INTERNATIONAL GLIDING EXHIBITION, TEA CENTRE, PICCADILLY, JULY

Sailplane and Glider

The First Journal devoted to Soaring and Gliding

JULY/AUGUST 1954

2/-

WORLD GLIDING CHAMPIONSHIPS, CAMPHILL, DERBYSHIRE, JULY 20—AUGUST 4

'SAILPLANE & GLIDER'

We are proud to announce
that our

INTERNATIONAL GLIDING EXHIBITION

AT

THE TEA CENTRE, PICCADILLY CIRCUS
LONDON

will be open

From 11 a.m., Saturday, 17th July, until July 24th
(SUNDAY EXCEPTED)

Daily 10.30 a.m.—6.30 p.m. (5.30 Saturdays)

Sailplane and Glider

Founded in 1930

and ULTRA LIGHT AIRCRAFT

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

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Cover Photo :
Parade of International Flags and the Spanish Royal Aero Club in the background at Cuatros Vientos Airfield, Madrid.
Photo : M. Magnusson.

Editorial

WE go to press this time in a wild rush, for not only have we to keep open till the last minute for all the news about the forthcoming World Championships but we are also working at full pressure on the last details of our own Static International Gliding Exhibition at the Tea Centre, Piccadilly Circus. We open on the 17th July and close on the evening of the 24th July, during which time we hope to have been able to introduce the sport of gliding to several thousand people who would otherwise have only the vaguest idea of what gliding is *about*. We are in fact complementary to the actual Championships, a kind of link between the experts and the ignorant. Several thousand people will undoubtedly ask several thousand questions and we would be most grateful for practical help from any glider pilot who could face spending some hours behind a desk at the Tea Centre. Will anyone who is kindly disposed please roll along there and give us a spell ? Any day, any time ?

Our poster competition produced a real beauty that we hope many of you will already have seen on the hoardings round the London Underground stations and round the Tea Centre itself. The winner is Mr. George H. Hartropp of 5, Esher Road, Liverpool, 6, and the poster is a thoroughly professional piece of work, half in black and half in chrome yellow. We most heartily congratulate Mr. Hartropp and have great pleasure in sending him the prizewinner's cheque.

Now about the World Championships. On page 4 you will find the list of entries on going to press. These may be modified up to the night before the Contest but we can take it that most of them will stand. Notes on most of the entries will also be found in this issue, and the full report with pictures, will be in our next number, due on October 1st. For our many overseas readers that must mean an unconscionable delay, but we are on the horns of a dilemma here, caused by being a bi-monthly. Should we come out early with as many programme details as possible or should we come out late with the report in brief, to be followed up with a full-length one in the following issue ? We decided that as the ordinary newspapers will carry the final results quicker than any monthly can hope to achieve them it might be better this way. If we have guessed wrong, please forgive us.

So here is our Contest wish—may we see brilliant flying and keen competition, weather such as glider pilots find only in dreams, and a magnificent week of international friendship. Here's luck !

CASH PRIZES FOR GLIDING PHOTOGRAPHS SUITABLE FOR "SAILPLANE AND GLIDER."

Consolation Prizes of Free Subscriptions to 'Sailplane and Glider.'

Here is a chance for all our readers with a camera to win a cash prize of £2. 2s. 0d., £1. 1s. 0d., or a year's free copies of 'Sailplane and Glider.' Just send us your best gliding photograph (any size providing it is no smaller than 2½ inches square). On the back put your name and address in block letters together with a brief description of the picture. Glossy prints preferred. We cannot guarantee to send back your prints unless they are accompanied by a stamped envelope of suitable size.

The competition is open to readers both home and abroad and will remain open until further notice.

Photographs of the World Gliding Championships will be particularly welcome.

We reserve the right to publish any photograph submitted and photos must be the copyright of the Sender.

Send to : Photo Contest, 'Sailplane and Glider.'
8, Lower Belgrave Street, London, S.W.1.

SEPT./OCT. Competition closes on August 20th.
NOV./DEC. Competition closes on October 20th.

WORLD GLIDING CHAMPIONSHIPS

CAMPHILL, GT. HUCKLOW
DERBYSHIRE

'SECRET WEAPON' FOR BRITISH TEAM

THE British team at the forthcoming International Soaring Contest will be equipped with a new British invention which will locate a thermal at a distance of a quarter of a mile.

The instrument was invented by Peter Temple and although mention has been made of its operation in the British magazine *Gliding* full details will not be released until after the World Contest is finished.

It is planned to put the instrument on the open market later this year.

The Thermal locator consists of a 'sense' unit mounted on each wingtip and connected to an instrument in the cockpit.

The 'sense' unit is a very small thermopile. The current generated by it is fed to the instrument, the needle of which points to the warmer wing.

The instrument not only finds the thermal but helps the pilot to 'centre' it.

Sailplanes used by the British team in the World Contest will also be fitted with the Temple electric variometer (which has no lag) and the total energy variometer which shows the rate of climb of the thermal rather than that of the sailplane.

The British team in the International Contest will be Philip Wills, Geoffrey Stephenson and Lorne Welch and his wife Ann.

Wills will fly solo in the Kendall 'K.1' two-seater.

Stephenson will fly in a Slingsby 'Sky.' Welch will fly the Slingsby 'T.42' two-seater, with Ann.

The Clubhouse at Camphill

Holland. Neither Koch nor De Boer have previously flown as pilots in a World Championship, though De Boer was navigator in Spain to J. Koek in a 'Kranich.' T. Koch is a K.L.M. Constellation pilot.

Spain and Sweden at the time of going to press have not yet announced their final choice of competitors.

Jugoslavia. The 'Lasta' is a new machine still in the course of construction. Arbajter who will fly it,

Two members of the British team. Above (left), Ann Welch; (right, in cockpit), Geoff Stephenson

came 4th in the World Championships in Sweden. The ' Orao ' came third in the same meeting, and the two-seater ' Kosova ' won the Yugoslav Nationals and came third in the German Nationals last year.

Great Britain have a husband and wife partnership with Lorne and Ann Welch flying the two-seater ' T.42.' This is the first time that a husband and wife have been co-pilots in a World Championship. Geoffrey Stephenson, winner of the 1953 British Nationals, will also be flying a Slingsby product, the ' Sky.'

South Africa will be represented by Heli Lasch in an ' Air 100 ' and P. J. Beatty in a ' Skylark.'

France will almost certainly send G. Pierre, French National Champion, who won the German Nationals last year and came second to Philip Wills in the World Championships in Spain.

Finland. Koskinen will fly the experimental ' PIK-13 ' single-seater as he did in Spain in 1952.

U.S.A. The three American entries are all ' Schweizers,' and Paul Schweizer himself will be flying his newly-designed ' 2-25 ' two-seater with Clarence Lee. Paul MacCready will fly the latest version of the ' 1-23 ' (known as the ' 1-23E), while Stan Smith will be using the earlier ' 1-21.'

Australia will this time be represented by only one pilot. He is Sel Owen of the Sydney Soaring Club, Gold ' C ' with one diamond. He will fly in an ' Olympia ' borrowed from the B.G.A.

Germany. One of the ' HKS-1 ' two-seaters will be flown by Guenther Haase solo, and the other by two women—Hanna Reitsch and Erika Leutloff. The third entry is a ' Weihe,' flown by August Wielkuchter. All three pilots are of pre-war vintage.

Belgium. Willy Witter of the Antwerp Gliding Club, winner of the Reyion National Contest of 1953, will be flying a Czech sailplane, the ' Sohas,' as also will M. Cartigny, holder of the Belgian distance record.

Lorne Welch *Philip Wills*

Two members of Britain's team.

The ' Sky.' Spain, Holland, Switzerland and Argentina are flying Slingsby ' Sky ' sailplanes. Latest news is that there are nineteen different types of machines entered but this is not definite till the last moment. It will make comparisons of pilotage rather complicated.

Austria is represented for the first time since the war. The last International Meeting they attended was in 1937 at the Wasserkuppe.

Brazil have cancelled their entry.

Denmark. ' Cowboy ' Jansen, pioneer of Danish soaring, also flew in the International Contests in Sweden and Spain.

Canada. A. M. Pow who is flying for Canada in a borrowed ' Olympia ' was the winner of the ' Spike ' Trophy for the longest flight of the year (256 miles) and the Canadair Trophy for the best five flights in 1953

Sweden. Pilots will be chosen after the eliminating trials held in Allberg between the 7th and the 19th June.

PROVISIONAL LIST OF ENTRIES (Pilots and aircraft can be changed up to the night before the Contest).

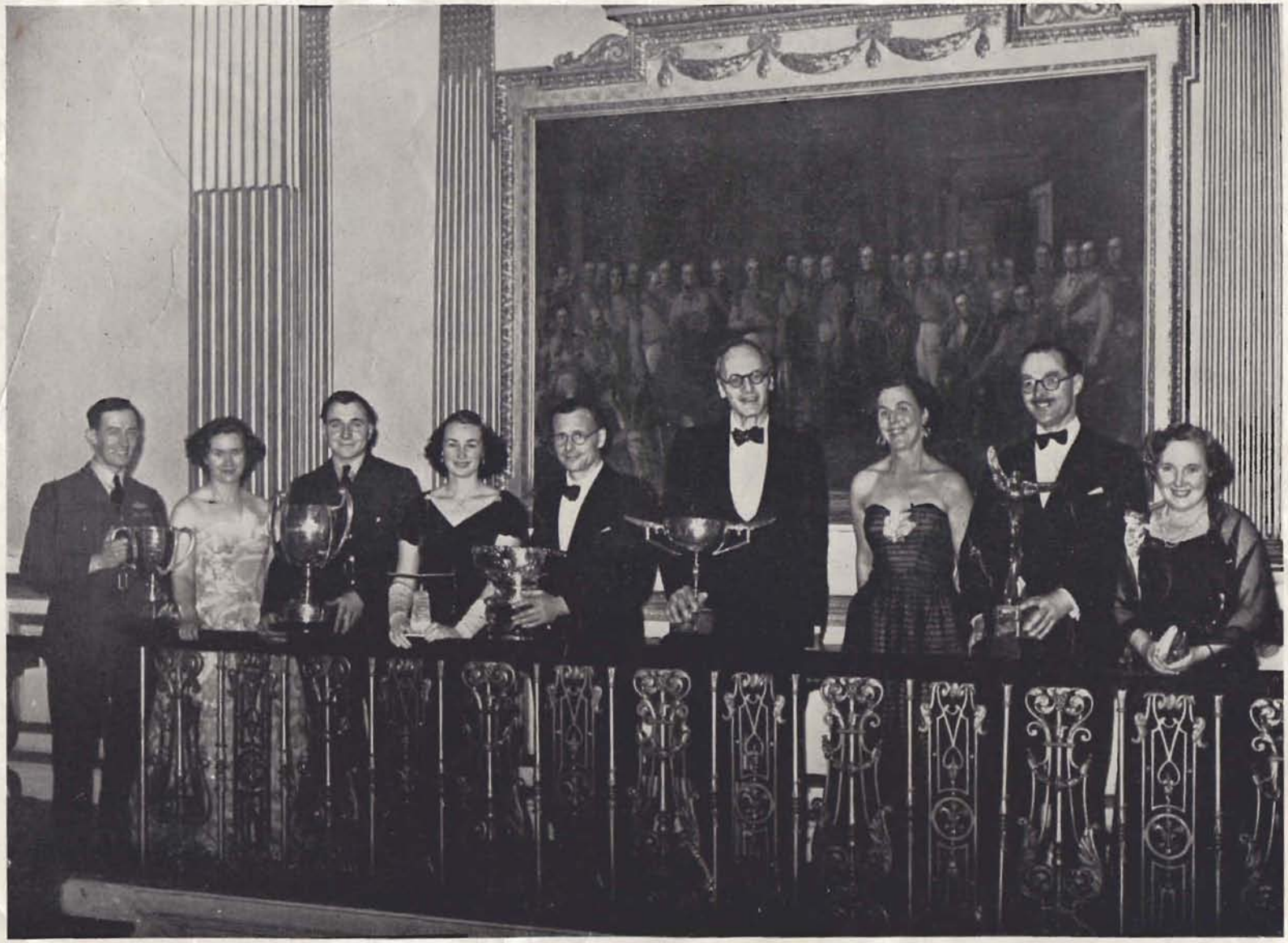
Nations and Pilots.	*Single-Seater.*	*Multi-Seater.*
Argentine.		
J. Ortner	' Sky '	
J. Cuadrado	' Sky '	
J. Ompre C. Dori		' Condor IV '
United States.		
S. W. Smith	' Schweizer 1-21 '	
P. B. MacCready Jr.	' Schweizer 1-23E '	
C. W. See Jr. P. A. Schweizer		' Schweizer 2-25 '
Austria.		
F. Linher	' Superspatz '	
W. Grafe	' Weihe '	
W. Hesse A. Hasenknopf		' Musger Mg 19 '
Belgium.		
M. Cartigny	' L.G.-125 '	
H. Gildemym	' Sohaj '	
Australia.		
S. Owen	' Olympia '	
Canada.		
Albert Pow	' Olympia '	

Nations and Pilots.	*Single-Seater.*	*Multi-Seater.*
Spain.		
Not yet known	'Sky' 'Sky'	1
Denmark.		
H. W. Jensen	'Spatz L'	
A. Feddersen	'Olympia'	
Finland.		
A. V. J. Koskinen	'PIK-13'	
S. Relander	'Weihe'	
France.		
G. Pierre	'Brequets 901'	
G. Rousselet	'Brequets 901'	
M. Gasner L. Trubert		'C.M. 71'
Sweden.		
Not yet decided	('Weihes') 2	
Germany.		
A. Wiethuechter	'Focke Wulf Weihe 50'	
E. G. Haase	'HKS 1'	
Hanna Reitsch Erika Leutloff		'HKS 1'
Great Britain.		
Philip Wills	'K.1' or 'Sky'	
Geoffrey Stephenson	'Olympia IV'	
Lorne Welch Ann Welch		'Slingsby T.42'
Holland.		
I. de Boer	'Sky'	
O. P. Koch	'KNVvL 491'	
Israel.		
M. Bar	'Olympia'	
Italy.		
R. Brigliadori	'Spillo'	
M. Guerrini	Not known.	
A. Mantelli L. Braghini		1 (type not known).
South Africa.		
H. R. Lasch	'Air 100'	
P. J. Beatty	'Skylark Type 37'	
Jugoslavia.		
F. Mordej	'Orao' Obad-Cuan	
M. Arbajter B. Kemac Z. Rain	'Lasta' Sostaric-Dabinovic	Ilic-Kisovec 'Kosava'
Switzerland.		
A. Gehriger	'WLM-II'	
A. Kuhn	'Sky'	
H. Nietlispach B. Muller		'Spyr V'

ORDER OF STARTING (First Day)

Single-seater Class.			*Two-seater Class.*
1. Israel.	12. Australia.	24. South Africa.	36. Argentina.
2. Italy.	13. Holland.	25. Yugoslavia.	37. Italy.
3. Spain.	14. Belgium.	26. Austria.	38. Spain.
4. Argentina.	15. Germany.	27. Finland.	39. U.S.A.
5. Great Britain (Wills).	16. Canada.	28. Sweden.	40. Great Britain.
6. South Africa.	17. Denmark.	29. Switzerland.	41. France.
7. Yugoslavia.	18. U.S.A.	30. Holland.	42. Yugoslavia.
8. Austria.	19. France.	31. Belgium.	43. Austria.
9. Finland.	20. Italy.	32. Germany.	44. Germany.
10. Sweden.	21. Spain.	33. Denmark.	45. Switzerland.
11. Switzerland.	22. Argentina.	34. U.S.A.	
	23. Great Britain.	35. France.	

On subsequent days the order will be determined by arithmetic progression, in such a way that if the contests were to continue for one further day the starting order would again be the same as on the first day.



WORLD GLIDING CHAMPIONSHIPS APPEAL BALL.

Flt./Lt. Piggott and Mrs. Piggott with the De Haviland Trophy, A./C. Brian Whatley with the Seager Trophy, Mrs. and Mr. Geoffrey Stephenson with the Manio and Douglas Trophies, Mr. P. Wills with the Volk Trophy, Mrs. Wills, Mr. J. Armstrong with the Wakefield Trophy, and Mrs. Armstrong.

OPTIMUM AIRSPEED SELECTOR

By Paul B. MacCready, Jr.

THIS article describes the cross-country airspeed selector which is a simple device that indicates the optimum speed at which a sailplane should be flown between thermals. The unit consists merely of a paper on which velocities are printed in such a way that they appear next to the numbers of the variometer. For a pellet type variometer the airspeed selector is set vertically alongside the red pellet. For a circular face instrument the selector takes the form of a ring set around the glass. Whatever velocity the variometer needle points toward is the correct velocity for the sailplane. The selector is easy to make and use; I have employed it since 1947. It has been described in the Schweizer Aero Revue* but has not yet been published in English except for a Southern California Soaring Association symposium. This article shows how to make the selector, mentions the theory behind it, and describes its uses and limitations.

On a day with weak thermals and weak downcurrents, a pilot should fly between thermals at a velocity near that for best gliding angle of the sailplane—and thus reach the next thermal as high up as possible and not have to spend too long climbing in it. If the next thermal to be encountered is expected to be strong, the pilot should dive toward it at high velocity in order to reach it as rapidly as possible. (Since it will take him up rapidly, it makes little difference how high up he contacts it). If the downcurrent in which the pilot happens to find himself is severe, the pilot should again fly fast, in order to get out of the 'down' area quickly. Just exactly *how* fast to fly under these various conditions is what the airspeed selector is intended to show. Note that the magnitude of the wind is of no concern when considering thermals which move with the air mass. Sometimes maximum speed is not the pilot's only consideration, and so the airspeed selector must not be followed blindly.

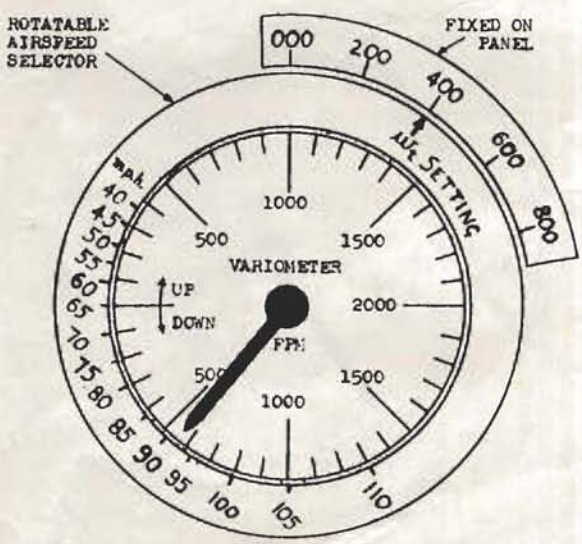
Let W = variometer reading.
v = horizontal airspeed of the glider.
w_t = average rate of climb expected in next thermal (on an average soaring day a pilot can readily estimate w_t to the accuracy required from consideration of thermals already utilized and past experiences).

If the sailplane has performance similar to the Schweizer '1-23D' its average cross-country flying speed will be maximum when flown according to the following table:

$W + W_t$ (ft./min.)	v (m.p.h.)
000	38
100	45
200	52
300	59
400	65
500	70
600	75
700	80
800	84
900	89
1,000	94
1,100	97
1,200	100
1,300	103
1,400	105
1,500	107
1,600	109
1,700	110

During flight one actually will use a table of W vs. v; if $w_t=0$, (if negligible rate of climb is expected in the next thermal), the above table reads directly W vs. v. If $w_t=200$ f.p.m. (if the next rate of climb is to be 200 f.p.m.), the table will read W vs. v if the left column is moved down two lines relative to the right column. Thus one W vs. v table with sliding column will handle any value of w_t.

For w_t=000 f.p.m.		For w =200 f.p.m.		For w_t=400 f.p.m.	
W f.p.m.	v m.p.h	W f.p.m.	v m.p.h.	W f.p.m.	v m.p.h.
000	38	——	38	——	38
100	45	——	45	——	45
200	52	000	52	——	52
300	59	100	59	——	59
400	65	200	65	000	65
500	70	300	70	100	70
600	75	400	75	200	75
700	80	500	80	300	80



LINEAR SCALE

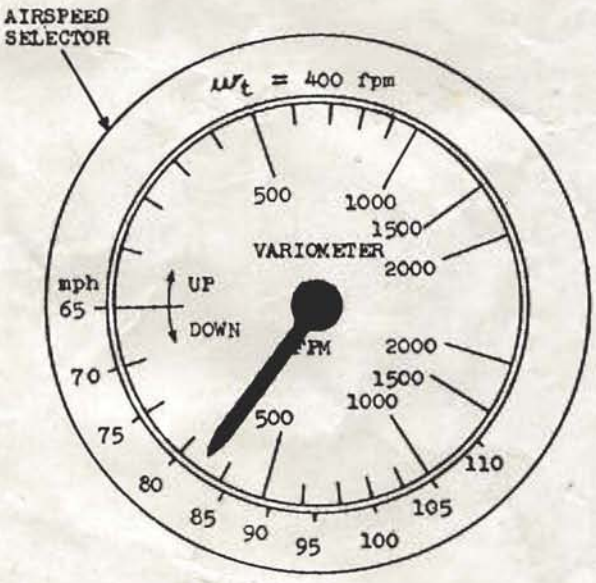
*MacCready, P. B.: "Die beste Streckenfluggeschwindigkeit fur Segelflugzeuge", Schweizer Aero Revue, November, 1949.

W f.p.m.	v m.p.h	W f.p.m.	v m.p.h.	W f.p.m.	v m.p.h.
800	84	600	84	400	84
900	89	700	89	500	89
1,000	94	800	94	600	94
1,100	97	900	97	700	97
1,200	100	1,000	100	800	100
1,300	103	1,100	103	900	103
1,400	105	1,200	105	1,000	105
1,500	107	1,300	107	1,100	107
1,600	109	1,400	109	1,200	109
1,700	110	1,500	110	1,300	110

This adjustable table can be carried in flight and readily set to the required w_t. Then the pilot has merely to fly at the velocity where W agrees with the variometer. As velocity is changed, W changes too, so getting the proper v is really an iterative process. However, with slight practice the process is one step to the accuracy needed.

It is convenient to utilize the numbers actually on the variometer as the left hand column, and make the right hand ' v ' column so it can be set alongside. For example, when using a circular faced variometer having a linear scale (a scale with constant spacing between the ' hundred feet per minute ' units), the adjustable table can be made into a ring which can be set by rotating it to the appropriate w_t value. Then the one ring will be valid for all conditions.

If the variometer is not linear (as for example the Aircraft Indicators Co. model), a new ring must be installed for every w_t. w is usually fairly constant throughout a flight, so this entails little trouble. It is sufficient to make up a set of rings for w_t=000, 200, 400, 600 and 800 f.p.m.—and ordinarily the 400 f.p.m. card will be the only one used. It is convenient to list the velocities in 5 m.p.h. steps.



NON-LINEAR SCALE

Obvious adaptations of these selectors can be made for pellet variometers, such as the Robinson or Cosim.

There should be some correction for altitude, for although the airspeed indicator becomes less sensitive as altitude increases, the variometer may even become *more* sensitive. Some calculations show that for a typical case, if the indicated airspeed is used, the variometer reading should be reduced by a factor $\left(\frac{\rho}{\rho_0}\right)^{\frac{1}{4}}$ where ρ is the air density at altitude and ρ_0 the density at sea level. Roughly, this means subtracting 10% from the variometer reading for every 5,000 feet of altitude above sea level. Using this correction may be too much trouble so it is easiest just to remember to fly a little slower than indicated by the airspeed selector when at high altitudes.

The airspeed selector may be used with variometers having total energy venturis.

Late in the day, as thermals weaken, the maximum altitude in each gets less and less. The problem changes from one of getting maximum velocity to one of merely staying aloft, since it is always distance one is after in the final analysis. On the last long glide, with the assumption of no more thermals, one can use the w_t=000 f.p.m. table—with reservations. If the wind is zero, the table will maximize distance. If there is a tail wind, fly slower than the table indicates, thereby staying up longer and getting more help from the wind. With a head wind, fly correspondingly faster.

An error of 5 m.p.h. in airspeed from the optimum airspeed makes negligible difference in average speed, so do not worry about being exact.

It is instructive to calculate some specific cases of cross-country speeds. The following table is based on estimating that the glider sinks 200 f.p.m. through the rising air during climb in thermals, that the downcurrent strength is ⅓th the upcurrent strength, and that the pilot flies by the airspeed selector but never exceeds an arbitrary limit of 110 m.p.h.

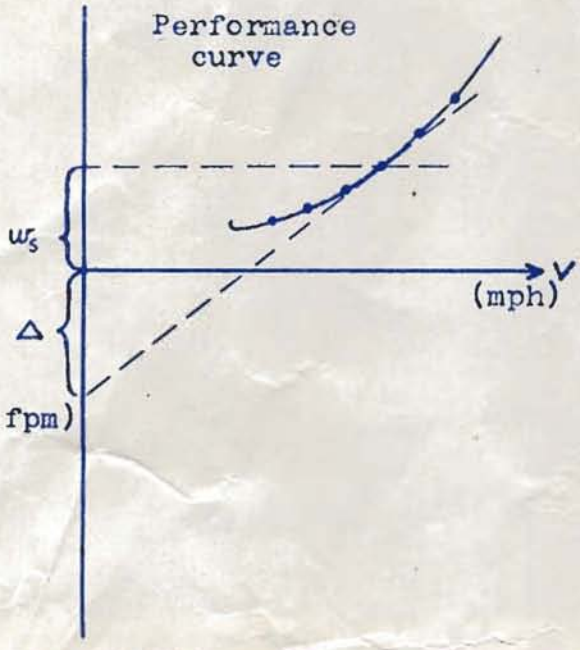
w_t	v (m.p.h.)	Average velocity (m.p.h.)
000	48	00.0
200	72	28.6
400	89	39.0
600	103	47.5
800	108	53.0
1,000	110	58.9
2,000	110	73.2

If the pilot only flew 60 m.p.h. for w_t=400 f.p.m., he would average but 36.0 m.p.h. instead of the maximum 39.0 m.p.h. However, if the thermals were 5 miles apart, he would only sink 1,335 feet between them at 60 m.p.h. instead of 1,730 feet at 89 m.p.h. ; sometimes the additional altitude is more valuable than the speed. For stronger downcurrents the situation may be different. If w_t=400 f.p.m. and the downcurrent strength is 600 f.p.m., the airspeed selector shows 110 m.p.h., giving an average speed of 25.6 m.p.h. through the air mass. If the pilot goes 60 m.p.h., he will only average 20.0 m.p.h., and he will sink more between 5-mile thermals—3,970 feet

as compared to 3,600 feet.

As a general rule, use a lower w_t than the actual one if conserving height is very important.

For the derivation of the airspeed selector one minimizes the time for the sailplane to reach a thermal and regain the original height. The resulting equation is $W + w_t = V\frac{df(v)}{dv}$, where f(v) is the performance curve of the glider. It may be solved graphically to yield the tables given earlier as follows :



Step 1) Draw the performance curve of the glider (w , sinking speed, vs. velocity).

Step 2) Construct tangents to the curve at 10 m.p.h. intervals which intersect the ordinate, and record the intercepts (Δ).

Step 3) Plot $w_s + \Delta$ vs. velocity on another graph. $w_s + \Delta$ is the same as $W + w_t$, so from this graph one can compile a $(W + w_t)$ vs. v table as already used earlier in this paper. *"Soaring"*

The Model Engineer Exhibition

'HIS Royal Highness' Prince Bernhard of the Netherlands has graciously consented to open 'The Model Engineer' Exhibition for 1954, to be held at The New Horticultural Hall, London, from August 18th-28th. Model Engineers will appreciate this honour that has been accorded to them, the more so as Prince Bernhard is flying to England specially to perform the opening ceremony.

One of the two new cups being awarded this year, commemorates the opening of the Exhibition by The Duke of Edinburgh in 1952. To be known as 'The Duke of Edinburgh Trophy' it is a magnificent silver tankard and will be competed for by prize winners of previous competitions.

Dr. MERVYN HALL

By FRED HOINVILLE

WITH the death of Dr. Mervyn Hall in a glider crash on Sunday, 11th April, the whole flying and gliding fraternity in Australia has lost a leader and a friend.

At time of going to press, few details of the accident are known. Dr. Hall was towed up by a 'Tiger Moth' from Oakey airfield and after releasing the towrope, his glider was seen to fall and crash in a field one mile away. Friends rushed to his help but he died within a few minutes.

In his early fifties, Dr. Hall was a man of many parts and had packed into his life enough colour, action and achievement for a dozen men.

A specialist surgeon of note, he was a Major in the R.A.M.C. in the war, and, during that period 'relaxed' by leading a team of army rough-riders to victory in many trick-riding contests. He was expert at 'Cossack' stunts on—and under—horseback, climbing over, under and around his horse at full gallop.

After the war it was natural that he should learn to fly. He was one of those who regard the years not as a handicap but as a challenge and a source of power. So in his forties he became a pilot and later, at his first attempt, passed his exams to acquire a Commercial Pilot rating, with Instrument and Radio tickets.

Soon he bought an 'Aeronca,' which he flew all over Australia and used to visit patients in the country. Then he added an 'Anson,' which served at times as an ambulance ; then a 'Tiger Moth,' to serve as a glider tow plane after he became interested in gliding.

In view of the great amount of flying which he did, the rough country he had to fly over and the sporting and experimental nature of much of his flying, his accident rate was amazingly good. Those who do much and dare much sometimes pay the price ; only those who do nothing, make no mistakes—except the one greatest mistake of all ; fearing to die, they fear to *live*. Merv Hall lived, fearlessly and fully.

He turned to gliding and became President and leading spirit of the Toowoomba Soaring Club. In a very old and low-performance 'H.17' glider, he set a Queensland distance record of 65 miles, which he later broke with 125 miles in a new glider which he built in 'spare time' over a period of three years.

This amazing man, who worked from 6 a.m. to 2 a.m. at his profession and ran a cattle station as well, somehow found time to spend 3,000 hours or more constructing the finest glider ever built in Australia.

Just before his death, he organised a fund which raised £800 to help buy a two-seater glider for his club and £200 more which was given to the G.F.A. fund for the purpose of helping to finance some other club in a similar purchase.

He was a writer of keen wit and excellent, natural style and many of his articles have been published in gliding magazines.

500 km. Attempt in South West Africa

By H. R. LASCH MARCH, 1954

The Author—Behind Wheel !

AFTER having flown in the Union for several years it became increasingly clear that distances exceeding 500 kms. would be very difficult to obtain because of the geographical conditions, and so Hans Wurth and I sat down one day and looked carefully at maps of all Southern Africa, paying much attention to the geographical conditions of the land, and it became apparent that for great distances the most likely spot to lend success would be South West Africa.

The first expedition to investigate set forth to South West Africa in January, 1951, and our theories were to some extent proved by a goal-and-return flight executed by Boet Domnisse, which became a new world record in the two-seater class. The base chosen was Keetmanshoop and much experience was gained in desert flying and its hazards. Although heat and thermic conditions are pretty terrific in this part of the world it was certainly no question of just going there and flying ; it took six weeks to get this result.

This year I had to visit Windhoek on business and I thought I would take this opportunity and ship my ' Bird ' to Keetmanshoop in order to see whether I could do the 500 kms. for one of my missing diamonds. I arrived at Keetmanshoop on the 26th February and had Hans Wurth as well as Sparkie Davidson as helpers to get me into the air. Sparkie had been living in Keetmanshoop for two years with his ' S.18,' waiting for a suitable day to do his distance ; unfortunately he never had sufficiently good weather to attempt the flight.

The surrounding countryside is truly desert. Vegetation if at all consists of shrubs and next to the river beds are thorn bush and trees. The average rainfall is approximately 4 inches a year which falls between January and April. The rivers are normally dry except for two or three days immediately after the storms which are responsible for the rain when it comes. When I arrived, Keetmanshoop had not had rain for the last 12 months but it was not far off as Windhoek, 300 miles further North was already having its annual rain. The sky at Keetmanshoop was already overcast, indicating that much moisture was in the air and usually by lunchtime the sun had generated enough heat to break up the overcast and form nice size cu. The winds at the time were easterly, and from local knowledge we knew that unless there was a shift of wind we could not expect suitable weather. After three days the wind shifted to the South and within a few hours the sky was crystal clear, but the air was absolutely stable. It was now a question of the wind shifting again to the East and then to the North before I could start my journey.

Apart from having instability, it is essential to have favourable winds, as the only reasonable safe route to take from Keetmanshoop is South-East

' Rheinland ' *Photo : F/O Sharman*

towards the Union, because the only road and railway run in this direction. If you fly East from Keetmanshoop you will very soon run into the Kalahari Desert and West into the Nahib Desert, both quite uninhabited.

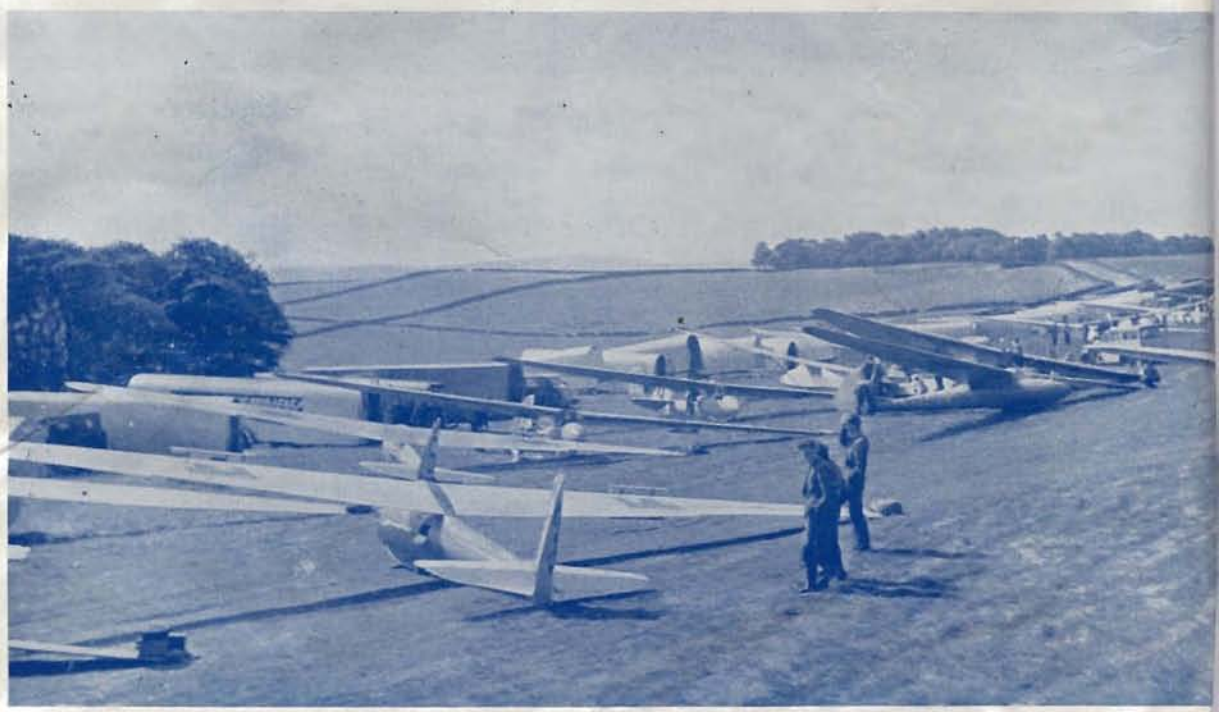
I was told that thermic from 4 to 8 metres second is not uncommon in conjunction with a cloud base from 3,000 to 4,000 metres above ground, but it was also obvious to me that there was already too much moisture in the air to expect such conditions.

On March 2nd southerly winds had set in. On March 3rd the weather looked as if it was definitely improving and so I was ready early on March 4th to try the leap if at all possible.

I was teed up with my good old ' Air 100 ' just after 10.00 in the morning on Keetmanshoop Airfield. The wind was easterly about 20 knots, but I expected this to swing more North later in the day, this is a common occurrence in this part of the world. We saw a minute wisp form at 10.30 a.m., and Sparkie's truck hauled the slack out of the wire from which I released at 750 feet after a very smooth car launch. I hit a thermal while being launched and I was away with a steady 1½ metres feeling as happy as a sand boy. I spiralled to 3,000 feet and as my thermal was dying I immediately set course for the next wisp under which I could promptly climb another 2,000 feet which seemed to be condensation level at this hour. The ' 100 ' seemed to handle well being loaded to the brim. I carried batteries weighing 20 lbs., oxygen equipment weighing 18 lbs., further items such as a little stool, my sun-shade, some sweets, 4 pints of lemonade, a camera and spare clothing, apart from the usual flying equipment such as maps, chute, etc. My total all-up weight was in the vicinity of 850 lbs. The ' 100 ' felt in straight flight like a greyhound chasing a hare. One feels very confident after hitting a few thermals with regularity, but I felt less good when I ran into clear air after ½ hour, but I was not unduly worried because I thought that the stuff would develop any minute. The any minute did not arrive. I saw clouds forming 15 miles to the East and I set off in this direction flying up-wind but my progress was extremely slow. My altitude during this operation was mostly between 2,000 and 4,000 feet above deck and this over country where you cannot land is not exactly inspiring confidence. After reaching these small clouds I went back on to course but found the going poor with the variometer reading between 1 and 2 metres. I reached the first landmark, the great Karasburg Mountain Range, after nearly three hours of struggle, a lousy 60 miles distance and I decided to turn round and fly back to Keetmanshoop and try again the following day. The

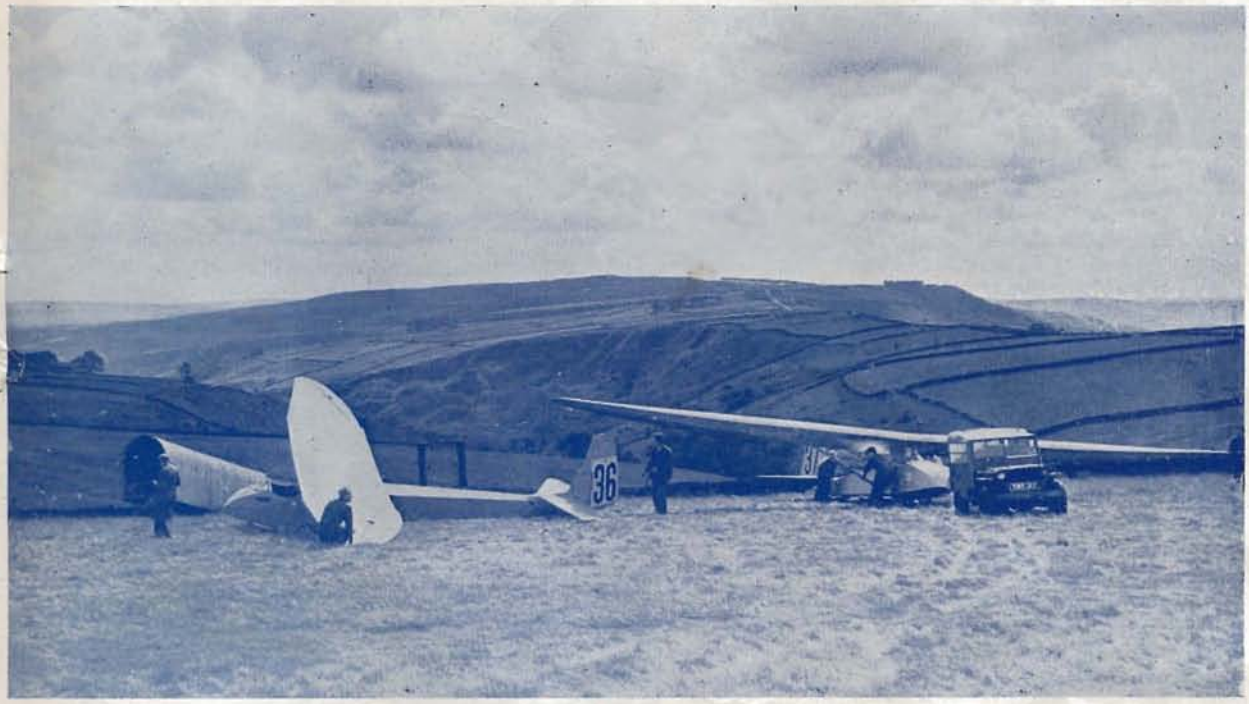
(Continued on page 14)

SOME IMPRESSIONS OF CAMPHILL



(top) Bird's-eye view showing Club House, Hangars, Car Park, Caravans, Trailers, etc.
(bottom) Morning rigging. Line of gliders just assembled ready to be towed off to take-off point.

WORLD GLIDING CONTEST SITE, 1954



(top) Preparing for the Launch.
(bottom) Flash of sunlight on its wings, a high performance sailplane soars over Bradwell Edge at Gt. Hucklow, the site where the International Championships will be held.

500 km. ATTEMPT—*Continued from page 11*

first thermal I hit on my way back was 3 metres. I thought things were beginning to pop, the weather should be better further South and I can still make my 500 kms. if things keep together until 7.00 that night and so I smartly got back on to my course. The next hour went by at a regular 3 metres. Clouds had become more plentiful but their base was only 8,500 feet above sea level, leaving me with only 2,000 to 3,000 feet above the great Karasburg Mountain Range.

I must admit that I began to sweat, as the countryside is reminiscent of Moon Scapes, nothing but volcanic rock with no vegetation or sign of life below. I thought again of flying back to get out of this dreadful place, but the sky behind me had become clear and made up my mind for me to press on. The next two hours were spent crossing the mountain range which in all is about 100 miles wide. It seemed as if the end would never come. It dawned on me that the wind had not shifted since take-off and my drift was quite considerable. My nerves were somewhat shattered after fiddling for 5 hours. I had been down to about 1,000 feet over deck several times and so decided to fly down-wind, the shortest line to the road, to relieve the nervous tension and my progress was now very rapid bringing Karasburg within sight after ½ hour.

It was good to see a couple of houses and a railway train. My progress had been ridiculously slow and it became clear to me that far from making 500 kms., I would be extremely fortunate to get to Upington which is the next town to Keetmanshoop 230 miles away as the crow flies. Thermic was still bad, cloud base no higher than before and strong cross wind, so I battled on flying within gliding distance of the only road. The time was after 4.00 p.m., and to add to my troubles the larger clouds began to seed, and so I hurried on as fast as possible to get away from the showers which began to fall everywhere behind me. To hurry with 2 metres thermic is difficult and after 6.00 p.m., it was obvious that the time had come to roost. I could now make out the Molopo River. I crossed it at 2,000 feet and after flying a few miles with no likely landing place in sight I returned and landed safe and sound in the river bed near a little farmhouse. The whole bag of tricks amounted to 330 kms. after being airborne for nearly 8½ hours. After consulting met. and the barograph, I discovered that I had a 20 knot cross wind and average thermic for the day of 1.2 metres. Considering all this I felt that the ' Air 100 ' is not a bad ' Bird ' at all.

The farmers fortunately had a car and we drove to the nearest telephone 10 miles away. I got through to Keetmanshoop and Hans and Sparks arrived the following night by jeep and trailer. It was lucky that they left immediately as it had begun to rain in earnest. Twenty-four hours later roads became impassable for over a week.

It was one of the most interesting flights I have ever made and I learned that unless you have this dream-like cloud base of at least 10,000 feet, it is foolish to set off on a cross-country flight in South West Africa.

" . . . . I began to sweat,

as the countryside is reminiscent

of Moon Scapes . . . . "

ARGENTINE SELECTION CONTEST

By JENO M. JUHASZ

FOR the first time in the history of Argentine gliding there has been a contest to decide who should represent Argentine in the next World Championships. This Selection Contest took place at Juarez Celman immediately after the VIth National Contest, between the 26th and the 31st January. Twelve of the country's best pilots of the present day took part and they were chosen according to a special ruling made by the Argentine Federation of Soaring. By reason of the tests set and the high standard of the competitors, as well as of the fact that all were competing under the same conditions, it can be reckoned that the final choice is representative of the best that Argentina can produce just now.

The criterion upon which the pilots have been chosen merits some interest. Taking as a base the flights made by pilots who hold the Silver 'C,' a National order of rank has been established. Of these, the first two automatically enter the Selection Contest without necessarily having to enter the National Contest. This also applies to the two winners of the National Contest held last year, and the rest are made up of the four first placewinners in each category of the VIth National Contest.

In competitive soaring flight it is not only technical preparation, training, and great experience which counts, but also the necessity of being a 'good competitor.' There is another factor which is perhaps even more important than these, and that is that the pilot should have a natural disposition for gliding—that little something the others haven't got. This can be improved by training but it cannot be obtained by training alone, no matter how intense. For this reason competition between old and new pilots is always a good thing and also a fair thing; even if the two are basically the same and the only difference between them is the greater experience of the older pilot, this may be equalled and even excelled by the greater adaptive powers of a new pilot who is a natural flyer. To be properly weighed, this difference can only be judged in the course of competition. One might also use the argument that even though the ranking of first and second owes little to luck, that does not necessarily apply to the winners of the National Contest, and luck enters even more into the placing of the first four in each of the three categories of the VIth National. This element of luck is less noticeable with a greater number of competitive flights, and it must not be forgotten that most of the competitors in the VIth National had already been selected from the regional contests, to which each club had sent its best representatives.

The site of the competitions, both Selection and National, was Juarez Celman. There has been much discussion of late as to whether this really is the best place for such contests, and opinions are still divided. Since that is not actually the subject of this article I will limit myself to pointing out some of the problems. It seems doubtful whether the atmospheric conditions of the Province of Cordoba are really adequate for the type of task set in the Contests. This especially applies to the speed competition over a closed circuit. Yet after having watched both the VIth National and the Selection Contests it seems that closed circuit flights are at least possible and that most of the other tasks, although difficult, can be carried out.

Another question concerns the arrangements made both as regards hangarage and general comfort. These have been much improved during the weeks immediately preceding the Contests but still leave something to be desired and there was a certain amount of criticism on this point.

The machines used in the Selection Contest were all 'Grunau Babys.' People might ask why such relatively old fashioned sailplanes of not very high performance were specified, but without going into questions of what material was available I would hazard the suggestion that it matters very little what type of machine is used provided all the contestants use the same.

The tasks were all in accord with modern ideas of what is suitable for a Contest, and were on the whole selected according to the meteorological conditions. On the first day alone the best use was not made of the weather, for the task was a goal flight to Alta Gracia, only 54 km. away, although conditions improved considerably as the day wore on. The second day was also a goal flight to La Cruz, 117 km., and in this case the criticism might be made that the goal was too optimistic, since only three pilots reached it. But the fact that only 25% were successful surely does not mean that the task was too hard but rather that—since the day was good—the principal difficulty consisted in making use of the awkward ground flown over. On the following days the tasks set were most interesting and distances flown, considering the type of sailplane used, were considerable.

Finally we might enquire if the task flights really left little to the factor of luck and if they were therefore really selective. With the exception of one day all were calculated on the basis of speed, either in a closed circuit or else to a prefixed goal. In flights along the same track the factor of luck can be very powerful when the distance between one machine and another is very great. This was annulled by a very rapid system of take-off which assured a restart for those who were not immediately successful and also gave the pilot the opportunity of choosing his moment for take-off himself. Any question of luck after this is probably inevitable and must therefore enter into any contest.

The only debatable task was perhaps that of the last day when the goal might be chosen by the pilot. Here the element of luck enters too greatly, especially when it is the last day of a contest. A pilot who is behind on points is tempted to gamble by fixing a goal further than he has any reasonable hope of flying. For the same reason the pilot who is at the top of the list is likely to become too cautious and give himself ample margin. The one who takes a chance if his luck is in can by this means reverse the order entirely, for which reason I think it would be better if this particular task flight were not left to the last day; a bit of bad luck and your good pilot

is left at the post and a false impression given of the relative qualities of the other competitors.

On the first day the pilots were all more or less in the same state of training except for Cuadrado, who for various reasons had not flown for a long time; so it was reasonable to expect a fairly close result.

Atmospheric conditions were not very good. A lot of high cloud hindered radiation and according to the thermodynamic tests the air was pretty stable up to about 600 metres. The wind was moderate and from the N.N.E. As it looked possible that conditions might improve the test began with a goal flight only to Alta Gracia. Such a short distance is of course not ideal with a tail wind but none had much faith in the weather, and although conditions improved later in the day the Committee decided to leave the task unchanged. In a few minutes all twelve machines were in the air.

Eight pilots (60%) were successful; first was Ortner with the high average of 52.2 km./h., second Garcia with 45 km./h., and third Ompre with 40.5 km./h. After this came Dori, Sturm, Patallo, Vastik and Cuadrado. The high position of Garcia was no surprise because it was recognised that he would do well, but Ompre was a revelation; in spite of being almost a beginner he showed admirable qualities in competition. Patallo was obviously feeling the change-over from the 'Meise' to the 'Grunau Baby,' and Cuadrado was out of training.

The next day the wind was in the same direction but of greater intensity. The Committee decided on another selected goal; this time with a better weather report the distance was to be greater, to La Cruz (117 km.). It was a good point to fix since it has a very large aerodrome and the complications of the route demanded a good knowledge of local conditions and an intelligent anticipation of the possible thermals. There was instability up to 1,700 metres.

Although only 25% of the competitors reached the goal this may be accounted a very good day. Cuadrado, now in training again, was the first to arrive with the extraordinary average speed of 61.6 km./h. It is worth noting that this speed is higher than any achieved during the National Contest over the same route and with machines of better performance. Ompre with the stolid regularity of the good competitor came second, only a little slower than Cuadrado (58 km./h.). Third and last to arrive was Ortner, who thus kept his classification of first over the two days. Ompre came up one place and looked as if he stood a good chance of holding his position. Cuadrado came into third place but would have to work hard if he wished to advance any higher.

The next day was unflyable and gave a welcome rest, but on the 29th there was an out-and-return. Thermals were good and there was practically no wind at all, so the Committee chose as the turning point Monte Cristo at a distance of 27 km. According to the meteorologists there was vertical movement in the early afternoon up to 1,500 metres, which gave ample margin for such a flight. Take-offs went normally and before all were launched we were able to see a beautiful sight. An enormous thermal had broken away from the aerodrome itself and it must have been of considerable size for in a couple of minutes all the sailplanes converged and were circling together like a great flock of birds, breaking away and setting out almost simultaneously.

The arrival of the ten machines that finished was equally spectacular since they came in one after the other like clockwork. Once again the invaluable 1,000 points went to Cuadrado who was showing himself worthy of his title of ex-champion. Ortner came second with an average of 54.5 km/h., or only .9 km./h., less than Cuadrado. Garcia and Patallo streaked in equal third. Cuadrado's victory brought him up to second, thus displacing Ompre.

That was three tasks already and the next day promised well. We now had the most interesting task of the contest, a triangular circuit of 110 km. Considering the relatively poor performance of a 'Grunau Baby' this might be considered optimistic, but the atmospheric conditions were excellent. There was a slight wind from the East and strong vertical movement up to 1,600 metres with thermals of up to 6 metres per second. An hour and a half after the start the ground crews collected in front of the hangar. It was the last day but one and there might still be changes. Up to now the points were fairly near and a good flight gave a chance of coming well up in the scale. The nervous tension was visible in the faces of the crews and there were cries of rejoicing as one after another the sailplanes came in.

Absolute winner of the day was Ompre with a speed of 40.2 km./h. Considering the type of machine and the distance covered this was remarkable, since one should remember that the national speed record was only 56 km./h., and that with a 'Meise.' Next came Patallo and third Vastik. Cuadrado came in fourth, Garcia fifth, and Ortner—who had trouble finding the check point—nearly lost his first place in the classification. The overall picture had not changed much but the points were even nearer. Ortner first, Cuadrado second, then Ompre, Garcia, and Patallo.

Next and last day we have the task which caused most discussion, goal flight, pilot's choice, no marks for speed. Although the pilots had agreed to this I thought they were not very happy about it when it came to the point. I myself think it was not a good choice for the last day, as I have already said earlier. If we wish to eliminate the luck factor from our contests then we must try not to set tasks which give such a bonus to the gambler. As a task it is most interesting and it is also most valuable in selection but since the less able can better afford to gamble by choosing too great a distance and having the luck to achieve it, the steady pilot stands to lose his previous advantage.

The destination was secret until all the machines had taken off, and an early start was made to give the 'Babys' a good chance. The goals fixed by the pilots were more than optimistic; only one of them was less than 300 km., and I think I should add that only the most modest were able to succeed. Certainly the meteorological information was promising but optimism ruled the day. Five pilots actually reached their goal. The best was Dori who thus came up to fourth place in the final list. Ompre, Cuadrado and Ortner all gave Rio Cuarto as their destination and all arrived. The fifth to reach his goal was Garcia

(Concluded at foot of opposite column)

21st NATIONAL SOARING CONTEST U.S.A.

GREETINGS from Elsinore, California, the site of the 21st National Soaring Contest to be held July 27—August 5, 1954.

There will be nine contest days, one rest day. There will be four task days and five days open. This contest will determine a National Soaring Champion, single place only. All pilots and ships compete on an equal basis with respect to point score. Also Class Winners will be determined through a handicap system so that everyone has a chance to win in Class. A copy of the contest rules will appear in the May/June issue of Soaring. A model contest with the following tentative events : Hand launched glider, A/2 Flying Scale, Nordic, Limited Towline, and radio controlled glider will be held Saturday and Sunday. Technical discussions are planned and guest speakers are being contacted now. On Sunday, August 1, we expect to have a display of antique and experimental aircraft, both gliders and power.

A sailplane design award competition to stimulate the development of sailplanes and soaring in the United States will be held in conjunction with the National Contest. Designs developed since January 1, 1950, and represented by a flying entry will be eligible. Early review indicates that a number of new designs never before flown at a national contest will be entered in this design award competition.

The Safety Committee is preparing a booklet on *Desert Soaring and Survival* which will be distributed free to all contestants. Emergency kits will be required as will shoulder harness and parachutes.

Are you an ' OLD BUZZARD ' ? If you were a glider guider prior to Pearl Harbour, send us your name and address and you will receive a membership card to this newly formed club. Hawley Bowlus is co-ordinating chairman of this club, formed to keep together those who have pioneered and fostered soaring, to keep alive the memories of the past, and to work together for the future.

See you in Elsinore. July 27—August 5, 1954.

Argentine Selection Contest—*continued from page 16*

and he merits a special word for he came down once only a few kilometres from Juarez Celman. By the rules of the contest retrieves had to be made by trailer, but within an hour and a half he was back on the field ready to set out again. This time he modified his goal to Alta Gracia and arrived there. He knew that he would not get much for the actual distance but the bonus of 300 points for arriving was well worth while. So by this means he was able to move up to fifth place and became one of the ' aces.'

Ortner, Cuadrado, Ompre and Dori will represent us in the World Championship.

(Condensed from *Vuelo Silencioso*).

News from Australia

ANOTHER " Australian National Contest " is over. To the gliding people overseas it has probably appeared one of the most haphazard and loosely organised contests ever to be staged. It may be ludicrous to label as a National Contest the disjointed activities of groups operating from seven or eight different sites, varying in conditions from semi-desert to coastal mildness and seldom with two sailplanes in the air in similar weather conditions.

To be quite honest with ourselves, it is ludicrous. As a contest between pilots it is no contest at all. But while we are aware of the short-comings of our so-called " National Contest " we cannot help but see the good that it does.

For many, many years, people said it would be impossible to hold a National Contest in this country because the clubs were so widely scattered and lacked the time and the money to get together at one spot. As a starter, therefore, it was decided to hold a de-centralised contest.

This was not what we wanted as a final goal, but at least it was a contest ! It got pilots to fly across country who would never otherwise have done so. It gave them an incentive to better themselves and rise above the level of local soarers. It swelled the ranks of Silver and Gold ' C's '—yes, and Diamonds, too. It has raised the standard of gliding instruction in Australia by permitting instructors to indulge in

advanced soaring and so get more than just a short jump ahead of the pupils they were teaching. Thus, today, there is little of the type of instruction that existed not so many years ago where the blind were being led by the almost-blind.

It may be many years before we really do have an organised, centrally situated contest but in the meantime we will continue with our de-centralised contests, kidding ourselves that we are competing with each other, gaining valuable experience, breaking records and—most important of all—having a good time. What more could we want ?

Few outstanding flights in Contest.

Though a full report of the Australian National Soaring Contest is not yet to hand, the indications are that it was not as spectacular as last year's contest.

Despite poor soaring weather, however, Australia gained another Gold ' C ' and a Diamond ' C ' goal leg.

This year's contest was marked by the number of attempted out-and-return flights—none of which was completed.

Len Schultz, of the Sydney Soaring Club, gained the goal leg of his Diamond ' C ' with a goal flight of 207 miles from Narromine to Wagga. The flight took 5½ hours.

This flight was one mile longer than the present Australian goal record, but the F.A.I. rules state that a record must be exceeded by 5% before a new record can be claimed.

Schultz also made an attempted goal flight of 165 miles from Narromine to Tamworth, but landed at Breeza, 145 miles.

Later he attempted an out-and-return flight of 210 miles but was forced to land at Wirringa Crossing after covering 175 miles.

Sel Owen, of Sydney Soaring Club, attempted a triangular flight from Narromine to Tooraweena to Coonamble to Narromine—a total distance of 195 miles—but landed after 179 miles.

Sel Owen also flew 110 miles from Narromine to Forbes.

On another flight—local soaring—Owen climbed from 700 feet to 11,100 feet to complete his Gold ' C .'

He had flown the distance leg last year with a flight of 206 miles.

Other flights made by the members of the Sydney Soaring Club were 70 miles by Keith Colyer and 40 miles by Mervyn Waghorn.

The Sydney Soaring Club had invited visiting English Gold ' C ' pilot, Tony Goodhart, to fly with them in the ' Olympia ' at Narromine.

Goodhart flew from Narromine to Hillston, 180 miles.

Bob Krick, of the Hinkler Soaring Club, tried to fly Ron Willis' ' Kangaroo ' from its base at Boggabri to Narromine.

He covered 110 of the 150 miles before landing at Gilgandra.

Although both the ' Kangaroo ' and the Dubbo Gliding Club's ' Venture ' flew at Narromine, neither attempted cross-country flights.

In Queensland, the Toowoomba Soaring Club based its operations at Oakey.

Club members flew the silver ' Grunau Baby ' and Dr. Mervyn Hall flew his ' R-3.'

Soaring conditions were poor throughout the meet and the ' Grunau ' did not make any cross-country flights.

Mervyn Hall, however, made three flights. The first was 45 miles to Grantham.

The second was an attempted out-and-return to Leyburn, 60 miles away, but he only returned 10 miles making the total distance 70 miles.

The third flight was from Oakey to Goondiwindi, 120 miles, which took 4 hours 10 minutes.

The Gliding Club of West Australia held its Christmas camp at Wongan Hills, about 120 miles by road, north-east of Perth.

Sailplanes flying at the camp were Ric New's ' Laister-Kauffman ' two-seater, Wally Williams' ' Kestrel,' Reg. Currell's ' H.17 ' and the Wynne-Pumfrey ' H.17.'

Soaring conditions throughout the camp were never very good and for three days running were very poor.

Ric New made several good flights, flying solo in the ' L-K.'

His best flight was 155 miles from Wongan to Gutha and back as far as Morewa.

He was in the air for 7 hours 16 minutes, thus setting a new state duration record for West Australia.

New's other flights included 134 miles to Cuballing and 108 miles (uncomplete out-and-return).

Wally Williams, in the ' Kestrel ', flew 58 miles from Wongan to Buntine and made other flights of 10, 14 and 20 miles.

Reg. Currell, in the silver ' H.17 ' made flights of 17, 14 and 12 miles.

Members of the Adelaide Soaring Club held their camp at Gawler with the ' Falcon ' two-seater and the ' Grunau Baby 2.'

In spite of poor conditions generally, a great deal of local soaring was done, though no attempt was made to fly across country.

During the camp the Iggulden family—Bill senior, Bill and Jack—test-flew the Slingsby ' Gull 4 ' which had been rebuilt by the Schneider company.

The Igguldens carried out a little local soaring at

(*Continued on page* 19)

SOUTHDOWN GLIDING CLUB

★ Southdown Gliding Club are holding a Soaring Course open to non-members, at Friston from 5th to 11th September.

The course will be limited to pilots of " B " standard and above.

Details from Course Secretary :

Miss J. CLOKE, 34, Graemesdyke Avenue, East Sheen, London, S.W.14.

NEWS IN BRIEF

Argentina. Gerardo Garcia captured the out-and-return record from José Cuadrado with a flight between Esperanza and San Francisco. He did the 250 km. in 5 hours 55 minutes, reaching a maximum altitude of 1,700 metres. He was flying a ' Sky 34.'

Canada. A new distance record of 403 km. has been set up during the West Canadian Contest. The pilot was A. L. Pow and his time 6 hours 55 minutes.

Great Britain. A new British speed record was made by Philip Wills on 7th June. Flying the ' K1,' Hugh Kendall's new design, he averaged 48 m.p.h. (77 km/h)

Germany. The Wasserkuppe is again in use and courses will be held there till October both for beginners and for advanced pilots.

Denmark. The Danish Contest was won by Jensen flying an ' Olympia '. Second and third places went respectively to Feddersen (' Meise ') and Michaelsen (Mu-13D). The contest lasted for two weeks and was held at Herning in Jutland. Owing to bad weather only four of the fourteen days were flyable.

U.S.A. The Schweizer brothers have a new two-seater under construction, the ' Z-25,' with seats in tandem. It is hoped that its gliding ratio will be about one in thirty.

NEWS FROM AUSTRALIA—*Continued from page 18*

Gawler in the hope of getting a start for a cross-country flight which might take them on their way home to Melbourne, but they had no luck.

Only two cross-country flights were carried out by the Victorian Motorless Flight Group at Berwick. They were both made in the Group's ' Golden Eagle.'

One flight was made by Don Brown who flew from Berwick to Tawonga, 40 miles.

The other was made by Ron Roberts who flew 65 miles from Berwick to Lancefield.

When this report was prepared no news had come to us of the activities at Waikerie or Benalla.

Jottings from Adelaide

With the Christmas camp over, the Adelaide Soaring Club looks back on a year in which it carried out over 1,000 launches more than in 1952.

Despite the setbacks of both ' Gull ' and ' Grunau ' damage, the hourage of the year totalled 239 hours from 1,659 launches.

Undoubtedly, had these two machines remained in the air until December 31, the hourage would have reached the target of 300.

It is, therefore, interesting to note the individual figures for the three machines :—

' *Falcon* ' : 106 hours 50 mins., from 872 launches.

' *Grunau* ' : 116 hours 41 mins., from 694 launches.

' *Gull* 1 ' : 12 hours 12 mins., from 58 launches.

Thirty-five launches of aircraft not owned by the club totalled 3 hours 33 mins.

Projects for 1954 are the construction of an ' ES-49 ' two-place sailplane which has already begun and the fabrication of a second Ford ' V-8 ' winch.

Belgium. The Antwerp Gliding Club is building a Fauvel ' AV-36 ' for themselves and another for the Gliding Centre at Templeux.

Denmark. With 27 unsubsidised clubs and a total membership of 500 there are 3 Gold ' C's ' and 54 Silver ' C's ' in the country.

Belgium. The National Contest is being held at Templeux, near Namur and will consist mainly of out-and-return and triangular flights.

U.S.A. The 21st American National Contest will be held at Elsinore in Southern California and will take place between 27th July and the 5th August. It is the first National Contest to be situated on the West Coast.

Ostiv. The 2nd volume of Ostiv papers has now been published. It contains 140 pages mostly in English, and is a summary of the lectures delivered in Madrid in July, 1952, by Dr. Raspet and others.

The 5th Ostiv Congress will be held at Buxton, Derbyshire, England, during the week of the International Gliding Championships—i.e., from July 21st to August 5th. Ostiv organises a congress every two years where gliding experts and scientists can get together for a series of lectures and papers on matters of mutual interest.

U.S.A. The seventh Mid-West Soaring Contest is being held at Toledo, Ohio, from the 2nd to the 5th July inclusive.

Diamond ' C's '. By the end of last year there were 22 Diamond ' C's ' in the world, distributed as follows :—Poland 11, America 6, France 5.

Poland. The International Gliding Competitions organized by the Polish Aero Club take place at Leszno, Poland, fron 13th-27th June.

France. Two two-seater duration records were set up early this year and have now been confirmed by the F.A.I. The first, on New Year's Eve, was by Claude Fronteau and Jaques Lebeau in a ' Castel-Mauboussin CM7 No. 2 ' at Romain les Alpilles, and lasted 56 hours 11 minutes ; and the second, twelve days later at the same place and in the same sailplane, was a feminine record gained by Mme. Jaqueline Mathé and Mme. M. Garbarino—38 hours 41 minutes.

Brazil. The 1st National Contest took place at Ribeirao Preto with 20 machines participating. Among the high-performance sailplanes entered were a ' Weihe,' an ' Olympia,' a ' Kranich,' a ' Spahlinger S-25 ' and two Brazilian prototypes, the ' Flamingo ' and the ' Caboré.'

Italy. The Ambrosini Co.'s ' CVV-6 Canguro ' sailplane recently gained an Italian duration record with a flight of 24 hours 6 minutes on a routine Met. observation flight in the Lazio area. During the flight the ' Canguro ' (a two-seater) reached an altitude of 12,000 feet.

Holland. Last year was a record one for Dutch gliding, for a total of 27,488 flights were made and a total distance of 10,353 km. flown.

Two-Seater ' AV-36 ' Planned by Fauvel

French designer Charles Fauvel, is working on the construction of a two-seater version of his ' AV-36 ' tailless sailplane.

The two-seater tailless machine will be known as the ' AV-22.'

GLIDING IN BELGIUM

By A. van Ishoven.

AS there is practically no news liable to interest a foreign reader, there follows some data on Belgian gliding that might prove interesting. No spectacular flights have been made this season and except for those of January no records have been broken.

There are today some ten gliding clubs in Belgium, seven of which can be called active. There are about forty gliders in Belgium of the following types :

Single seaters :

±15 ' Grunau Baby IIb ' and ' Karpf Baby.' ; 2 ' Grunau Baby III ' ; 2 ' Spahl 15 ' ; 2 ' Rhönbussard ' ; 1 Slingsby ' Prefect ' ; 1 ' Spahl 18 ' ; 2 ' Scheibe Spatz ' ; 1 ' Eon Olympia ' ; 3 ' Sohaj ' ; 1 ' Weihe.'

Two-seaters :

1 ' Kranich II ' ; 1 ' Schweizer 2-22 ' ; 1 ' C-800 ' ; 1 ' Mü 13 E ' ; 2 ' Goevier.'

There is also a Fauvel ' AV-36 ' under construction in Antwerp and one ' Spahl 21 ' that needs extensive repair.

There are also a few primary gliders left (like ' SG-38 ' and ' Zögling ') but these are no longer in use.

Some of these gliders are owned by the Royal Belgian Aero Club, the Gliding centre at Temploux or the different clubs, while only one machine is privately owned. These are the Belgian gliding records :

	Single seater	Two seater	Feminine
Duration	8.h 47	6.h 1	—
Absolute height	6,370 m.	—	—
Gain of height	5,241 m.	—	3,400 m.
Distance	307 km.	258 km.	—
Goal Flight	307 km.	—	—

Up till now the results of the Competition Permanente is as follows (the Competition Permanente is a running classification of Belgian Glider pilots as to their three best flights of more than half an hour) :

1. J. d'Otreppe (Verviers).
2. W. Witter (Antwerp) who will fly at the Internationals.
3. M. Cartigny (Verviers) idem.
4. F. de Sauvage.
5. A. Litt.

Altogether 13 pilots have made at least three flights longer than 30 feet.

The following three records have been broken :

26th May : Mrs. Debauche established the feminine duration record ; she flew 5 hours 12 minutes in a ' Spalinger 18.'

26th May : J. d'Otreppe establishes the out-and-return distance record by flying from Temploux to Bierset and back (=106 km.) with an ' Olympia.'

27th May : F. de Sauvage establishes the two-seater goal distance record by flying in a ' MU-13 E ' with a passenger, from Verviers to Temploux, a distance of 77 km. Needless to say these are only national Belgian records.

Some time ago a Belgian glider pilot in Belgian diplomatic service in India established the Indian duration record by flying for 7 hours 17 minutes. Mr. De San, who flies his own ' Aero 45 ' twin engined light plane is one of Belgium's early glider pilots.

At the annual gliding contest organised by the Association of 2nd T.A.F. Gliding Clubs at Scharfoldendorf (1st) in Germany the only non-British contestant, Captain Ruhling of the ' Belgian Club Militaire de Vol à Voile,' flying his club's ' Grunau III ' became winner of Class C (for ' Grunau Babies ' only). He also won the individual prize for the most outstanding single performance by flying ' 155 km. in his ' Grunau Baby III.'

The Aero Club de la Meuse of Namur has ordered a ' KA-2 ' that probably will be delivered during August. Financial help was given by a large Belgian jam manufacturer.

Contrary to many previous notices the National Gliding Contest will take place at the site of the National Gliding School at Temploux near Namur. It will last from 8th August till 15th August.

Antwerp Gliding Club (A.Z.M.), will hold a summer gliding camp at St. Hubert aerodrome from 8th till 22nd August. As members are busily preparing the ' Sohaj,' the trailer and the Jeep, for the internationals, the ' Fauvel ' flying wing that is being built will probably not be ready to be taken along to the summer camp.

Our Belgian Correspondent will always be pleased to answer any questions readers may have about gliding in Belgium—Write c/o ' Sailplane.'

' TWO-WAY BUSINESS TRIP BY SAILPLANE '

ANOTHER chapter in the history of aviation was enacted May 22 and 23 when for the first time a two-way business trip was made via sailplane. Stanley W. (Stan) Smith, Chief Aircraft Engineer of Bell Aircraft Corp., Buffalo, N.Y., flew his ' Schweiser 1-21 ' sailplane form Batavia, N.Y., to Elmira, N.Y., on May 22, returning via the same means of transportation the next day.

Stan took off from Batavia Airport—the centre of activity for Buffalo and Rochester area soaring pilots—at 3.10 p.m., Saturday, May 22, and landed at Elmira Airport at 5.00 p.m. He conferred with Schweizer Aircraft Corp. officials on arrangements for the American Glider Team's participation in the International Soaring Contest to be held this summer in England.

After staying overnight in Elmira, Smith took off from Elmira Airport the next afternoon for the return trip to Batavia, which took longer than the previous day's flight because of head winds. However, by soaring on thermals and gliding from one to another, the pilot negotiated the 90 miles successfully, completing the first round-trip business flight ever made via glider according to a pre-arranged schedule. A one-way business flight via sailplane had been made last summer by Paul A. Schweizer, vice-president of Schweizer Aircraft Corp., and secretary of the Soaring

Society of America, who flew from Elmira to Bethpage, Long Island, N.Y., to visit Grumman Aircraft Corp., one of the company's customers.

The ship used by Smith in his two-way flight is the same one which he flew as a contestant in the 1952 International Soaring Contest at Madrid, Spain. He is top-seeded pilot in the two-place sailplane category in this year's American team which will compete for the world soaring championship this summer. The Internationals will be held July 20 to August 4 at the Derbyshire and Lancashire Soaring Clubs at Hucklow in the English midlands.

Stan Smith has been an outstanding soaring pilot consistently for about 25 years, and was the 1933 U.S. National Soaring Champion.

NOTES

India. A 9-year old boy, Rashid Irani, has qualified for his 'A' and 'B' certificates. He is the son of the Chief Instructor of the Indian Gliding Association, S. H. Irani, and comes from Poona.

Germany. By the end of 1953 there were 2,037 Silver 'C' pilots in Germany.

U.S.A. The first soaring flight of an Illinois pilot, Jack Lamvis, was along a cold front across the city of Chicago. In a 'Schweizer 1-19' utility training glider, Lamvis went cross-country for 100 miles.

Brazil. The First National Gliding Contest was held from the 4-16 January. The winner was George Munch flying a 'Kranich.' Second and third places respectively went to Cid Guedes Cherem and Vasco Pinto. The winner of Class 'B' was Aldo Weber Viera de Rosa. The best flight was 242 kms., and the total distance flown was 4,410 kms.

Belgium. During a Belgian contest held at Fayence (France) three Belgian records were broken. J. Carpenter ('Nord-2000') with a total altitude of 6,370 m., and a gain in height of 5,241 m., accounted for two of them, and the third went to Mme. Debauche who captured the feminine height record with a gain of 3,400 m. Both flights were made in a standing wave, and had the pilots had oxygen they could have gone considerably higher.

Argentina. Dr. Reimar Horten's new semi-acrobatic single-seater trainer, the 'Inav-1,' has had its test flights.

Poland. Two members of the London Gliding Club will be flying in the Polish Nationals. They are Dan Smith and Charles Ellis and they will each be flying a 'Jaskolka,' a 16-metre Polish mass-production sailplane.

SOUTH AUSTRALIA

Poor Conditions mar Waikerie flying

By Jock Barratt.

THE weather during the holiday period was very poor for cross-country flights from Waikerie.

Unusually strong southerly winds with a low inversion persisted for the first 14 days.

During this time we did a lot of local soaring but of the three attempted cross-country flights none managed to reach the required minimum distance to qualify for contest points.

Kevin Gillespie, in our Olympia 'Yellow Witch,' flew 40 miles to Loxton. George Donaldson, in the same machine, set off for Gawler but landed after only 14 miles.

Jock Barratt and George Donaldson, in the 'Pelican' landed near Kingston, 16 miles.

These performances do not look good but it must be remembered that they were cross-wind flights. If our site had allowed flights to the north much greater distances would have been covered.

Altogether, only 5 contest days were declared, and only two flights won points.

Harry Schneider, flying in our new 'Grunau Baby 3', gave Port Pirie (150 miles) as his goal but landed at No. 2 pump on the Morgan-Wyalla pipeline (40 miles).

Jock Barratt and Les Brown in the 'Pelican' declared Parafield (92 miles) as turning point for an out-and-return flight.

They reached Parafield but only got about half-way home, finally landing at Accommodation Hill after having covered 143 miles.

In spite of the low rates of climb and difficult conditions during the flight the 'Pelican' showed its capabilities by averaging 30.1 m.p.h. from take-off to landing.

The 143 miles was covered in 4 hours 45 minutes.

One thing was distressingly evident on practically every day. This was the high rate of sink between thermals.

Twenty feet a second was quite the order of the day, with the red ball jammed at the top of its tube.

This, coupled with the low rates of climb, made cross-wind flying very difficult and at times, even in the high performance machines, well nigh impossible.

Another noticeable thing was the poor average heights obtained. Apart from 10,200 feet obtained by Barratt and Brown in the 'Pelican' the average was under 5,000 feet on the best days with as low as 2,000 on the worst.

I think we can learn something from this year's flying to remove some of the anomalies in marking.

For example, if a pilot reaches his turning point on an out-and-return flight but fails to get home he should be able to claim the bonus given to a pilot who reaches a declared goal.

If this bonus was added to his total distance it would encourage him to get as far home as possible even though the complete return is impossible.

Also, the minimum distance of 45 miles for Class I machines is, I think, too high.

I would like to see the day when one thermal would give 45 miles. We only dream of those days.

Reducing the distance will encourage the less experienced member to have a go.

The performance of the 'Pelican' while flying under competition conditions was astonishing.

Its roominess is really appreciated on a long flight. So is its ability to get between thermals at speeds of 85 to 100 m.p.h. indicated.

This was at heights of 10,000 feet. The true air-speed makes the countryside change at comforting speed.

Scharfoldendorf Contests

OF the nine remaining clubs in the Association of 2nd T.A.F. Gliding Clubs, seven were competing in the 1954 contests, together with several individual entries, and an invited group from the Belgian Club Militaire de Vol à Voile. The teams were : Geilenkirchen, ' Meise ' ; Gütersloh, ' Weihe,' ' Grunau,' ' Minimoa ' ; Hameln, ' Olympia,' ' Grunau ' ; H/Q. Unit, ' Weihe,' ' Meise,' ' Grunau '; Oldenberg, ' Meise ' ; Sylt, ' Grunau ' ; Wahn ' Mu 17 ' (withdrawn).

22nd May. The task was distance, and although it was a brilliant sunny day, with only a light wind from the South, there were few thermals. The only machine to score was F/O. Philip Fabesch of Bruggen ; flying a ' Meise ' he achieved 34 km. Cpl. Prowse also got away but came down 8 km. short of the necessary 25 km. to qualify.

23rd May. A rather better day and the task was the same. Many of the teams got away and the best flight of the day was made by Mr. Ian Gray of H.Q. Club ; he did 71 km. in a ' Weihe.'

24th May. No flying, due to bad visibility and rain.

25th May. Goal flight, pilot's choice. The wind was still South, but Fabesch elected to fly directly upwind to Wolfhagen, 78 km., and was successful, having found cloud streets all along the way. Both Cpl. Cowburn and F/O. Sharman managed 110 km.—nice going, both flying ' Weihes.'

26th May. Not much lift and only five people got away, but one of them—Ian Gray again—did 212 km.

27th May. Distance again. Best flight of the day was by Cpl. Cowburn who did 61 km. to Minden flying a ' Grunau S6 ' and beating all the ' Weihes.' This day was disappointing because the met. had promised something interesting. Actually people landed all round the site before they had time to reach the more soarable conditions.

28th May. A beautiful day, blue sky, good clouds, East wind. It proved to be a first-class day for distance, there being seven flights of over 100 km. Best of the day were Cpl. Curry and F/O. Jenkins who did 251 and 237 km., respectively, both landing over the border in Holland. Third came Sgt. Hutt, 172 km. to Rechlinghausen, and fourth Sgt. Minter with 150 km. to Dortmund. The other three were Cpl. Durr (141 km.), Cpl. Prowse (122 km.), and Sgt. Simpson (110 km.).

29th May. Class ' A ' was given a goal at Handorf (133 km.) ; Class ' B ' a goal at Gutersloh (92 km.) ; and Class ' C ' was free distance. Best flight of the day was Captain Ruhling in a ' Grunau '—155 km. west to Carrel, a ' Grunau Baby ' record for Scharfoldendorf.

Final Results. Teams. Bruggen, 9,238 points ; H.Q. Unit, 8.069 ; Gutersloh, 7,255 ; Fassberg, 4,255 ; Hameln, 3,724 ; Belgian Military Club, 2,581 ; Geilenkirchen, 2,137 ; Wahn, 1,271 ; Oldenburg, 1,053 ; Sylt, 364.

Class ' A ' prizes. Cpl. Cowburn, 748 points ; Mr. Gray, 598 points.

Class ' B ' prizes. F/O. Fabesch, 718 points ; Sgt. Minter, 667 points.

Class ' C ' prizes. Capt. Ruhling, 516 points ; F/O. Jurdon, 500 points.

THE HAIL-ING POST

By Mrs. June Lunn.

SATURDAY, the 8th May, a beautiful day with clouds forming all over the blue sky. Afternoon flying started at about 2 p.m., and after a couple of flights the wind-sock suddenly changed direction 180°.

Mr. Nawzar Ostowari, our C.F.I., and I took off in a Slingsby ' T21B ' on a ferry flight, with strong tail wind. We had every intention of landing on the other side of the field and continuing flying operations from there. With great difficulty we managed to gain 150 feet on the winch launch. We released and turned immediately for landing when we found ourselves in a 20 green thermal. We completed the full turn and the 20 green still persisted. So taking advantage of our good luck, we started gaining height—3, 5, 8,000 feet. The green still persisted at 20. Within 10 minutes we touched 10,000 feet and cloud base. We had been watching and admiring this cloud as we were climbing towards it. It looked lovely and calm, like the ones we had entered before and, as had been our previous practice, we decided to enter it for a couple of minutes and come straight out of it again, as we have no blind flying instruments, our only instruments being the A.S.I., Altimeter and Variometer.

By now I was feeling the cold and getting the shivers. The first few seconds of cloud flying was smooth and quiet. The green had now come down to 15 and we could feel the moist mist enveloping the aircraft smugly. Then all of a suden we felt a terrific thrust and everything started going haywire—the instruments specially and then our senses. First the green bubble shot out of sight, and I thought for a moment that it was going to pop out from the top. The A.S.I. shot up to 55, 60, 70 knots, and the Altimeter arm, I am sure, went round faster than the seconds arm of a watch, 11, 12, 13,000 feet ; we tried getting out of the turn and follow a straight course to get out of the cloud. But I wish it was as easy to get out of this one as it was easy to get in. Our host had not done with us yet, because now it started offering us showers of HAIL, and with an open cockpit naturally they were not a bit welcomed by us. There was now no way of stopping them, however, and in a little while we had our laps full. The cold was really intense now and I could not stop my teeth from chattering, as neither of us had expected to go so high and we certainly weren't dressed for the occasion—a blouse without sleeves or an ordinary shirt is not quite the thing for an open cockpit in a storm cloud. The hailstones were stinging hell into our faces and it was really blind flying blindly now. The altimeter showed 14,000 feet and the speed started shooting up again to make matters worse. The wind screamed past us and we could barely hold our heads up. The A.S.I. touched 90 and then kept on going for another round, 100, 120, 140 knots and then to our immense relief stopped there and started coming back. About this time we noticed that always abused red bubble of the Variometer shoot up ! Oh, Boy ! was it welcome !

Nawzar managed to bring the speed down to 80 knots and kept it there. The Altimeter started

dropping—13, 12, 11,000 feet and it seemed like hours before we suddenly glimpsed through swollen and almost closed eyelids —' POONA TOWN.'

I shouted, ' Nawzar ! We're Out ! We're Out ! Oh, please don't go back THERE.'

We kept diving at 80 knots till we lost another 1,000 feet and then slowly pulled out of the dive. The hail was still attacking us, but that didn't worry us any more now that we could see what we were doing. We had drifted about 8 to 9 miles from the field, which we could hardly see as it was all blanketed in a mist of rain and hail of about 5 miles radius. We had been in the cloud for only 15 minutes but it was the longest and the coldest 15 minutes I have ever spent.

We headed for home, cruising around calmly, feeling the sore spots and laughing at each other's swollen faces and landed after the storm had drifted well past our field.

We found a tear of about 12 inches in the fuselage and port wing and except for that, by the Grace of God, we landed in one piece.

It was a wonderful experience, well-worth the shivering and chattering even though I did not think so when in the cloud.

Our only regret is that we did not have a closed cockpit, and a barograph with us, as the record for India is 14,000 feet from an aerotowed launch.

Electrical Turn & Slip Indicator Mk. 2a

A NOVEL and entirely new form of slip indicator is incorporated in the new Pullin Turn and Slip Indicator Mk. IIA recently granted M.O.S. approval and called up under Stores Ref. 6A/3953. The instrument follows the American cum Continental presentation now standardised for the R.A.F. and N.A.T.O. and has the turn needle and ball type layout, but is the first instrument to achieve this without using the conventional ball in arcuate tube filled with liquid.

It has been found that with the usual ball in tube type of Slip Indicator it is not possible to fluorise the moving ball efficiently and therefore the backing card to the tube has been fluorised as a compromise.

In the new Pullin instrument, slip is portrayed by a fluorised pointer bob which is supported through a narrow slot in the dial. The mechanism consists of a first pendulum attached direct to the copper drag cup of a magnetic damper. The sensitivity of the pendulum is increased by the use of an inverted pendulum which it engages by means of a slot and pin. Due to the increased sensitivity of the first pendulum the fluorised bob travels through a full deflection of some 25° when the instrument is inclined at 14°. This lever and pivot arrangement provides a slip indicator which has very little friction and exceptionally good zeroising characteristics.

A further innovation is the introduction of a power failure indicator which shows the word ' off ' on the face of the instrument only when the gyro rotor speed falls below that at which it ceases to be of practical value. The device consists of a hollow light alloy drum which is free to rotate a nominal 60° between stops so that a flat face, on which is engraved ' OFF ' appears in, or disappears from a window in the front of the dial. The drum actually operates in the window so that the face engraved ' OFF ' is flush with the front of the dial, so making the warning more visible at oblique angles of vision. The drum is actuated by a spring and magnetic attraction in moving from ' ON ' to ' OFF ' and by magnetic repulsion in moving from ' OFF ' to ' ON ', pressing against the spring during the latter half of the movement. In both movements the supply voltage is made or broken by a centrifugal switch on the gyro gimbal.

This new Turn and Slip Indicator is produced by Messrs. R. B. Pullin & Co., Ltd., Phoenix Works, Great West Road, Brentford, Middx.

SLINGSBY'S ALL-PLASTIC PLANS: F. X. Slingsby, head of Slingsby Sailplanes Ltd., said recently that plans for a plastic sailplane were still in the project stage but he expected that the first all-plastic sailplane would be ready probably in two years' time. ' We have a lot to learn yet about fibre glass laminate,' he said, ' but we know a good deal now, and I am confident that we shall do the job. We shall start by making main components for sailplanes and then build up from there as we get to know how the plastic substance responds both on the ground and in the air. For instance, we must know how it will weather.' Fibre glass laminate is being used now for some components in sailplanes under construction at Kirbymoorside, particularly the ' T42,' a two-seater, which will be flown by the British team in the international gliding championships to be held in Derbyshire in July. Employees are working more than 10 hours a day to complete the ' T42 ' and ' Sky ' sailplanes for the Spanish and Dutch teams for the championships. The ' T42 ' will probably be ready for flight tests at the end of May. Already a single-seater research sailplane, the ' T41 ', is undergoing flight tests in the South of England. Sailplanes built in Yorkshire will also be flown by teams from Switzerland and the Argentine. In the last championships Slingsby sailplanes took seven of the first 14 places.–(*Yorkshire Post* 23-4-54).

ROYAL AERO CLUB CERTIFICATES

(Issued under delegation by the B.G.A.) MAY, 1954

CERTIFICATES 'A' .. 207
'B' .. 216
'C' .. 36
Silver 'C' 1
Gold 'C' —

Silver 'C'

No.	Name.	A.T.C. School or Gliding Club.	Date taken.
450	J. Shepherd	Cambridge U.G.C.	8. 5.54

'C' CERTIFICATES

3660	G. A. Pentelow	No. 44 G.S.	19. 4.54
5387	P. J. Salmon	H.Q.G.I.S., Detling	11. 5.54
15002	R. H. Gales	Oxford G.C.	18. 4.54
15344	M. Lacey	No. 126 G.S.	15. 4.54
15713	C. N. M. Rountree	Ulster G.C.	16. 5.54
15778	N. L. Hendren	No. 64 G.S.	1. 9.53
15902	C. R. Adams	No. 80 G.S.	3. 9.53
13490	J. D. Light	London G.C.	1. 4.54
13606	D. L. Nicolle	No. 89 G.C.	26. 4.54
13981	F. Masson	No. 68 G.C.	25. 4.54
16078	V. B. Godrich	No. 64 G.S.	18. 8.53
16421	W. F. Hamilton	No. 203 G.S.	18. 4.54
16452	J. Tolley	Oxford G.C.	9. 5.54
16748	R. P. Galyer	No. 143 G.S.	25. 4.54
17010	Anita R. Schmidt	Oxford G.C.	19. 4.54
17043	P. G. Tydeman	No. 104 G.S.	25. 4.54
17128	W. B. Farmer	R.A.F., Bosconbe Down	11. 4.54
17154	R. C. Barber	Fassberg (B.A.O.R. 30)	24. 4.54
17205	D. B. Clark	Surrey G.C.	19. 4.54
17271	Z. Bar	2 T.A.F., Scharfoldendorf	7. 5.54
17513	G. G. Moss	Bruggen G.C.	9. 5.54
17733	D. M. Hartas	Surrey G.C.	20. 5.54
17931	R. K. Jeffrey	Oldenburg G.C.	7. 4.54
17855	E. K. Fisk	Perak Flying Club	6.12.53
17864	D. A. Sear	Oldenburg G.C.	21. 3.54
17895	M. J. Richardson	No. 126 G.S.	19. 4.54
17905	E. W. Ellis	H.Q. 2nd T.A.F.	11. 6.53
17924	T. A. Sidey	No. 126 G.S.	19. 5.54
17969	C. Allsopp	Geilenkirchen G.C.	28. 9.53
17971	B. H. Lance	No. 89 G.S.	22. 4.54
18004	P. C. Gibson	London G.C.	21. 5.54
18005	C. Newbald	H.Q. 2nd T.A.F.	2. 5.54
18011	I. G. Wood	Yorkshire Gliding Club	26. 5.54
18021	Hilary C. Blanchard	Surrey Gliding Club	30. 4.54
18027	I. D. H. Gibbins	H.Q. 2nd T.A.F., G.C.	11. 3.54
18028	R. Hill	No. 45 G.S.	19. 4.54

'B' CERTIFICATES

17829	K. A. Shorter	No. 141 G.S.	23. 5.54
17830	J. F. Hoadley	H.Q. 2nd T.A.F.	25. 4.54
17831	J. Tribe	No. 89 G.S.	6. 4.54
17832	D. H. J. Daines	No. 89 G.S.	6. 4.54
17832	M. W. Humberstone	No. 143 G.S.	19. 4.54
17833	M. Sandon	No. 31 G.S.	14. 3.54
17835	D. A. Noon	No. 23 G.S.	21. 4.54
17836	D. R. A. Winterbone	No. 130 G.S.	28. 2.54
17837	J. P. Black	No. 1 G.S.	18. 4.54
17838	M. E. Boorman	No. 186 G.S.	11. 4.54
17839	T. C. B. Hicks	No. 89 G.S.	18. 4.54
17840	P. E. C. Jones	No. 42 G.S.	4. 4.54
17841	P. J. Luffingham	No. 143 G.S.	24. 4.54
17842	K. Metcalf	No. 31 G.S.	4. 4.54
17843	F. S. Plimmer	No. 168 G.S.	19. 4.54
17844	W. B. Rose	No. 196 G.S.	18. 4.54
17845	K. F. C. Searle	No. 89 G.S.	15. 2.53
17846	J. A. Shoobert	No. 166 G.S.	23. 4.54
17848	P. R. Jones	No. 130 G.S.	28. 2.54
17849	P. J. Lindley	No. 24 G.S.	2. 8.53
17850	R. J. Milton	No. 125 G.S.	25. 4.54
17851	I. J. Brenner	No. 42 G.S.	25. 4.54
17852	A. F. Box	No. 186 G.S.	19. 4.54
17853	J. F. Moore	No. 42 G.S.	11. 4.54
17854	E. T. White	No. 68 G.S.	28. 3.54
17855	S. K. Fisk	Perak Flying Club	29.11.53
17856	J. N. H. Cox	No. 31 G.S.	1. 5.54
17857	W. J. Stewart	No. 203 G.S.	28.11.53
17858	D. J. Attwell	No. 22 G.S.	25. 4.54
17859	H. T. Norrington	Winchester College	12. 4.54
17860	W. H. Smith	No. 122 G.S.	24. 4.54
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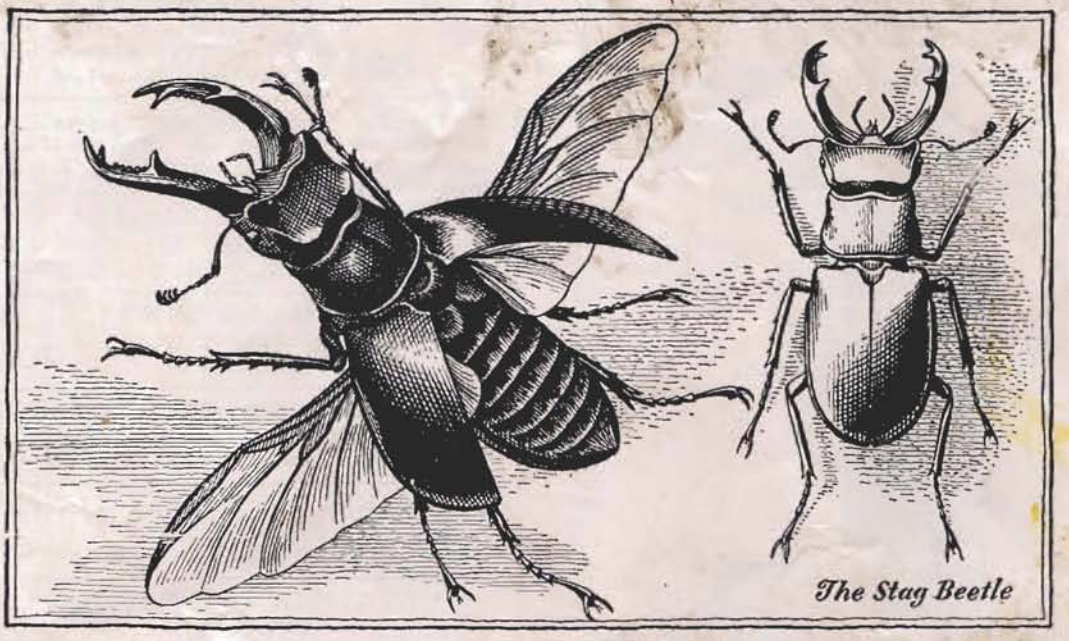

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