TWO-SEATER, BOCIAN

Due to its many flight qualities under varying thermic conditions, Bocian is suitable for all types of performance flights. The pilots' seats are in tandem, and there are coupled control columns, which make the glider ideal for basic training.
Wing span: 18 metres. Aspect ratio: 16.5. Best gliding ratio: 26
Never exceed speed: 200 kilometres per hour. Flying weight: 525 kilogrammes.

MOTOIMPORT

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CORRESPONDENCE

BRITISH GLIDERS AND THE TECHNICAL COMMITTEE

Dear Sir,

It is very sad (as admitted by the chairman of the Technical Committee) that only six of 48 new C's of A in 1968 were for British-built gliders. It is even more than sad—it is staggering.

Involvement for a number of years in training and competitive gliding on both sides of the Atlantic has made it apparent that British gliding has suffered for some time from a number of self-imposed handicaps. Among the technical ones are stiff requirements for longitudinal stability, incipient spin characteristics and terminal velocity limitation, together with a conservative and suspicious attitude to new construction methods. Indeed, it is ironic that one who has been closely associated with this policy for many years, and has recently commented repeatedly on what he considers are undesirable foreign gliders, should be the one to bemoan the end result — that British gliders no longer have the qualities the clubs and competition pilots want.

The BGA is in many ways an admirable organisation, enjoying a degree of autonomy envied by gliding organisations throughout the World. Through instructional safety and technical committees, it has achieved a high standard of competence and safety, but the restrictions imposed on individual and commercial developments have led to the present lamentable situation.

The heyday of British gliding was the era of the Sky and the Skylark 3. Further development has been hindered by restrictive handling requirements and unimaginative approaches to construction, in the absence of foreign designs to hand to act as a stimulant. Young German designers, meanwhile, have gone ahead with advanced concepts in aerodynamics and structures, and are once again in the lead.

Even one visit to a US National Contest cannot fail to impress one with the number of home-built designs of excellent performance and rugged construction. They have been exemplified by the Schreder designs which, while no longer in the top rank, continue to be a powerful force in competition because of their ruggedness and ability to land in small fields. Three years of owning an HP-14 have convinced me that powerful flaps and all-metal construction are great assets. When Slingsby were offered the HP-14 design, there seemed a chance of them recapturing a leading position. Because of the difficulty of meeting the BGA requirement for rapid extension of speed-limiting devices at high speed, together with various pieces of bad luck, that chance now seems to have been lost. As implied by Mr. Hearne (letters S & G Feb., 1969) the BGA must recognise that, if one persists with concepts laid down 20 years ago, one cannot arrive at anything but a bad compromise.

The lengthy article on PIO's (S & G, Feb. 1969) demonstrates that, according to the diagram, the Dart would be considered unacceptable to T-33 (Shooting Star) pilots, as far as longitudinal stability is concerned. The author also points out that pilot response is much conditioned by learning. Since the Dart has been cited many times as having superb handling, then clearly T-33 pilots are inadequately trained for flying Darts, and further comparisons may not be meaningful.

No-one expects a PPL pilot to be competent to fly a large transport. Why should we not expect glider pilots to require extra training before flying Diamants or HP-14s? Perhaps an additional licence endorsement should be required.

Any new student is liable to produce PIO's, even in a very stable aircraft. Since most of us have initially experienced trouble on new types with very light control forces, I suspect that this may be the result of years of experience on very stable gliders. Certainly, an instructor doing all his flying on a Capstan would not be happy immediately in a Phoebus or HP-14. However, it is generally agreed among experienced pilots that light control forces are very desirable in contest aircraft. True, such types will be less pleasant in cloud than a Skylark, but, by lowering flap, stability is

considerably increased, and the drag rises rapidly with speed, thus helping to damp speed oscillations—and simple flaps don't ice up.

It is time for critical self-appraisal and hard thinking, but it is not too late to benefit from Continental advances and concepts. Let us hope that Sigma will be a catalyst.

Ottawa, Canada JOHN FIRTH

FRANK IRVING COMMENTS : It is indeed remarkable how the onlooker, seeing the current malaise in British glider construction, can instantly find a scapegoat — the dreaded Technical Committee.

Most of Mr. Firth's assertions about the BGA Technical Committee display a lack of background knowledge. Taking his list of "self-imposed handicaps" in order:

(a) Longitudinal stability requirements. These are no stiffer than those of OSTIV or many another country. Our requirements (British Civil Airworthiness Requirements, Section E) simply say that the aircraft shall have positive stick-free stability, without specifying how much. If a machine has a small amount of stability, C.G. aft, and—most important of all—if it feels satisfactory, we will accept it. I quite agree that light control forces are generally desirable, and we have approved a number of types which have light forces and are thought to be pleasant to fly. The sort of difficulty which arose in the past is best illustrated by the Skylark 3. Due to the effects of wing twist, this machine became markedly unstable at high speeds. In order to achieve slight stability under these conditions, a spring was incorporated in the elevator system, which then produced rather a lot of stability at low speeds. We suggested an expedient which worked at the cost of a few shillings, admittedly at the expense of heavy low-speed stick forces. What were the alternatives? Either a stiffening of the outer wing (the repressive BGA putting up the cost and weight) or restricting the minimum cockpit load (the repressive BGA producing silly placards). Mr. Firth may recall that the Skylark 3F had a revised tailplane and elevator, to reduce the stick

forces. Who proposed it and did the aerodynamic sums? None other than the Chairman of the Technical Committee!

Of course, the fact that OSTIV and other national requirements exist does not necessarily mean that other countries actually observe them. But nobody has yet disproved my contention that good longitudinal characteristics can be provided without any performance penalty.

(b) Incipient spin characteristics. We do not claim to be infallible and, with the advantage of hindsight, it is probably fair to say that the Capstan was delayed and had its performance reduced by objections to its stall and incipient spin characteristics by a mixture of the Technical Committee and two Test Groups. But it would be difficult to find any other glider of significant merit whose career has been blighted by applying the requirements with excessive rigour. You can't have it both ways: in the case of the Dart, we took the line that although it would spin pretty readily when stalled in a turn, the spin could easily be stopped. We subsequently had comments from at least two eminent competition pilots to the effect that we ought to have raised objections to its behaviour.

I can also recall an occasion in 1951 when the Technical Committee rescued the Sky from the oblivion to which ARB wished to consign it on account of a barely detectable wing-drop at the stall.

(c) Terminal velocity limitations. Most folks, including ourselves, would now agree that the strict application of the BCAR requirement is unnecessary, but the brakes, or parachute, should limit the speed to V_{NE} in a pretty steep dive. So far, nobody has devised a really satisfactory requirement on these lines. Current practice (see OSTIV requirements) is to think in terms of brakes which will limit the speed to V_D (about 10% higher than V_{NE}) in a vertical dive. In fact, the Dart only just meets the latter requirement, but was nonetheless approved.

(d) Conservative and suspicious attitude to new construction methods. It is the duty of the airworthiness authorities to exercise a reasonable degree of suspicion about new construction methods until satisfactory means of demonstrating their integrity have been evolved. On the other hand, can Mr. Firth quote any example of an exciting new British glider being damned by the Technical Committee on account of its novel structure? Or anybody else's glider, for that matter? We are entirely happy to accept any structure which can be demonstrated to be airworthy and, quite apart from Sigma's remarkable wing, there is at least one other novel development at present in hand with our knowledge and approval. We accept German methods of testing glass-fibre structures as adequate proof of their structural integrity and have done so ever since the German tests were unveiled to OSTIV.

It should be remembered that several of the structural strength requirements of BCAR are slightly less severe than those of OSTIV. Will we inhibit progress by altering BCAR to correspond with OSTIV, as is quite likely to occur?

The HP-14 is cited as an example of how the Technical Committee stifles enterprise. It would be unkind to go into that story too far, but let me make the following points:

(i) The flaps are, without reservation, excellent approach aids.
(ii) The HP-14 was designed in a country where cloud flying is not permitted. T.V. brakes are not thought necessary there.
(iii) The relatively small modification of fitting a tail parachute seems likely to overcome most of the problems.
(iv) The type has numerous other features which, in its original form, meant that it probably did not meet the airworthiness requirements of *any* country.

Let us not forget that a great deal of glider design and development in Germany is due to the activities of the Academic Flying Groups. This sort of work is only possible when the students are willing to devote a fair amount of time to it in a course spread over five or six years. In this counry, the taxpayer insists on a three-year degree course, and there simply isn't time for major projects, such as building gliders. In such an environment, the only way to get new gliders is to have highly professional people working on their design, either for money or in their spare time, and to have adequate capital to finance new methods of construction. So far (i.e.

pre-Sigma) there has been a distinct lack of both requisites, and it is this, rather than the imagined repressions of the BGA, which has led to a lack of good British designs. Let Mr. Firth remember that Sigma's rather remarkable features have been largely incited by the same people whom he accuses of an unprogressive outlook.

Finally, if he reads my article on PIO's again, he will find that most of his remarks are already covered.

750 AND 1,000 KM. TRIANGLES?

Dear Sir,

I was rather surprised to read in the February/March, 1969, S & G that CVSM (now CIVV, Ed.) have rejected proposals for the official recognition of 750 km. and 1,000 km. triangle speed records, on the grounds that these would be possible in only a few countries.

However, a quick glance through an atlas shows that "28 per cent rule" 1,000 km. triangles can be drawn within the bounds of Italy, France, West Germany, Sweden, Rhodesia, the North Island of New Zealand, Texas State, and even the United Kingdom, to list but a few. Admittedly, meteorological conditions may preclude the completion of such a large triangle in many of these countries; but, by the same token, the world speed records for 500 km., 300 km., and even 100 km. triangles are unlikely to be broken in, say, the United Kingdom. Such records will probably always be the prerogative of South Africa, N. America and Central Eurasia; so why not let them establish 750 km. and 1,000 km. triangles, whose eventual completion can only add to the prestige of the gliding movement?

I am writing this beneath the Mediterranean sun in Cyprus, where the Crusaders joint Service gliding club is well established. Any gliding types holiday-making here are welcome to visit us at Kingsfield, Dhekelia, to sample some strong thermals, or explore our regular daily sea breeze convergence zone.

RAF Akrotiri GORDON CAMP

RADIO LICENCES

Dear Sir,

When people come to renew their glider radio licence they might be horrified to find that the fee was increased by 150% from £1 to £2 10s. in October, 1968 (see S & G Feb. issue, page 27). As radio is becoming mandatory for competition flying and is likely to become more of a necessity in the future, a concerted protest now might forestall further increases. I have written to my MP and if everyone concerned does the same perhaps an impact will be made.

Halesowen, Worcs. MICHAEL RANDLE

MOTOR GLIDER RECORDS

Dear Sir,

I cannot resist pointing out the absurdity of the regulation for the UK Local Speed Record (Motor Gliders), i.e., Best speed over 300 km. triangle using not more than 5 litres of fuel, the record to commence at the start of the take-off roll (S & G, April-May, p. 126). If not favoured with a hill start, one proceeds as follows:

Fill up with 5 litres of fuel, take-off and climb to 300 ft., switch off and circle. Sink. Land. Top-up with fuel, take-off and climb to 300 ft., switch off and circle. Sink. Land. Top-up with fuel . . . Continue until you get away.

Poor gliding! I foresee the day when motorless gliding — surely the most sublime recreation of all time — will be banned because it is "safer" to have a motor; gliding clubs will decay as wealthy private owners learn they can dispense with communal launching facilities; airspace restrictions will grow as motor-gliders with full radio facilities learn to live with them; and those of us who only ask for a peaceful potter round the countryside, disturbing no-one, will be the cyclists of the 1980's — forbidden to use the motorways, sworn at by the motorists, and eternally glancing over our shoulders to see what infernal machine is going to take a swipe at us next. And the BGA is actually *encouraging* it.

Cambridge A. W. EDWARDS

ANN WELCH COMMENTS:— I think Anthony has been swept away on a wave of depression — maybe due to the long winter; he attacks motor glider records, wealthy private owners, airspace restrictions, and all other air users in the same breath. He should not worry so much. Glider pilots will continue to cling to pure exotic gliders, with the maximum possible freedom to use them, and will vigorously defend gliding against both interference and dilution. Quite right — but a lot of glider pilots want motor gliders, because they see them as the best way of getting more *soaring*, or of training new pilots with less frustration. And this is quite right too.

The intention of the motor glider records is not — as Anthony implies — to have a lot of people stupidly hoisting themselves to only 300 ft., which no pilot in his right mind would do anyway, but to improve the soaring performance of future motor gliders. Only a small proportion of people are interested in going for records, and those who are not will want the most efficient lightweight engine they can get, combined with the highest performance glider they can lay their hands on. In the long run, this will mean more high quality soaring.

POWERED GLIDING

Dear Sir,

I sympathise with Chris. Riddell over the problem of the effect of the powered glider on the togetherness in a gliding club. However, it has not been characteristic of the movement to date that we have hidden behind a wall and thrown stones at things of which we are afraid. Motor gliders will either succeed or fail and the result will depend on whether they are found to offer positive advantages or not.

By banning them from competitions, we shall force owners to break away and find their own amusements, thus weakening the movement at a vital time, when we have to present a united front against the spread of controlled airspace and the proliferation of airports around population centres.

Gliding is changing in many ways — more private owners, fewer instructors, more controlled airspace, more aero-towing, hotter and expensive aircraft, etc. In my view, self-launching gliders are part of this change and the effort must be towards integration as opposed to heads in the sand.

Chris. is a good engineer and could easily devise a system where the motor could be used only for the launch and could not be restarted until after a landing. There is already a barograph which records engine-on time over the normal trace. With these safeguards there is no good reason why powered gliders should not compete on equal terms.

May I put in a plea also against further fragmentation of the movement:— "The answer to super-saturation is to start another club." There are already too many of these splinter groups operating unsuitable equipment on unsatisfactory sites. These off-shoots are started normally for political as opposed to overcrowding reasons and I would hate to encourage this. If overcrowding is a problem, then let us devise better launching equipment and if this entails putting a motor in a two-seater, then so be it. The outboard motor did not spell the end of sailing — as the pundits forecast — but has resulted in such an upsurge in popularity as has hardly even been experienced in any other sport. Let's keep this new child under our control and let it develop the way we want. If we turn our backs we may, in a few years, get a nasty shock.

Maidenhead, Berks. ROGER A. NEAVES

UK GLIDING RECORDS

Dear Sir,

The separation of the Open and Standard Classes — both in performance and cost — appears likely to widen very considerably in the future. Assuming that top-rate pilots will be bred to fly the few Nimbus or Sigma gliders, then the UK and International records should be put up which will show quite dramatic improvement and will be totally out of reach of the humbler Standard Class pilot.

May I suggest that it might be worthwhile to establish a list of UK Standard

Class records? A little analysis of past results could produce a list now, and no doubt provide some incentive for those flying in this Class. General standards might improve and with them the quality of pilot. Perhaps this idea might even be adopted internationally in due course.

Chobham, Surrey A. J. DEANE-DRUMMOND

TOM ZEALLEY COMMENTS :— I think that this is a good idea. Has anyone else any views on the suggestion?

AN EARLY SPOILERON SYSTEM

Dear Sir,

I have followed with interest the spoiler-for-lateral-control discussions that have appeared in the past two issues of S & G, and thought its readers might be interested to hear such devices were included in the RJ-5 during its first year's flight season, in 1950.

This machine's original lateral control system consisted of comparatively small-span conventional ailerons, plus approximately four or five longitudinally hinged spoiler plates that rotated to extend both above and below the airfoil's surface when the up-moving aileron travel exceeded roughly half of its full travel. The scheme worked fairly well in operation during the US Championships that year, but I noticed I seldom used the half aileron throw needed to extend the spoiler plates. When I did use sufficient control to activate the spoiler plates, some decrease in climb performance was thought to exist, either real or imagined, and the sailplane's handling characteristics were not greatly improved by the spoileron action.

Subsequent sink rate performance tests showed the RJ-5 could achieve a maximum L/D of only 30.5 in its initial configuration. During the 1950-51 winter, its spoilerons were removed, the canopy improved, and other small changes were made which increased the measured L/D to 36.5. Lateral control was somewhat degraded but still acceptable.

The spoileron design I used was regrettably not amenable to adequate sealing, and therefore penalized the flight performanc even while they were fully retracted. No doubt a good designer here could minimize this drag penalty, and perhaps the control system complication will be worth the improvement gained in the performance of the controls.

Dallas, Texas R. H. JOHNSON

COMPETITION SCORING AND HANDICAPPING

Dear Sir,

I heartily agree with Gerry Burgess in his plea to stop squaring the speed in the speed marks formula and use elapsed time instead of speed. (S & G, Dec., 1968-Jan., 1969, p. 503.) In practice the range of speeds achieved by pilots who complete a course is so small that the only practical effect of the $(\text{speed})^2$ is to determine the range of speed marks, and this can be done much more effectively by a simpler formula. Such a speed formula could also be coupled to a distance marks formula to ensure that the bonus for completing a course was not unduly or unintentionally large. As an example, we could use:

For pilots who complete the course. $$\text{Points} = 1000 \times \left[1 - \left(\frac{T - T_F}{T_S - T_F}\right) \times \left(\frac{n-1}{N-1}\right)\right]$$

For pilots who do not complete the course. $$\text{Points} = 1000 \times \left[1 - \frac{n}{N-1}\right] \times \left[\frac{D - D_S}{D_F - D_S}\right]$$

where

T, D = The pilot's time taken to complete the course, or the distance he achieved.

T_F, D_F = The best time or distance of the day.

Ts, Ds = The worst time or distance of the day.

n = Number of pilots who complete the course.

N = Number of pilots attempting the task.

A devaluation factor can be tacked on to these formulae if required and there can also be the usual minimum distance, X, for distance reckoning.

Gerry Burgess's formula of marks $= \frac{1000\,E}{e}$ where E = fastest time to complete the course and e = pilot's time to complete the course, will virtually devalue successful races by comparison with poor days on which only mediocre distances are achieved; for example, if all pilots complete a task, the day's points will range from 1,000 to about 500 ± 100, whereas on relatively poor days, when only a few pilots reach the goal and the rest are strung out between about X and the goal, the range of marks will be 1,000, or very nearly. Arguments can be put forward for or against this virtual devaluation, but the main question here is: Is it an intentional or fortuitous product of the formula?

Of course, using the 1,000 E/e and associated distance formulae, the slowest pilot to complete a course would always get more points if he landed just short of the line, but Gerry has already pointed this out (S & G, Feb.-Mar., 1969, p. 69) and has suggested an additional rule to cover this peculiarity. This additional rule does not entirely remedy the situation, and it would complicate the scoring procedure, but criticism of details should not obscure the basic sense of the main proposals. Arguments about detail serve to illustrate the difficulties and pitfalls of devising speed and distance formulae.

I have the impression that Gerry Burgess may like to see a placing system come into force if it were not for the handicapping problem. But handicapping is no bar to the placing system.

Handicaps can be applied at any phase of scoring; they can be applied to achieved distances and times just as easily as they can be applied to calculated points. The effect of a handicapped distance being greater than the length of a course presents no problem if all those who complete a course rank above those who do not. The placing system merely deals with a given order of merit; it does not depend on

how that order of merit was determined. I would hate to assess handicap factors, but I know that the placing system can accept whatever factors are required.

Canberra, Australia C. E. WALLINGTON

GERRY BURGESS COMMENTS:— Wally will be interested to learn that the BGA Scoring System introduced for 1969 competitions has eliminated speed squaring and eliminated the possibility of a large step in races between the slowest finisher and a near non-finisher. Other details of the new system are that speed points are directly proportional to percentage of finishers (e.g. if all finish there will be no distance points). Also, race finishers whose speed is not at least 60% of the winner's speed will score zero speed points. With regard to Wally's last paragraph, my own feeling is that it is inappropriate to employ a crude placing system in parallel with a refined 2% step handicapped points scoring system. In addition, in any form of placing system, with or without handicapping, there will always be a problem on days when there are ties or, even worse, groups of near ties — see in particular Day 1 in the 1968 Open Class Nationals at Husbands Bosworth. A placing system does, however, cater very well for the days when, because of storms or other reasons, there would be large gaps in points scored under a conventional scoring system. It is this type of situation which reinforces my argument that we should have a rule which says that in any task no glider will score less than (say) 90% of the next fastest or next furthest glider.

PARACHUTES

Dear Sir,

Last season's series of airborne mishaps seem to have caused people to think more carefully about the state of their parachutes.

The BGA Regulation F.12 states that "no glider shall enter cloud unless all its occupants are wearing *serviceable* parachutes and have been *instructed* in their use".

I completely agree with this regulation. However, how many gliding instructors are *qualified* to give advice on how to use a parachute? For example, if you are forced to leave your glider in cloud, when should you pull the rip cord?

I am in the RAF and fortunate in being easily able to obtain professional advice on most aviation matters. However, could the BGA publish a guide based on the experience obtained by people qualified to speak on this subject?

Cyprus. T. OULDS, CFI, *Crusaders Gl.C.*

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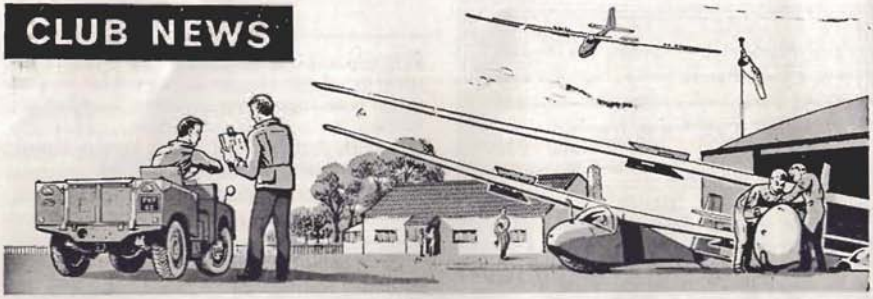
CLUB NEWS



SPRING was given a wonderful start with the unexpectedly magnificent weather over Easter and enthusiastic reports came in quickly from the clubs, to show that one and all had been making the most of the fine soaring conditions.

Copy and photographs for inclusion in the August-September issue should reach me typed, double spaced, on foolscap paper, not later than 11th June and, for the October-November issue, not later than 13th August. Please send news to me at 11 Great Spilmans, Dulwich, London, S.E.22. Telephone: 01-693 3033.

14th April, 1969.

YVONNE BONHAM (MRS.),
Club News Editor

BATH AND WILTS

THESE notes were delayed until the very last minute in the hope that after the wettest, coldest, longest and most frustrating winter in the club's history, Easter weekend might produce something worth writing about. It did just that!

Good Friday gave us some excellent soaring, although the strong wind gave some rough rides.

Easter Saturday proved very frustrating, when launching had to be abandoned around 2 p.m., owing to steadily increasing strong winds, which eventually reached 30 knots.

Sunday was much better again and most solo members had a taste of soaring.

Easter Monday — Wahey! — times when not an aircraft remained on the ground. David Wright even had the Grunau wound up to 6,500 ft. over Trowbridge.

Two conversations heard on R/T over the weekend :—

Q.: Please just say yes or no.

A.: Yes or no!

Statement: Cloudbase has now gone up to eight thousand.

Reply: No, it's just that the earth has dropped farther away.

K. N. S.

BLACKPOOL

THERMALS didn't arrive until the end of March this year, but — when they did — they were good ones. Ron Smith got a Bronze leg on only his fourteenth solo flight, and a fortnight later had an hour at cloudbase, and arrived within 300 ft. of his Silver climb. Easter Sunday produced a line of wind shadow thermals alongside runway 08, with a blue sky and an inversion at 3,500 ft. It was good to see our four aircraft soaring simultaneously again and with cables waiting for customers.

We made a display stand for a sports exhibition in Blackburn, and won third prize for our efforts, being beaten by a complete pothole and a dry ski-run. This gave timely publicity to our hill site proposals, and was seen by several influential delegates to a Sports Councils Conference. The newspapers also picked up our application for Outline Planning Permission and ran feature articles. One gratifying result has been to confirm our

belief that we would not go short of membership enquiries. We have had far more than we can cope with, and can take on only solo pilots until we have some more Instructors and can afford a second two-seater.

One of the young men whom we introduced to flying, Mike Harris, is starting a Commercial course at Perth. We hope that he enjoys the life and thrives on it.

K. E.

BRISTOL AND GLOUCESTERSHIRE

AT our AGM on 29th March, 1969, a resolution was passed to the effect that our Club shall in future be called The Bristol and Gloucestershire Gliding Club. We feel that this will create a better impression as, after all, Nympsfield is situated half-way between Bristol and Gloucester, on the edge of the Cotswolds. In 1968 our launches were up by 300 on 1967 but total hours flown down, due mainly to the wet season. However, the weather this year has given us good soaring conditions so far.

After five years of good service, Dick Saunderson has passed the post of Secretary to Eric Martin and we hope he continues Dick's good work. Dennis Corrick remains as Chairman and Guy Harris as Treasurer.

The following awards were made at the AGM for 1968 :—

Evening World Trophy for the best gain of height to Jim Welster. Gain 9,700 ft. on 18.6.68.

Shaun de Salis Trophy for the best closed circuit flight to Mike Harper. Nympsfield - Forringdon Folley - Honeybourne-Nympsfield at 35 km/hr. on 9.8.68.

Guinness Trophy for the best flight in a Club glider to Ted Aylett. Nympsfield to Blandford, 93 km., Silver Distance, 19.5.68.

Cyril Uwins Trophy for longest flight to Dave Brahm, 264 km. to Perranporth, 14.4.68.

Ladder Trophy to Mike Pope, 1,247 points.

Rex Young Cup to Tony Gillett for the best *ab-initio*.

Congratulations to the above chaps.

The Western Regionals will be held at Nympsfield from 14th-22nd June this year and we hope will be as successful as in 1968. Mike Harper is in charge, as before.

B. F. W.

COVENTRY

ON Saturday, 29th March, we held our Annual General Meeting in the Clubhouse, and our Establishment has now been re-structured as follows :

President, Dr. Gregg; Vice-Presidents, Mike Hunt and John Large; Chairman, Bill Fay; Treasurer, Bill Grose; Secretary, Adam Hepburn.

Our accountant's report, presented by Mr. Les Harris, showed that it has been a much tougher year, with ever-rising costs of operating, allied to some pretty rough weather — problems which seem to be assailing all gliding clubs at this time. Nevertheless, this challenge must be faced, and the ultimate objective of all members, new and old, must be greater utilisation of our aircraft in the future.

Two Instructors' courses are being held by the National Coach at Husbands Bosworth during the weeks 24th May-1st June and 7th-15th June. Applications for places, via the BGA, are welcome.

The Group Trophy, for the private aircraft covering the most cross-country miles in 1969, was presented at the AGM to the Dart 17R syndicate 436.

In July, August and September, we are holding aero-tow-only courses and, if anyone feels like a pleasant week's holiday on one of these courses — whether *ab-initio* or experienced — please contact us.

B. F.

CUMBERNAULD

AFTER a very quiet winter on the flying side, owing to C of A work, we are now back in business and looking forward to a good season.

A number of our members have been attending the SGU during January-March and have benefited from hill soaring and aero-tow experience.

Our Olympia 2B has now come out of hiding and is available to suitably qualified members. The best flight to date this year was the Gold C height claim of 13,200 ft. by the Club Secretary at Portmoak, carried out on 30th March.

Our new bus winch is performing well

and many thanks go to Messrs. Surtees & Co. (Unlimited) for the great work over the last six to nine months.

T. J. G.

DERBYSHIRE AND LANCS

THIS has been a quiet period, disturbed only by the sound of falling snowflakes and very, very occasionally by flying activities.

Allan, Jean and family were cut off a couple of times for two or three days and the road down to the hairpin was blocked by a drift which covered the tree tops. Eventually, Allan had to use a tractor to get out and was helping a local farmer by feeding sheep which were cut off from the farm.

One spell of decent wave appeared when the field could be used and Gail Jackson and Trevor Appleby made Silver C climbs in the Oly. 463 and Ka-8 respectively.

The Bedford winch has just had the installation of its Dodge V8 completed, and it sounds O.K.

Several members trekked north with their machines — Ka-13, Olympia, Dart — and, at the time of writing, were still there; we hope that their Bishop-bashing will be rewarding.

A schedule of social events for the whole year has been produced, the next event being a Cheese and Wine Party on 26th May.

The Annual General Meeting came and went quietly, with no committee changes.

R. H.

DEVON AND SOMERSET

OUR winter plans for an additional winch have been realised, Peter Warren's efforts in this direction having produced a diesel two-drum winch which, after reconditioning, should prove a useful addition to the existing winch and tug.

Plans are also afoot regarding the acquisition of a second two-seater, as the demand for dual flying is at the moment greater than that for club solo, most of the Swallow pilots having graduated to syndicate machines The latest syndicate obtained a Skylark 4 and "wrote-off" a car in towing it to North Hill, through the trailer snaking and breaking the tow hitch at 30 m.p.h. Fortunately the crew sustained only bruises and were more than relieved that this accident — which completely destroyed the car — had not damaged the aircraft. This highlights the importance of weight distribution and correct balance in long trailers.

Courses for June, July and August are almost fully booked, two of the weeks being occupied by our old friends from the University of Exeter and the Devon Youth Associations. This year we shall also welcome a contingent from the Taunton Technical College. Two Task Weeks have been organised for weeks commencing 9th June and 25th August, and crews from other clubs wishing to participate should contact John Hancock, 2 St. Peter's Close, Horton, Ilminster, Somerset. Exploration of the wave condition, which arises when the wind is ENE, is progressing and this, together with ridge and thermal soaring, is offered to visitors, who will be most welcome.

A. E. R. H.

DORSET (Tarrant Rushton)

MID-MAY sees our first "Task Week" of this season at Tarrant Rushton, from 17th until 26th, and, ever optimistic, we hope for good weather and maximum flying — all the gliders away, retrieve crews hot-footing across country, runways peopled only by Bermuda shorts and floppy hats, and evenings in the Clubhouse full of prodigal pilots with burnt noses, spilling beer and bonhomie with equal generosity.

We have added an AS-K13 to our club fleet, to assist with advanced training, and a newly-acquired Auster is already showing the increased launch rate we hoped for. Despite this, most of the tug pilots shed a tear on the departure of the Tiger Moth. We are now well equipped to supply the needs of the post-solo pilots, who previously managed with the two Swallows. The Tutor and T-21 are still giving sterling service to the *ab-initio* pilots, and privately-owned machines include a Skylark 2, Skylark 3, two Darts, an Eagle two-seater, an Olympia 463, two Olympia 2B's and a Weihe.

An expedition — privately financed — went forth to look for wave at Portmoak and comprised Jack Harris, Graeme Morris, Colin Street, Ron Tarling and

Phil Tiley, together with two Skylarks. Unfortunately, the wave took one look at them and went to ground. However, they returned — via Camphill — if not in triumph, at least in their usual good spirits, having marginally failed to break the world height record by 44,267 ft.

We extend our usual warm welcome to all visitors who care to float in during the summer season.

S. P.

ESSEX

THE weather this year has gone from thermals and sunshine in January, to snow, rain and low cloud in February and March. The card tables in the Clubhouse have never been so busy. We did, however, have one marvellous weekend in February — the only snag being that we couldn't fly! The local squatters' association chose that particular weekend to hold a "demo" over the army's unoccupied married quarters on the airfield. For some of us it meant the rediscovering of a Sunday at home for the first time in years.

Fortunately our social activities have to some extent compensated for our lack of flying. St. Valentine's Day saw our annual Dinner and Dance. Our sincere thanks in this respect to Margaret and Wally Kahn, Tom Zealley and his wife, and last — but not least — John Jeffries. Wally must surely be one of the finest after-dinner speakers ever — we could have listened to him all night.

Our competitions at Easter provided two contest days, Mike Audritt winning the senior class with a flight of 225 km. along the task route from North Weald to Exeter, via Bristol. Although very few of the tasks were completed, two of our members did Silver height, while Mike Throssell did his Silver distance on Friday and his height and duration the following Tuesday! That must be one of the fastest Silver Cs on record. The weekend also provided some half-dozen Bronze legs.

Private ownership is on the increase — we now have two Diamant 18M's to swell the ranks in the trailer park.

During this coming summer — if any — we will not only have to do battle with the thermals over North Weald, but also with the local Electricity Board, who have plans for building a power line right across our main runway — and some clubs have difficulty in having electricity supplies laid on! However, we can object officially and will do everything possible in this direction.

Wally Kahn speaking at the Essex Club's Dinner and Dance. (Photo by G. MacRae.)

If you should be flying cross-country over our "patch" and happen to run out of lift — drop in to see us; it will make a change from power pilots coming in to ask the way to Stapleford! We're just next door to Epping and we'll be glad to see you. Do remember, though, that Red One airway is 2,700 ft. agl above us.

G. F. M.

LAKES

WAVE and sun during Easter! Consistent wave in an east wind has kept the Club machines at around 10,000 ft. Our Gentleman's Agreement limiting Club machines to one hour per flight has proved a strain to some members.

The Auster has returned from a top-end overhaul and is now smartly repainted. It will be put to good use this summer.

Two brothers in the Club — Alf and Gerry Sheppard — having been quietly competing with each other for wire launches, have both recently soloed in the T-21. Fortunately for the Bar Secretary, they did not both solo on the same weekend.

Some of our hard-earned cash is being spent on radio equipment; the Club's T-53 and Skylark 3F and Ground Control Caravan will soon be operating on 130.4 Mc/s.

The Club's Chairman, Len Redshaw, has arrived at Walney with a Dart 17R, and we shall be watching its performance mountain soaring with great interest.

The Maintenance Committee have been busy, so that we enter the new season with two serviceable winches and three retrieve vehicles. We have regretfully decided to try and sell the hangar and clubhouse at Tebay in Westmorland. Since our move to Walney. five years ago, the Tebay site has been used very infrequently. Many of the difficulties involved in operating on the fell side proved impossible to overcome.

The five summer gliding courses are nearly fully booked. We are, however, looking for winch drivers for three of the weeks.

P. E. G.

LONDON

MARCH was a poor month for gliding. and even the string of visitors to Portmoak came away empty-handed — at least, almost. Two Gold heights were achieved, but most people did little or no flying at all. At least the Scottish hospitality was as good as ever!

April brought a real change in the weather, Easter being particularly good. Our first daily competitions proved to be most successful, Carr Withall having the honour of being the first winner. Unfortunately, the weather was not quite good enough for a contest every day, but at least it stirred a good deal more enthusiasm than has been apparent in the past.

The Plate was collected the first time this year by Keith Chard, flying his Ka-6E. No doubt it will travel back and forth throughout the summer, but in the last couple of years it hasn't travelled so much as in the past — not due to lack of interest, we hope!

Apart from a steady flow of Ka-6E's into private ownership, two strangers have appeared on the scene. A Weihe — ex-Lasham, and a Nimbus — ex-Northern Ireland. A Kite 1 is about to fly again, so not everyone is interested in speed performance flying only.

We have two extra staff this summer on the flying side — Tom Harding, who will be a resident tug pilot, and Geoff Naylor, who will assist Mike Till and Len Norman with instructing; these two will help greatly in improving our week-day and week-end facilities.

M. P. G.

MIDLAND

ON Saturday, 22nd March, we held our Annual Dinner-Dance at the Long Mynd Hotel. A hundred members and friends enjoyed a splendid evening, during which Mrs. Hardwick presented the Club's trophies for 1968. Mike Horan won three — the Sheffield (best gain of height), the Hardwick (best out-and-return) and the Ladder. John Tolley won the Neill Trophy (best *ab-initio*) and Allen Parkinson the Maxam (Club effort) for his supervision of the new winch project. Jane Randle, who was unable to be present, won the Siam trophy for the longest flight from the Long Mynd.

Next day, Bob Buerki and Mike Ray showed their splendid 40-minute film of the Club's activities.

A week later, Jane Randle gave birth to a daughter, Alison Jane — congratulations to Mike and Jane.

Easter, although fine and dry, brought with it strong easterly winds. On Easter Sunday, we were awakened by shouts of "Wave" and there was indeed a text-book lenticular over the valley. Louis Rotter and Ron Miers, in a Club Ka-13, contacted the wave and reached 6,500 ft. asl. After Louis had landed, Gerry Roberts and Keith Bull took the Ka-13 and, with the aid of a 1,600 ft. launch from the new winch, also contacted the wave and reached 7,500 ft. asl. Keith

Members of the Ouse Club handling their T-21 on the snow-covered runway at Rufforth. (Photo by K. Massey)

Mansell — with Bob Rice — took the other Club Ka-13, missed the wave and landed in the valley. Louis Rotter and Cecil Mack, flying their own Ka-13, also missed and landed at Clun.

We look forward hopefully to a better season than last year, particularly during the Whitsun and August Bank Holiday weeks, when the Club will be open with full facilities for visiting pilots.

K. R. M.

NORTHUMBRIA

AT the moment our flying field looks more like a construction site than one for gliding. Our hangar is almost completed, the Army are still levelling the west field and club members are clearing a large area of gorse to enlarge our landing area.

Our Easter flying was limited by sea breeze activity, which pushed the good cumulus ten miles past the site, leaving local soarers in weak conditions. Bill Fuller gained his C the hard way, as he had to fly by the seat of his pants in a Tutor without a variometer. Al Ivory also achieved his C, in the relative comfort of the Jaskolka.

For mid-July we have organised two training weeks for club members. We hope to swell the ranks of the two smallest "syndicates" on the field, operating the club Tutor and Jaskolka.

J. R. G.

OUSE

THE Ouse Club has started its soaring season in fine style. After a raw, damp winter — when we managed, nevertheless, to do a lot of flying! — March showed promise and April fulfilled it. That glorious Easter weekend, with four days of intensive flying, was a real tonic; many flights of over an hour were logged and we experienced both wave and thermals.

Margaret Edwards and John Rose got their A and B; J. C. Dinsdale and Brett Atkinson their Bronze C; Mike Wilson and Kevin Atkinson their first leg of Bronze C duration; S. Hunt his C duration and first and second Bronze C durations; John Rose went on to get his C time; Keith Massey had over an hour at 5,000 ft. in the Skylark, and Derek Moore — committee member and an instructor — had an hour's experience of wave as early as 8th March, with Duncan Russell, in the Capstan.

Ruth and Alistair Croft returned, looking very brown, from their honeymoon in Teneriffe and more fine work has been done on the clubhouse. Our new welding machine is saving hours of

labour and snarls-up and the ladder competition is off to a great start.

Our club has a high reputation for friendliness and this year we are aiming for maximum efficiency. More than half of our members are soaring pilots — many of them on the Skylark — and we have another Skylark on order. Our youngest member, at 15, is Angela Burton, daughter of Air Vice-Marshal Harry Burton, CBE, DSO; she can fly only in school holidays but shows great promise.

Ray Russell has built a super-duper retrieve winch, the hangar has been repainted, all C's of A have been done . . . and we are all raring to get two miles high and stay up all day! A. H. S.

PERKINS

PARTIALLY due to the weather and partially due to the troubles of our own making operating from a new grass site, 1968 operationally was a financial disaster. The future of the club in the balance, a special meeting was called on the 13th February to make the critical decisions as to whether the club should continue and — if so — from where? It was the unanimous decision that we should continue, be based at Postlands Airfield, four miles north of Crowland, Lincolnshire, and that the hangar — an ex-RAF Blister type structure 60 ft. span x 75 ft. long — be moved from its concrete pad at Spanhoe to a field some 30 miles to the NE; Haden Haresign and Jack Lovell were duly elected Project Co-ordinators.

What we hope is a Phoenix is rising from the ashes! In the space of exactly 10 working days we had drawn up and submitted site plans, had them approved by our host, J. W. E. Banks, staked out the new site, excavated, poured the concrete, and laid a consignment of railway sleepers. The hangar was dismantled, the sections — previously marked and coded — were transported in nine lorry loads over 500 miles round trip, were re-erected and secured to the new concrete emplacement, and a coat of paint was being applied to the outer cladding on schedule on 30th March, despite the extremely cold weather prevailing. Obviously, for a project of this magnitude to be completed in such a short space of time, and at a cost of approx. £40, it needs willing hands too numerous to mention; however, three must be singled out, as we are especially indebted to the brothers Gordon and Tony Figg, who gave up each Saturday and Sunday to work on every aspect of the project, and to Reg. Bradshaw, whose "know-how" on the new foundations was invaluable.

On the flying side, Harry Feneley, who tugged with the Tiger Moth for the last three months of 1968, has joined us on what we hope is a permanent basis, having purchased the previously-syndicated Beagle Terrier. In addition, we are pleased to welcome back, with the advent of aero-tow facilities, our old friend Phil. Cracknell, with his privately owned Skylark 4. Realising that an essential need on our new site is tugging facilities, it also necessitates a high-performance two-seater being available, and a syndicate has been formed in order to acquire one at the earliest opportunity. High winds kept us earthbound until Sunday, 13th April when, during a brief lull, Haden took the Skylark 2 up to 6,500 ft., clocking 1 hr. 26 mins. on he first flight of the season, before the weather clamped down again. J. V. L.

SOUTHDOWN

THE decision to hold the AGM in our new clubhouse proved well-founded, as more members attended than at those held in previous years at other venues. Most retiring committee members were re-elected, but this time they have been given much pungently-constructive advice from the floor. It will be interesting to see how many of these ideas are adopted.

The March gales provided superb flying at Firle, and the Easter weekend was even better — a joyous mixture of ridge, wave and thermic soaring producing the year's first crop of Silver legs. Five hours were obtained by Bob Brenchley in the Olympia and by Roger Coote and Jasper Partington in the Swallow. From a bungey launch, Jim Green flew to Tangmere for his Silver distance, in the 460, and Jack Sheperd successfully soloed in the T-21. This is the first time for us that this aircraft has been used instead of the Tutor for first solos. Keith Mitchell also showed the pioneering spirit by flick-rolling the tow-car and trailer *en route* to Tangmere; the trailer was scratched and Keith only bruised but his new car was badly damaged.

Three pilots successfully completed the Instructors' course at Lasham, under the *aegis* of the National Coach. What a splendid course this is — tough, comprehensive and very enjoyable. These additional instructors may help us to clear out waiting list, which now stands at three months. A start has been made to provide a sheltered trailer park at the foot of Bo-peep Hill. This should ease the pressure on hangar space and provide room for the eagerly awaited Pirat — now due early in May.

B. P. W.

STAFFORDSHIRE

THE Club AGM was held in February and the following were elected :— Chairman, Neil Mackay; Vice-Chairman, Ken Sherriff; Treasurer, Peter Felthouse and Secretary, Norman Bartlett.

The retiring Chairman, Boris Clare, stated in his report that, although we were only twenty-second in size, we were fifth in number of A and B certificates and twelfth in the number of launches. The Tiger operations had been at a loss but had resulted in an increase of flying time of about 65%. We hope to repeat this progress again this coming year by continuing our policy of training *ab-initios* by means of aero-tows and by hiring again another two-seater for this summer.

The prospect of losing the use of our site completely has — for the moment — lessened, so giving us further breathing space to find an alternative site. One of our prospective sites is being considered also as a possible site for a prison on part of it — another case of birds of a feather . . .

The Club's finances, although not as robust as our treasurer would like, are in a reasonably good state and our assets — in the way of aircraft totally owned by the club — are increasing annually.

There is a move afoot to set up a syndicate to resuscitate a Tutor belonging to one of our members and to get it flying again. This is mostly among the older members, who are looking forward to gazing over the side of a completely open cockpit at the ground, say ten thousand feet below, whilst their toes drop off from frostbite and their eyes are blinded by the glare from the sun.

R. B. L.

SURREY AND HANTS

THE new Ka-8's have been well received by all. A third Ka-8 is due in May and we may order a fourth if the pressure from early solo pilots causes a jam when good early solo days coincide with five-hour and Silver distance weather. Normally, first cross-countries are done in Ka-8's.

9th March provided Mervyn Teather, one of Lasham's canteen assistants, with his five hours in a club Skylark 4 — a fine effort on a blue thermal day with an inversion at 2,700 ft. agl.

The end of March and the Easter weekend brought the first good weather after a very poor early spring. The cross-country season was opened on 28th March by Hugh Hilditch taking his Cirrus on an afternoon constitutional of 230 km. via Dunstable and Bicester.

Talking of Dunstable, the Plate Saga has begun. Keith Chard flew in on 28th March to lay first claim for 1969. 3rd April saw Chris Lovell up there sharpish in a Club Dart to retrieve it but it hadn't arrived from the Kronfeld Club — its winter resting place. Just before he took off to fly back, a certain Mr. Pozerskis threatened to come after him and, sure enough, in floated a Cirrus an hour after Chris landed. Chris Garton tried to get it back over Easter but conditions didn't allow him to land and be sure of getting back, so Dunstable can jolly well keep the Plate for a bit — a waste of good soaring weather.

It is with great regret to have to report that Dr. Denis Wilks died suddenly at his home on 4th May. Especially our Wednesday members, who probably knew him best, will be sorry to learn of this.

Our deepest sympathy goes to Mrs. Biddy Wilks and her four sons.

C. L.

SWINDON

OUR Tenth Annual Dinner and Dance, at which the guest speaker was the Mayor of Swindon, Alderman Bown, was held at Blunsdon House Hotel during February. The Club trophies were presented by the Mayoress. Many thanks are extended to our Social Secretary, Christine Day, and to her willing helpers for a most enjoyable evening.

Since our previous report we have

Ian Hobday, of Thames Valley, holds aloft the Booker/Swindon Cup. (Photo by J. Wood)

acquired a new Chairman, Dr. David Hart, who has tackled the job with great energy and enthusiasm and we wish him a happy term of office.

The season got away to a good start with lots of soaring during the Easter weekend. Our T-21 has been replaced with an ASK-13, which has proved to be very popular, and the rest of the club fleet consists now of a Swallow, Olympia and Skylark 4.

Two new syndicates have been formed recently. Gordon Gulliver, our Secretary, and Graham Hinder now own a Ka-6, and Bernie Keogh and John Bundy have a Ka-6E. We wish Bernie much success in competition flying this year.

G. T.

THAMES VALLEY

ON Good Friday Ian Hobday, in Skylark 113, and Shep Sheppard, in a Ka-6E, both flew to Swindon Club and Ian returned triumphant with the Booker/Swindon Cup. Congratulations to Adrian Waggennar, who completed a second bronze leg in the Olympia on the same day, and to Richard Saw, who went solo. His brother, David, achieved 6,000 ft. on his third Skylark flight and is still regretting not carrying a barograph. We extend a warm welcome to Kevin Jones, who intends to build up his power flying hours by tugging for us. The Easter Holiday period provided some superb soaring weather, except for Sunday, when the wind was gusting in excess of 30 knots and most gave up the struggle.

At the AGM the following were elected to serve on the Committee: Bill Breakspeare, Bryan Latimer, Lyn Greaves, Eric Baker, John Wood, Ken Harris and Tim Chapman. Stephen Hope has agreed to act as Master Pilot. Our thanks to the retiring members, Dudley Steynor and John Rouse.

Sqn. Ldr. J. A. Atkinson, RAF(Ret.), is relinquishing his position as General Manager and Secretary of the Lasham Gliding Society Ltd., and is taking up a similar appointment at Wycombe Air Park (Booker Airfield), as General Manager of Airways Aero Associations Ltd. (subsidiary of BOAC/BEA).

J. W.

TRENT VALLEY

SIGI Romrig, CFI for TVGC since its birth in 1965, reluctantly tendered his resignation during December, 1968, owing to the distance he has had to travel since his move of residence to Leicester. We were sorry to say farewell to Sigi, who had always worked hard and enthusiastically for the Club and its members. Again, we offer him our thanks and sincere good wishes for the future.

We have been very fortunate to secure the services of Mr. Jack Tarr as our new resident CFI.

With 1968 behind us, plans are laid for 1969, which promises to be rewarding, both flying-achievement-wise and financially. Having just completed the purchase of an aircraft hangar — the erection of which will fill most of our "spare time" during the next few weeks no doubt — to eliminate the early morning rigging which our present hangarage had necessitated, we are confident that our already high launch rate will show improvement during 1969. Ray Parkin and Vin Fillingham have been engaged in a vigorous assistant instructor training programme during the winter months which should improve the situation even further by spring.

The Club is also negotiating the purchase of a new high-performance two-seat aircraft for dual advanced training. Delivery should be during April/May.

Owing to unfavourable weather condi-

tions, flying has been restricted to circuit bashing during the past four weekends, so most of our flying has been socially. On 20th February we challenged our colleagues from the Lincs Gliding Club to a "custard-pie-throwing fight", coupled with a supper dance, which proved to be a great — if a little messy — success.

P. V. H.

WESTCOTT

MALCOLM Lasson has joined the list of solo pilots who have achieved a loop in the Swallow and, despite indifferent weather, flying has countinued most weekends. The Swallow has passed its C of A and was put to good use over the Easter weekend, together with a T-21, which has been obtained recently from Booker by the Bicester syndicate for operation by the Club.

Easter Monday saw the first aero-tow at RPE Westcott, very kindly provided by Richard Wade who — together with Roger Neaves — flew in for a visit in their Tiger Moth.

E. A. C.

YORKSHIRE

AFTER a terrible winter — both flying- and farmer-wise — better weather has reached us at last. We've had some wonderful days, with thermals galore being enjoyed by everyone who could fly. It was one such day when we were visited by the BBC TV unit, who wanted to make a film for "Look North". This turned out very well indeed.

The Club has started holding Day Courses to help those interested in gliding to get a closer look for a small outlay; they are proving very popular and successful.

We are awaiting with great anticipation the delivery of an SF 21B Falcon to one of our members. As it will be the first two-seater of this type in the country, we're expecting great things.

Joe Provin's HP-14 — built by himself — should be in the air soon. After all the hard work Joe has put in he deserves some good flying weather to try out the results.

Congratulations are due to Gwyneth Sutton, who recently completed her first solo, in a Ka-13 of which she is part-owner.

P. M.

SERVICE NEWS

BANNERDOWN

REGRETFULLY, I must report that our usual Scribe, Phil. Hutchings, has been seriously ill of late and, as a result, must give up — temporarily we earnestly hope — flying with the club. We shall certainly miss his usual contribution of wise words and boundless enthusiasm, even for a short while. As our Flight Safety Officer, he has excelled himself, and our Briefing Room is a classic example of the thought and skill that is Phil personified. Get well soon, Phil.

The flying year for us started in January, with the most beautiful winter weather than I can remember. A good deal of flying was done and a bit of colour came back to our cheeks.

Appropriately, our first A and B certificate was gained by Group Captain Young, our new Station Commander, to whom we extend a hearty welcome and the hope that the acquaintance will be a long and happy one. Brian Sowerby also completed three excellent circuits to become the second proud possesser of a BGA certificate on that day. The new mobile winch is all but ready for service and will most certainly add to our performance figures in the coming season — thanks, Andy!

By the time this newsletter is in print, Pat Cleeve and Sue Smith will have become Mr. and Mrs., and we wish them all the happiness in the world. At least it will solve the argument as to who owns the car!

A. H. W.

FENLAND

WITH the arrival of the better weather, our more dormant members are beginning to show themselves on the field again. Despite bitterly cold winds over the Easter period, we did very well for hours and achievements and now have several members trotting around muttering about Silver distances. Chas. Collier, our Treasurer, is one of these and is eagerly awaiting the off. Heather Slack and Pete Balmforth — our Secretary — have completed also their two bronze legs — flying tests yet to come,

and John Foley has managed one and, therefore, his C. Two of our "colonial cousins" from the USAF — Ray Pessa and Jay Langham — are also in the running, with two and one legs respectively. We sent Bob Chatfield off on his Silver distance but, unfortunately, the ground rose to meet him too soon.

In common with other Service clubs, our members come and go, and we are pleased to welcome Chris Watson from Bicester, together with his charming wife, also Chris, which confuses things somewhat. Leaving us to carry out a course is "Leaky", to whom we extend our best wishes and thanks for all the work he has done.

J. P.

WREKIN

OUR Easter Soaring Week was successful from a soaring and cross-country point of view, for Kevin Kiely completed his Silver C with a distance flight to Staverton, and the same distance was flown by Peter Haig and Charles Nightingale on the following day. Simon Morrison, our CFI, also added 42 miles to our cross-country distance on a Gold C attempt.

We have recently also sent three pilots solo, three have gained their C certificates, and two — Colin Dewhurst and John Griffin — a Bronze leg each. At the moment, our fleet consists of a T-21 and a Bocian for two-seater training, and for solo pilots we have a Grunau 2 and a Grunau 3, an Olympia 2A, a Ka-8, a Skylark 2 and a Ka-6E — all, pro tem, in good trim.

C. B. B.

CRUSADERS

SO far, 1969 has been wetter and milder than usual, but flying has continued apace. During March, when the Club operated every day, nine soaring certificates were gained in one day by various members, and Chris Gildea and Barry Voisey had Gold Height near-misses with flights to just over 10,000 ft. A two-week *ab-initio* course was held recently.

Olympia 401 pilots now work Nicosia ATC with the club-purchased Pye radio and they are looking forward to some good cross-countries. The Nuffield Trust has kindly granted us the cash for two more radios, so Swallow pilots — and, we hope later on, Ka-13 instructors and pupils — will be able to have more extensive flights. Try as we might, though, we cannot quite fit a feasible Gold distance/Diamond goal triangle into this island with the FAI flight termination

requirements as they are.

Three more Club stalwarts are leaving Cyprus, tour expired; all started gliding some three years ago here. We shall miss Gerry Cooper and Tim O'Donovan, who would turn their hands to anything, and we shall be ever grateful to John Scott for putting the Club on a really sound financial footing during his years as our Treasurer. Good luck to all three of you and your most helpful wives.

M. I. O.

TWO RIVERS
(Laarbruch, Germany)

THIS year Two Rivers were the hosts for the RAFG AGM, at which the Club was acclaimed for its gliding courses and some 5,000 launches.

In October a Vennebeck expedition produced a total of 2 Silver C legs, 6 Bronze C and an A and B. Also, with the CO's approval, it is hoped to hold an *ab-initio* course during April or May at the Wesel Club.

It was learnt, too, at a meeting of RAFG GSA that our much esteemed Leigh Hood has had his name submitted for the British National Championships this year.

On the aircraft side we said farewell to our Ka-2 for the sake of purchasing a Ka-13. Jeff Gregory has brought most of the fleet on to top line during the winter period, with the help of Jim Porter, newly arrived from the UK.

As ever, we have our farewell brigade — Jack Collins, CFI; Bruce Thompson, Chairman; Pete Young, Vic Leighton, Roger Lashley, Dave Prettlove and Terry Brown. To the post of CFI, Barry Nowell is now well established and Hoagy Carmichael is Chairman.

To the lads who have departed, thanks for everything, and our wishes for the best in the future.

F. J.

OVERSEAS NEWS

We should be pleased to receive news for this section from every country in the world where soaring is done—A. E. SLATER, *Overseas News Editor.*

AUSTRALIA

GLIDING AT GAWLER.—A duty visit to the Missile Range at Woomera recently left me with the prospect of two spare weekends and a week to prepare for them. Questions of the Range staff, posed at the end of meetings, eventually gave me a contact at the Adelaide Soaring Club; I could have looked in the pink (not yellow) pages, under "Clubs — Gliding", if I had had my wits about me, but I had to do it the hard way. My contact, the CFI, put me in touch with Brian Symonds, who passed my Adelaide hotel on the way out to the site and he picked me up at 7.15 a.m. on the first Saturday.

The Club have two Ka-7's, a Ka-6, a Ka-8 and a Ka-13 flying at present on a wartime strip with two runways at Gawler, some 20 miles north of Adelaide. I was at once made very welcome and soon after arrival given a check in the Ka-7. Unfortunately, a wind shift caused me to get some 300 ft. only and to have to land downwind on the other runway. When all had been shifted round I got another launch, this time to 1,000 ft., and after that half-an-hour solo in the same aircraft — just to get used to Australian thermals. Next day I was con-

verted to the Ka-6, but after the sea breeze had passed through.

I was converted also to Australian terminology. CHAOTIC is used instead of CBSITCB, the mobile office is a piecart and — most mysterious of all — the tow-car is a "ute", which is short, it seems, for uticon. No winch is used, but aero-tows are the alternative to auto-tows. Experiments are in hand to use nylon in place of wire for auto-towing but, so far, the peculiar launch characteristics are proving troublesome.

Now, gliding seems to be much the same basically wherever I have done it, and I don't want to write a thermal-by-thermal description of my subsequent flying at Gawler — it's all been written before to the point of tedium —but the one thing which made it an outstanding experience for me was the incredible hospitality. I was entertained nearly every night by Club members in their homes and, over the weekends on days on which I did not go to glide, was taken sailing in a catamaran, was shown the nature reserves close-by, or taken to a GFA meeting in Waikerie and generally made to feel welcome.

I think that there is a message here for us. Do we do enough for visitors from abroad to our gliding clubs? Perhaps in a general way we do but, to our visitors, I certainly intend to try harder to repay the welcome I had.

R. BRETT-KNOWLES

AUSTRIA

PREPARING FOR MARFA.—The proposed team for next year's World Championships spent their second training course at Zell am See during the last week of October, 1968. With excellent soaring weather every day, they nevertheless had time for lectures by Harro Wödl, the present World Champion, Dr. Alf Schubert, who came 4th, and others.

GLIDING SCHOOLS.—At Aigen Alpine School in Ennstal, 6,376 hours were flown from 11,138 launches during 1968 (6,024 hrs. from 9,978 in 1967), and 58,836 km. were covered in distance flights; 21 goal-and-returns of 500 km. were flown and 59 goal-and-returns of 300 km. Also 45 altitude flights of between 4,000 and 6,800 m. (13,123-22,310 ft.) and 64 between 3-4,000 m. Visitors numbered 1,005, including 648 foreigners, 607 of whom were Germans, 4 Americans, 3 South Africans and 3 British; 30 foreign groups brought their own sailplanes.

At Spitzerberg, 66,406 hours have been flown from 198,310 launches since the school opened in 1956. Figures for 1968 were 5,658 hrs. from 15,256 launches.

NATIONAL CHAMPIONSHIPS will be held at Mariazell from 21st May to 5th June.

Astroflug

BELGIUM

TO FAYENCE.—The usual winter expedition to Fayence, in France, consisting this time of a Bocian and Mucha, accompanied by pilots Bert Zegels, Michel Bluekens and M. Hochart, was stopped at the French frontier on the excuse of a new regulation requiring that they should have given three weeks' notice. After some telephoning and several hours' wait in the rain, they were allowed to proceed; but they heard that a Dutch team, after waiting there in vain for 10 hours, decided to go to Innsbruck instead.

On the first day, the Mistral blew, but after a check flight by Bulekens, the only tug pilot present refused to tow again because the mid-day dinner hour was approaching. Bluekens got his third Diamond with 7,000 m. (23,000 ft.). Then came more frustration, until M. Brocart, the Chief, who had already straightened out the frontier trouble by phone, turned up and restored order, while Zegels restored good relations.

Thereafter, 10 Belgian pilots contacted the rotor and had a good time.

La Conquete de l'Air

EAST GERMANY

NATIONAL CHAMPIONSHIPS.—These will be held at Neustadt-Clewe from 14th to 29th June. On the 14th, foreign visitors (from Eastern Europe) carry out training flights. Official opening is at 9 a.m. on the 15th; tasks from 15th to 27th are for speed; triangles, goal-and-returns and goal flights. Three competitors must reach 100 km. for it to be a contest day. Final ceremony on 28th; depart on 29th.

The decentralised national contest is for the highest aggregate points for a pilot's three best flights during the period 15th March to 31st August. There are two classes: A, for machines with best

gliding ratio exceeding 32:1, and B, for ratios up to 32:1. Points are given for both distance and speed in all but free distance flights.

CERTIFICATES.—The latest list brings Silver C's to 1,365 and Gold C's to 72.

Aerosport

FINLAND

A SURPRISING light phenomenon has reappeared in the Finnish skies. The phenomenon is the sun, which is little by little wiping off the snow and winter and building up wispy cu's to upset hard-working glider pilots.

This year is going to be one of the busiest in the history of the Finnish Aeronautical Association, which is the central organization of Finnish sporting aviation. The Association has its 50th anniversary, and that is why we will have the FAI General Meeting in July.

The most remarkable event of the year, seen from the cockpit of a glider, is going to be the Finnish Championships, to be held from 1st to 15th June in Räyskälä. Räyskälä is the busiest gliderport in Finland, and probably in all Scandinavia, averaging 4,000 plus launches during the 4-5 month season. The field is located some 60 miles from Helsinki and it is favoured by beautiful Finnish scenery and good weather conditions.

The organizers of the national contest, as well as all the gliding people in Finland, would be very pleased to see foreign pilots flying *hors concours* in this meet. For the first time here in Finland the scoring will be separate in Open and Standard Classes, even though the tasks will be the same for both Classes. The entry fee is 100 Finnish marks (approx. £11), which includes ten aero-tows. The accommodation can be arranged at 4 marks a day and meals are available in the site's restaurant.

If you are willing to see the thousands of lakes in Finland and have a fair competition with the best Finnish pilots, welcome to Räyskälä. If you are interested, please contact Mr. Juhani Horma, whose address is Poltinahontie 13 A 3, Hämeenlinna, Finland, as early as possible.

The other Finnish contest next summer will be from 21st-29th June in Nummela, 30 miles west of Helsinki. This is going to be a nine-day competition, in which handicapping, photographic evidence and the most modern tasks will be applied. Visitors are heartily welcome also to this meet, organized by the Triangle Squadron (a group of contest-oriented young glider pilots from Helsinki) and Helsinki Aviation Association. The "Nine Days in Nummela" will be open either for individual pilots or teams of two. And if you are interested, as we hope you are, just let Mr. Jyri Raivio know before 1st June. His address is Koroistentie 6 a B 11, Helsinki 28, Finland.

Hope to see you in Finnish contests next season!

J. RAIVIO

FRANCE

GLIDING CENTRES in France number 98, according to the F.F.V.V. (Fédération Française de Vol à Voile). A table of memberships, divided into Under 22, Over 22 and Military, shows the totals per centre to vary between 1 in "C.J. Paris" (under 22) and 230 in Limoges (88 under 22, 86 over 22, 56 military). In 1968, 1,024 elementary certificates were gained, 641 of them by pilots under 22; the total figure for 1967 was 1,011.

This year's French Championships will be held at Moulins from 26th July to 8th August, with 50-60 competitors, divided into three Classes: (1) Open Class, (2) Standard Class plus older Open Class machines, (3) other machines of poor performance. Regional Championships, lasting not more than 11 days each, will be held from June to August.

A competition for two-seaters at Poitiers from 2nd to 14th August, organized by the Aero Club de Poilu, is announced in *Der Flieger* but not in *Aviasport*.

No dates are given for the Mountain Soaring Rally at Vinon, but the Coupe d'Europe at Angers comes in mid-July, immediately after the Coupe Atlantique.

The Coupe Atlantique, held at Nantes from 4th to 11th July, is open to both single-seaters and two-seaters and to all nations, up to a maximum of 30 entries. The entry charge of 150 francs will be partly refunded according to travelling costs. Applications to: Centre de Vol à Voile, Nantes, Aerodrome de Chateau-Bougon, 44-Bouguenais. Tel.: 78-61-53.

Aviasport

NORWAY

GLIDING has commenced again after the winter started to loose its grip. During our traditional Easter camp at Fagernes, 150 pilots from Sweden, Denmark and Norway hunted for Gold and Diamond heights, sharing about 25 sailplanes and 6-7 tugs. Although the weather was mixed, about 10 pilots exceeded the 3,000 m. height gain, including yours truly, who took the A-15 to 7,800 m. (25,600 ft.) a.s.l. (barograph not calibrated yet), for a new Norwegian absolute and height gain record. The flight consisted of a series of jumps between lift areas, advancing about 40 km. north-west into still more mountainous areas.

Besides wave-flying, numerous hours were flown on hill lift and thermals. Although our traditional competition, "Valdresspritten", wasn't completed this year, we had one day of task flying (goal out-and-return), where the winner, Stein Frich, in a Vasama, covered the 54 km. in 40 minutes, giving an average of 81 km/h. from release. His entire return leg was carried out below 250 m. (820 ft.). The A-15 took 6 mins. longer and Einar Rönnestad, in the SH-1, took 1 hr. 12 mins., both playing safe a bit more.

British glider pilots are most welcome to these Easter camps (qualifications, Silver C level or equivalent, with aerotow rating), where gliding may be combined with ski-ing upon the mountain plains. Requests should be sent well in advance to the Norwegian Aero Club, Karl Johans St. 18, Oslo 1, Norway. Many participants are booking in from one year to the next, so a rather fast response is needed.

BIRGER W. BULUKIN

POLAND

WINNER of the decentralised national competition for 1968 was Alfred Bizl, from Bydgoszcz. Jan Wroblewski (1965 World Champion), from the same club, came 2nd, and the best woman pilot, Adela Dankowska, holder of world records, achieved 10th place.

Aerosport

SOUTH AFRICA

NEXT CHAMPS.—The 1969-70 National Championships will again be held at Bloemfontein over the Christmas-New Year holiday period, it was announced at the end of the last Championships, by Brigadier J. Gilliland, chairman of the Aero Club of East Africa.

NEW CLUB.—A gliding club has been formed in Bloemfontein, with 16 people signing on as foundation members. These included several power pilots.

Membership of the club is limited to 20 persons for the present and each member is expected to pay the sum of R1.80 over a period of 12 months for the purchase of two gliders — a single-seater and a two-seater.

Three gliding instructors have been appointed — John Pocock, Hennie Brink and Arno Wende.

It was suggested that as many members as possible should go to Goldfields Gliding Club, Odendaalsrus, to get first-hand experience.

Wings Over Africa

SWITZERLAND

TYPE CERTIFICATE FOR DIAMANT 18.—Switzerland's Air Administration Office has issued the official type certificate for the all-fibreglass sailplane Diamant 18. All models of Diamant sailplanes have thus been type-certificated in Switzerland. Equivalent type certificates in other countries, mainly in the U.S., England, Australia, New Zealand and Sweden, have been in process for some time and are expected to be issued within the next month.—*Flug- und Fahrzeugwerke AG, Altenrhein.*

WEST GERMANY

COMPANY PROMOTION.—A non-commercial "Company for the promotion of high-performance soaring" (*Gesellschaft zur Forschung des Leistungssegelflugs*) has been formed by Günter Cichon, of Bad Reichenall, three times winner of the German decentralised contest, and his brother, Dr. Josef Cichon, of Munich. Its objects are (1) to make high-performance sailplanes available, and (2) subsidies towards the cost of hiring them, which would be 40 and 80 DM per day respectively (£4, £8) for the Ka-6CR and Phoebus-C which they have already acquired. These are fitted with electric audio and total energy variometers, MacCready ring, compass, blind flying instruments, oxygen for 7-10

hours, radio, barograph and parachute. The Phoebus has also position lights and a static discharger. The object of the company is to help gifted pilots who otherwise would not be in a position to fly high-performance machines. It is planned to enlarge the aircraft park.

Luftsport

BRUNSWICK'S LATEST. — Akaflieg Braunschweig has produced a further fibreglass development of the SB-8 with a 22-metre span (72 ft. 2 in.), called SB-9, with an enhanced performance. The aspect ratio is 31.3 and wing thickness 13%. Wortmann sections are used. The tail is T-shaped. Minimum speed 59 km/h.; minimum sink 1.45 m/s. at 72 km/h.; best gliding angle 1:48 at 85 km/h.; max speed 180 km/h.

The machine was test-flown for half an hour on 23rd January. When circling at 70-75 km/h. true speed, the bank was 30-40°. Schempp-Hirth brakes caused increased upward bending of the wings, which was convenient for landing, as the wing-tips, when stationary, are only 70 cm. (2 ft. 3½ in.) from the ground.

Aerokurier

THROW AWAY THE BATTERY

By R. W. SOMERSCALES

CLUBS using diesel-engined tractors and/or winches may be interested in our experience at the Upward Bound Club with the Simms Type SS Spring Starter.

The starter is an ingenious and practical solution to the sort of problems that we, and I think most gliding clubs, experience in the starting up of cable retrieving vehicles and winches, particularly in the winter, when weekend only operation is normal.

Starter batteries are expensive and vulnerable to misuse and neglect; they must always be in good condition to survive two weeks' inactivity following a rained-off weekend.

In the case of diesel-engined winches and tractors, where no other electrical demands are present, it seems logical to dispense with the electrical equipment. Maintenance is eliminated on the dynamo, starter, battery and voltage regulator, etc., and all can be thrown away, with the exception of the dynamo, which remains only as a convenient means of adjusting the fan belt.

How does it work in practice? We fitted a spring starter to our Fordson Major tractor before the coldest weather experienced this winter and, although the tractor is far from young and healthy, we have never failed to start up with one or two operations from cold and one operation of the starter when hot.

How does it operate? In simple terms you wind a handle — detachable — about twelve revolutions, the action of which compresses a series of special steel dished washers inside the starter. After making sure that you are in neutral you trip a lever. The energy stored in the

compressed washers is then released, causing the starter drive to rotate and you are away!

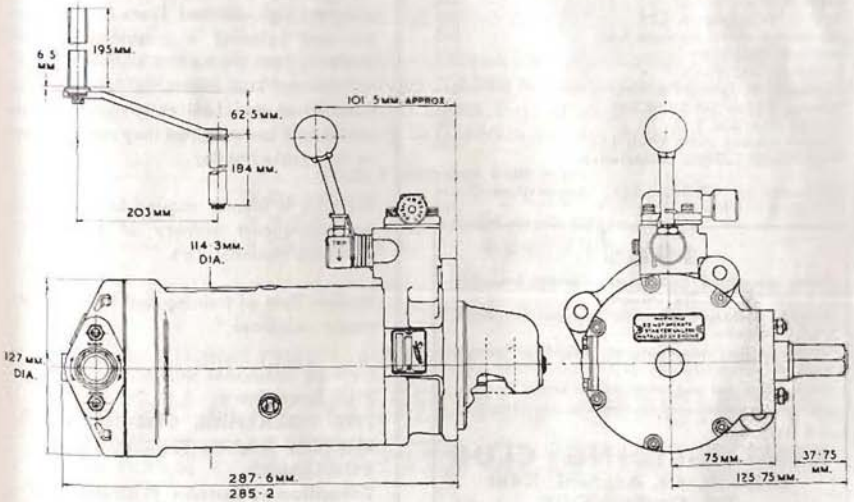
Snags? Not many or serious. Tractor drivers tend to leave the engine running for longer periods to save a "wind" and the only requirement from the installation point of view is that there must be clearance to wind the handle, but the winder shaft is adjustable in relation to the starter axis in increments of 8½ degrees.

The starter will cope with diesel engines up to one litre per cylinder to a maximum of six cylinders.

TECHNICAL DETAILS

Model SS.	Clockwise pinion rotation.
Model SR.	Anti-clockwise pinion rotation.
Engine capacity	Up to one litre per cylinder (61.02 cu. in.) to a max. of 6 cylinders.
Maximum stored torque	70 lb/ft. (9.674 m/kg.)
Maximum winding handle torque ...	45 lb/ft. (6.220 m/kg.)
Number of teeth on pinion	11 or 13
Tooth form	8/10 Fellows Stub Metric.
Number of turns to fully wind	12.
Weight	34 lb. (15.42 kg.)
Cold starting to 32°F (0°C)	*Below 32°F with starting aids.

*As this is dependent on engine type and application, consult Simms Sales Division for further information.



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