GLIDING

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QUARTERLY

2/6

GLIDING

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Cover Photograph.—The Camphill site where the World Championships will be held: a view from above Bradwell Edge (west slope) looking towards Eyam Edge (south slope). Photo shows the flying field with two launching runways, hangar, car park and camping field (where the teams will live); the clubhouse is hidden among trees.

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World Championship News

THE final entry—20 nations, 37 single seaters and 10 two-seaters—for the 1954 Championships comes as a surprise. The total of 47 aircraft, which is more than the optimum of 40 aircraft recommended by the Gliding Association of the F.A.I. at their last meeting, was only brought down to this number by reducing the maximum number of entries permitted per nation from the figure of five which has always previously prevailed, to a maximum of two single-seaters and one two-seater.

At the International Championships before 1952, total entries of 30 to 35 aircraft seemed to be the order of the day. Clearly the F.A.I. thought—as we did—that the sudden jump to 59 aircraft experienced at Madrid was caused by the extreme generosity of the Spanish offer, which included free petrol and free aircraft for those who needed them.

When, therefore, we offered to hold the 1954 Championships, at the same time saying that we could not at Camphill fly more than 40 aircraft, of which not more than 25 aircraft could be in either class, no-one thought this would give rise to any difficulties, since without the Government financial support available in Spain, considerations of cost might be expected automatically to reduce entries to somewhere the level of the old figures.

In the event, preliminary notices of the desire to enter 75 aircraft were received by the B.G.A. It is clear, therefore, that world interest in our sport has grown on a permanent basis, and if it is still felt that Championships between 60 and 70 aircraft strong are likely to prove too big an organising task for most nations, the F.A.I. will have to put on their thinking caps again.

Faced with the utter impossibility of launching 75 aircraft on to the Camphill slope, the B.G.A. first took the most obvious course. Twenty-four nations had intimated a desire to enter. We therefore advised each that we could accept one single-seat and two two-seater entries per nation, calculated to produce an entry of 24 single-seaters and about 18 two-seaters.

This proposal produced considerable dismay, and the President of the Gliding Commission of the F.A.I. wrote asking if we could possibly devise some means of altering the proportions to two single-seaters and one two-seater per country, which on our calculations indicated a likely total of 38 single-seaters and 14 two-seaters.

After much thought an idea was born which it is hoped not only solves the 1954 problem, but might also point to a solution for bigger meetings in the future.

This scheme, which has already been adopted, we believe, in model aircraft competition flying, is that, after the minimum number of four contest days per class have been flown, each competitor's worst day's marks will be ignored. The rule, in full, will be that if four days' flying only is reached, each day's marks must count in each pilot's winning total; but if there are five contest days, each pilot's worst day will be ignored; if there are six or more contest days, each pilot's two worst days will be ignored.

The effect of this will be that if on any given day a particular pilot scores badly owing to ill-luck in the launching order, or through any other reason, he will not suffer thereby. This enabled the B.G.A. to amend their first proposal, and to permit the entry by each nation of a maximum of two single-seaters and one two-seater aircraft.

The main difficulty at Camphill is, of course, likely to arise because it will often be impossible to put all 37 single-seaters into the air at once, and the last few aircraft may have to wait until some of the first have got away. But it is, we think, generally admitted that *all* contests in the past have involved an undue element of luck, so we suggest that this addition to the existing marking system may prove of permanent value, and ensure that in future luck will have less influence than has so far been the case. We await with much interest the results of this new departure, and the verdict of our visiting pilots on its value.

Whilst, however, this scheme may reduce the *operational* difficulty of handling 40 or more aircraft at one time, the financial difficulty still remains. It may not be widely realised that current entry fees, of £50 per team, which are about the same as laid

down in 1950 by Sweden, in fact only cover between 20 per cent and 25 per cent of the cost of the organisation. Checking with the experience of previous organising nations confirms that this has been generally the case in past Championships. Thus the B.G.A. are faced with the ambitious task of raising no less than £10,000 to see that the 1954 Championships are held in a manner which will uphold our national prestige and enable us properly to carry out our duties as host to nineteen other nations. If the total entry, instead of 47, had been, say, 70 aircraft, this sum would have risen proportionately. In fact, since a meeting of such a size would have necessitated aero-towing from an aerodrome, which experience shows produces little public interest and so little revenue from admissions, the cost in our case would have increased much more than proportionately, since at Camphill we are hoping to raise a substantial amount in this way. Unless we are careful, therefore, future world championships may become a proposition for governments only. In a sport which has been so passionately individualist this might be a great loss.

* * *

Sailflying Press Limited are producing a handsome souvenir programme with coloured cover which will be on sale at the World Gliding Championships, price 1s. per copy. The programme will fit into the ordinary GLIDING binder.

Where Visitors can Stay

AT the World Gliding Championships, team members, including managers, will be accommodated in caravans and tents on the site, but such accommodation is not ordinarily available to visitors who are not members of a competing team.

A list of hotels within five miles of the site is given below, and visitors must make their own arrangements direct with the hotels or through their own travel bureaux. You are strongly advised to book as *early as possible*, as all the hotels are very crowded in this part of England in the Summer, and to send a deposit when confirming the booking. Bed and breakfast only can be booked in most cases. Correspondence with hotels must be in English (add "Derbyshire" to the address given below). Telephone numbers (given in brackets) refer to the exchange at the place mentioned, except in the case of Great Hucklow.

Little John Hotel, Hathersage (223).
The George Hotel, Hathersage (205).
The Sir William Hotel, Grindleford (3).
The Maynard Arms, Grindleford (21).
The Rising Sun, Bamford (23).
The Marquis of Granby, Bamford (45).
The Bowling Green, Bradwell (?).
The Castle Hotel, Castleton (228).
The Bull's Head, Castleton (256).
The Nag's Head, Castleton (248).
Peveril Café (unlicensed) Castleton (274).
The Bull's Head, Tideswell (256).
The Star Hotel, Tideswell (?).
Foxlowe House (unlicensed), Tideswell (220).
Queen Anne Hotel, Great Hucklow (Tideswell 246).

Entry List

Single-Seaters

ARGENTINE	
J. S. Ortner ..	Sky
J. Cuadrado ..	Sky
AUSTRIA	
F. Linher ..	Superspatz
W. Grafe ..	Weihe
AUSTRALIA	
S. V. Owen ..	Olympia (loaned)
BELGIUM	
M. Cartigny ..	Sohaj
W. Witter ..	Sohaj
BRAZIL	
G. Münch ..	I.P.T.17
A. W. Viera da Rosa	Barros Neiva-1
CANADA	
(1 pilot) ..	Olympia (loaned)
DENMARK	
H. W. Jensen ..	(single-seater)
A. Feddersen ..	Olympia
FINLAND	
A. V. J. Koskinen	PIK-13
S. Relander ..	Weihe
FRANCE	
(2 pilots) ..	(2 single-seaters)
GERMANY	
A. Wiethüchter	Focke-Wulf Weihe 50
E. G. Haase ..	HKS-1
GREAT BRITAIN	
P. A. Wills ..	K-1
G. H. Stephenson	Sky

HOLLAND	
I. de Boer ..	Sky
O. P. Koch ..	KNVvL-491
ISRAEL	
M. Bar ..	Olympia
ITALY	
R. Brigliadori	Spillo
M. Guerrini ..	(?)
SOUTH AFRICA	
H. R. Lasch ..	Air-100
P. J. Beatty ..	Skylark Type 37
SPAIN	
(2 pilots) ..	Sky
	Sky
SWEDEN	
(2 pilots) ..	Weihe
	Weihe
SWITZERLAND	
A. Gehriger ..	WLM-II
A. Kuhn ..	Sky
UNITED STATES	
S. W. Smith ..	Schweizer 1-21
P. B. MacCready, Jr.	Schweizer 1-23E
YUGOSLAVIA	
F. Mordej ..	Orao
M. Arbajter ..	Lasta

Two-Seaters

ARGENTINE	
J. Ompré (?) ..	Condor IV (?)
C. Dori (?) ..	
AUSTRIA	
W. Hesse ..	Musger Mg-19
A. Hasenknopf	
FRANCE	
(2 pilots) ..	(1 two-seater)
GERMANY	
Hanna Reitsch	HKS-1
Erika Leutloff	
GREAT BRITAIN	
L. Welch ..	Slingsby T-42
A. Welch ..	
ITALY	
A. Mantelli ..	Canguro (?)
L. Braghini ..	
SPAIN	
(2 pilots) ..	(1 two-seater)
SWITZERLAND	
H. Nietlispach	Spyr Va
B. Müller ..	
UNITES STATES	
C. W. Gee, Jr.	Schweizer 2-25
P. A. Schweizer	
YUGOSLAVIA	
B. Komac ..	Ilic-Kisovec "Kosava"
Z. Rajn ..	

Instruction Courses

SEVERAL gliding camps, open to non-members, are being held this year, and are listed below. The fees given include board and accommodation and gliding instruction. Applications should in each case be made to the Course Secretary of the respective club at the address given.

LONDON GLIDING CLUB.—20th-30th April, 15th-22nd May, 14th-25th June, 19th-30th July, 9th-20th August, 30th August-11th September, 25th September-2nd October. Fees: £15 for the seven-day camps, £20 for ten days and £21 for eleven days, except for the August Camp which is £22 (Tring Road, Dunstable, Beds.).

SURREY GLIDING CLUB.—22nd March-9th April, 26th April-3rd May, 17th May-29th May, 14th-26th June, 5th-17th July, 9th-21st August, 30th August-11th September, 20th September-2nd October (Lasham Airfield, near Alton, Hants.)

MIDLAND GLIDING CLUB.—29th May-5th June, 3rd-10th July, 7th-14th August, 28th August-4th September; for C pilots, power pilots, and a limited number with less or no experience. Fee: £15 (9, Hagley Road, West, Harborne, Birmingham, 17).

SCOTTISH GLIDING UNION.—10th-17th April, 3rd-10th July, 17th-24th July, 31st July-7th August, 14th-21st August, 28th August-4th September. Fee: £12 12s. (Balado Airfield, Milnathort, Kinrossshire).

BRISTOL GLIDING CLUB.—Weekly courses from June to September at Lulsgate Airfield (12, Wyck Beck Road, Brentry, Bristol).

YORKSHIRE GLIDING CLUB.—6th-12th June, 27th June-3rd July, 18th-24th July. Fee: £14 14s. (Sutton Bank, Thirsk, N. Yorkshire).

OXFORD GLIDING CLUB.—Six-day course in June ("Four Winds", Salisbury Crescent, Oxford), from 21st - 26th.

SOUTHDOWN GLIDING CLUB.—4th-12th September, for B pilots and beyond. (45 Havelock Road, Hastings, Sussex).

Helpers at Championships

If you are able to help for a week or more at the World Gliding Championships from 20th July to 4th August inclusive, at Camphill, and have not already done so, please write immediately to the B.G.A. Secretary offering your services.

Gliding Certificates

Silver C

No.	*Name*	*Date of completion*
442	R. Perkins	30.8.53
443	P. J. Holbrook	4.8.53

C Certificates

November, 1953

9166	L. W. Arnold	No. 186 G.S.
9710	R. W. Terry	No. 186 G.S.
10307	D. S. Driver	Newcastle G.S.
10819	A. J. McLelland-Brown	Cranwell Coll. G.C.
12152	Hazel A. Driver	Newcastle G.C.
13526	G. C. Davies	Scottish G.U.
13788	D. W. Gibbs	No. 80 G.S.
13906	P. E. Bull	No. 80 G.S.
15500	J. R. Halfpenny	No. 80 G.S.
16280	G. F. Fisher	Bristol G.C.
16872	P. F. Pentreath	Army G.C.
Canad'n	J. Hebert	Southdown G.C.
17258	A. H. Greig	London G.C.
17263	O. C. Harris	Lüneburg G.C.
17300	M. G. Miller	Scharfoldendorf G.C.
17301	E. Holmes	Lüneburg G.C.
17335	J. E. H. Braybon	Wessex G.C.
17375	S. G. Smith	Southdown G.C.
17377	J. W. Batchelor	Midland G.C.
17383	F. J. Smyth	Wahn G.C.

December, 1953

11053	D. A. Cree	Cranwell Coll. G.C.
13286	T. Walls	No. 64 G.S.
15429	S. Barcroft	Army G.C.
15693	G. D. Braham	No. 64 G.S.
16190	P. Burt	No. 64 G.S.
16215	B. R. Armitage	No. 64 G.S.
16234	F. J. Sharpe	No. 64 G.S.
16344	C. Christianson	Avro G.C.
16376	D. S. Crossley	No. 64 G.S.
16435	S. R. Coming	No. 64 G.S.
16436	R. S. Plane	No. 64 G.S.
16826	F. J. Leek	Midland G.C.
17248	G. E. Love	London G.C.
17411	B. Blake	No. 24 G.S.
17417	G. E. A. Brooks	Midland G.C.
17454	G. M. C. Macfarlane	R.A.F. Celle

January, 1954

6291	M. C. Fairman	London G.C.
12002	C. J. Dyne	No. 122 G.C.
13938	J. N. Hamilton	Southdown G.G.
14447	V. T. Charman	R.A.F. Fassberg
16104	B. Hoggart	No. 64 G.S.
16164	K. Kelly	No. 24 G.S.
16213	H. Watson	Derbys. & Lancs.
16214	H. Clarke	No. 64 G. S.
16362	C. F. J. Watts	No. 84 G.S.
16414	G. E. Ashton	London G.C.
16447	E. A. Cornelius	No. 64 G.S.
16458	R. H. J. Nunn	No. 64 G.S.
16813	J. C. Taylor	Derbys. & Lancs.
17459	J. W. G. Harnden	Midland G.C.
17497	W. R. Bradford	London G.C.

February, 1954

15888	B. Pethick	R.A.F. Sylt
16320	S. Fryer	No. 64 Group
16502	S. L. Smith	No. 64 Group
16555	A. N. Bratt	Coventry G.C.
17527	A. A. H. Wright	R.A.F. Halton
17543	F. J. Goddard	Army G.C.
17549	A. Aldott	London G.C.

GLIDING COURSES ABROAD

In France, gliding instruction is given at the National Centres at Saint Auban sur Durance in the Basses Alpes, Pont-Saint-Vincent, near Nancy, and La Montagne Noire in Haute-Garonne. They last about 26 days and correspond to the calendar months; pupils attending part of a course are advised to turn up at the beginning. The courses are of most use to sailplane pilots with some experience. Challes-les-Eaux in Savoie holds courses for instructors. Enquiries should be addressed to: Service de l'Aviation Légère et Sportive, 24 Boulevard Victor, Paris XV*e*, France.

In Germany, the historic gliding school at the Wasserkuppe, near Fulda, has reopened and is holding a series of 11-day courses from April to October inclusive, some for beginners, some for advanced pilots, some for both. The address is: Segelfliegerschule Wasserkuppe, bei Gersfeld/Rhön, West Germany.

The Australian Gliding Championships

by Tony Goodhart

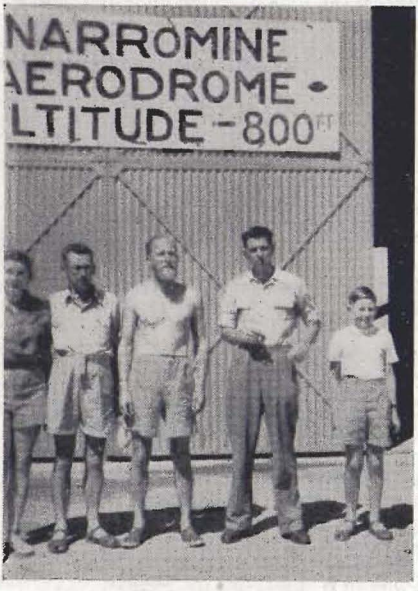
BECAUSE of the vast distances involved in this country the Australian Championships are not at all what we have come to expect in Europe; the Gliding Federation of Australia issues the rules and each State then does its best to run a meeting during the Christmas holiday period, though, as distances within each State are still considerable, the final outcome tends to be that each sailplane flies in its own locality and particulars of flights are reported to the G.F.A. via the State Gliding Association.

The rules cater for different classes of sailplane and give bonus scales for goal flights, out-and-returns, speed, etc. It is then up to each individual pilot to select his own task. The championship is decided on the marks obtained in each pilot's two best flights; as most of the sailplanes are flown by four or more pilots, to give everybody a fair chance, it is not possible to count more than two flights.

As you can imagine, with conditions varying considerably from State to State, and practically no two pilots flying on the same day over the same route, the final results can hardly give an absolute measure of relative skill. However, the Championships undoubtedly encourage pilots to make special efforts to do some serious cross-country flying, which, as far as New South Wales is concerned, is hardly done at all except during the Christmas holiday.

In New South Wales serious competition flying was confined to the activities of the Sydney Soaring Club with an Australian-built Olympia. The Club is really a private-owner group about eight strong, the five regular flying members of which are all Gold C holders, to wit: Mervyn Waghorn, who will be remembered by those who went to Madrid in '52; Len Schultz, this year's Australian champion; Keith Colyer; Selwyn Owen, who is to represent Australia at Camphill this year; and Martin Warner, who is unfortunately sick and has been out of action all this summer. Another leading light of the Club is Doctor Heydon, who has done a very great deal for gliding out here and must be one of the oldest pilots in regular fiying practice; he owns a Tiger Moth with an excellent canopy, which he lent to the Club over the Christmas period.

The Club's normal base is at Camden, about 30 miles inland from Sydney; but this is in an unsavoury cross-country area, so camp was shifted further inland (as it is each Christmas) to Narromine, some 200 miles from Sydney. There is a good airfield at Narromine—in fact, it may become the alternate for Comets coming to Sydney, and although the population is only a couple of thousand odd there is an active flying club with 60 regular flying members. The airfield is owned by the Department of Civil Aviation, whose local officials are extremely helpful, and is nicely situated in a large area of wheat country. Wheat country is the only really safe terrain to fly over: the rest is either virgin gum forest, known as "the



At Narromine, from left to right: Peg Schultz, Len Schultz, Tony Goodhart, Selwyn Owen and Michael Schultz.

bush" with nary a chance of placing down in one piece, or else sheep country which has never been cultivated and is consequently very rough, with sheep, probably about one per five or ten acres, roaming about looking for odd blades of grass. The wheat fields, known as "paddocks", are nearly all big enough to aero-tow out of, and it is a point of honour with the S.S.C. never to land in a paddock which is untowoutofable, even on occasion to landing on and towing off the local highway. Another point to be borne in mind is that habitations are a long way apart—ten miles or so—so that, unless one is particularly fond of hiking, it is well to bear this factor in mind when choosing a paddock to place down in.

Even round Narromine the directions in which one can safely make long cross-country flights are fairly circumscribed; in fact, Diamond distance can only be achieved over reasonable country in two sectors about 20° wide, one N.N.E. and the other south.

Meteorologically, compared with England, the conditions are sometimes magnificent. Cumulus cloud base is often at 12,000 ft. or higher, with the result that if there is an inversion at 8,000 or 9,000 ft., which quite frequently occurs, the sky will remain clear all day with good thermals for eight hours or more. The shade temperature at ground level is apt to hover around the 100° mark for days on end, though the nights are usually cool and sometimes cold. Weather forecasting is nothing like as reliable out here, and of course there was no Dr. Scorer at Narromine to produce the sort of information that glider pilots want; however, upper air data were obtained daily with forecast winds and weather from Wagga-Wagga.

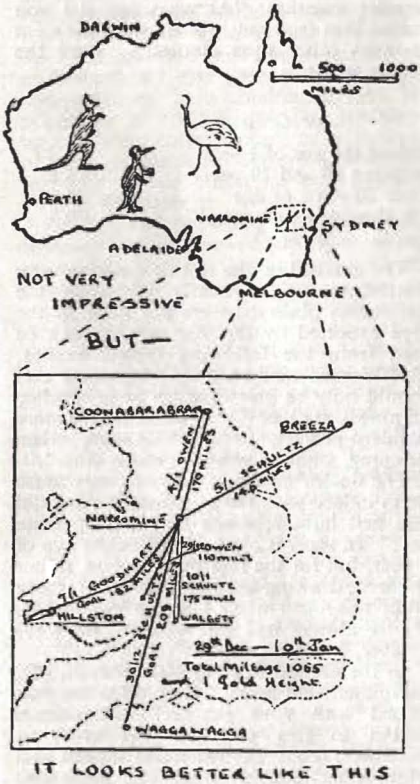
The Olympia is fitted with an excellent H/F radio and a ground station was established in one of the hangars at Narromine; both were designed and largely built by Len Schultz. The normal procedure was for the glider pilot to call up every half-hour and report his position and, finally, details of his touch-down point. Perfect reception was possible at over 200 miles range, even with the Olympia on the ground. By means of these excellent communication channels it was possible to do long air retrieves with

Australian Championship Flights

Pilot	*Glider*	*State*	*Task*	*Miles*	*Points*
L. N. Schultz, Sydney S.C.	Olympia	N.S.W.	Goal	207	310
			Attempted Goal	145	
			Attempted O. & R.	175	
S. R. Owen, Sydney S.C.	Olympia	N.S.W.	Attempted Goal	110	184
			Attempted Triangle	179	
			Gold C Height	—	
R. New, Perth G.C.	Laister-Kaufman	W.A.	Attempted O. & R.	155	182
			Goal	134	
			Attempted O. & R.	108	
A. Goodhart, Sydney S.C. (visitor)	Olympia	N.S.W.	Goal	180	154
Dr. M. Hall, Toowoomba G.C.	R-3 (Zanonia)	Q'land	Attempted O. & R.	70	125
			Goal	120	
			Attempted Triangle	101	
R. Roberts, Victorian M.F. Grp.	Golden Eagle	Victoria	Distance	65	49
W. Williams, Perth G.C.	Kestrel	W.A.	Distance	64	48
			Distance	20	
D. Brown, Victorian M.F. Grp.	Golden Eagle	Victoria	Distance	40	26

NOTE.—Championship points are obtained by halving the sum of points for the best two flights. Pilots making only one flight score ½ points for the flight.

remarkably little bother. As an example: the day I flew to Hillston (180 miles), the Tiger Moth, flown by Waghorn, took off about 5 p.m. and reached Hillston, which conveniently has an airfield less than half a mile from the town centre, soon after 7; in the meantime I had gone 25 miles beyond Hillston, and finding that I was over sheep



instead of wheat country and that the surface looked distinctly unfriendly for aero-towing, I decided to try to get back to Hillston. When I did get back (still in radio communication with Narromine) and landed a few minutes after sunset, there was the Tiger Moth awaiting me. Waghorn and I placed up in the local hostelry (as the N.S.W. licensing laws decree no "alc" after 6 p.m. there was no undue celebration) and took off next morning soon after 5 a.m., reaching Narromine in time for breakfast about 8, and by 10.30 Waghorn was off in the Olympia himself.

The flights made during the fortnight at Narromine are shown on the attached diagram; a flight not shown is Sel. Owen's Gold height in which he reached 13,000 ft. and still had not got to cloud base! A list is given opposite of all flights reported to the organisers of the Australian Championships, from which it may be seen that Len Schultz is well clear at the top.

It so happens that we didn't strike the really good weather at Narromine this year; only a week later there were three days of 30-knot north wind with instability to 18-20,000 ft. and cloud base at 12,000 ft. What more could one ask?

Review

OSTIV Publication II: Summary of the lectures held during the 4th Congress in Madrid, 1952. Obtainable from the Secretary, C. Slikkerveer, 3, Kanaalweg, The Hague, Holland. Price, 3.80 guilders.

This volume, costing the equivalent of 1 dollar, is good value for the money, as it contains 18 technical papers given at the last Congress of the International Scientific and Technical Organization for Soaring Flight (the meteorological papers, we understand, are being published separately by the American Meteorological Society). Four are in French, two in German (including a long medical one about accidents), and the rest in English.

The United Kingdom is represented by "An artificial horizon and direction gyro suitable for sailplanes" by A. H. Yates, and "Two-seat sailplanes" by B. S. Shenstone. Dr. Raspet writes on "Control of the boundary layer on sailplanes", and Jaroslav Koser, of Yugoslavia, describes the development of the Triglav series of sailplanes, and also has a mathematical paper on the measurement of lateral control characteristics.

The OSTIV is meeting this year at Buxton from 21st July to 5th August, and accommodation for 60 delegates is available there if booked early enough.

Another Review

by Yerfdog Eel

(Reproduced with acknowledgments from "London Gliding Club Gazette")

Sexual Behaviour of the Human Glider Pilot: by Dr. A. KWINSEY. Published by Doublenight & Co. Inc. New York, at 15 dollars.

RIGHT from the start of this monumental work it is clear that Dr. Kwinsey is possessed of a keen, thorough, and logical mind. Being logical, he begins at the beginning and devotes considerable space to justifying the adjective "human" in his title. On the grounds of the quantity of food consumed and the occasional need for sleep evinced by glider pilots, Dr. Kwinsey concludes that the glider pilot is not an automaton or robot; in other words, "animal" rather than "mineral or vegetable". The glider pilot is clearly an anthropoid vertebrate and without doubt at least among the higher apes. The general hairlessness, the opposable thumb and the intelligence (or low cunning) of the creature under study, despite the Simian stance and shuffle characteristic of the glider pilot when equipped with parachute, decided Dr. Kwinsey that "human" was the only possible designation.

But now to deal with the "meat" of the book, the huge mass of statistics on all aspects of the, let us say, "love life" of the glider pilot. There is no space in this short review to do more than quote a few of the figures that Dr. Kwinsey gives.

Let us begin with the fascinating data that deal with the early stages of sexual development. The following is his analysis of the age at which glider pilots first became "aware" of sex:

Age Group	*Percentage*
Between birth and one year ..	0.2
Between 1 and 10 years ..	0
,, 10 ,, 20 ,, ..	0
,, 20 ,, 30 ,, ..	0
,, 30 ,, 40 ,, ..	0
Over 40 years of age	0

This, as Dr. Kwinsey remarks, "was rather disappointing", and so he tried a simpler question: "At what age did you realise that men and women were different in ways other than clothes?" Here the results were:

Age Group	*Percentage*
Before the age of 1 year ..	0.2
Between 10 and 20 years ..	19.8
Over 20 years of age	30.6
"Is there any difference?" ..	49.4

The detailed replies to this question were interesting, as in nearly all cases the differences observed were not quite of the type expected by Dr. Kwinsey, as can be seen from the following typical replies: (1) "Women tend to drop wing roots and should only be given the tip to hold when helping to rig", or (2) "Women are far more accident-prone", or (3) "Women, when camping, want to wash up more often".

The doctor now gets down to very brass tacks indeed with the question: "When did you first have relations with the opposite sex?" In reply 0.2% said before the age of 1 year, but for the rest the question rather misfired, drawing answers such as: (1) "My sister was born when I was 3 years old". (2) "I always had girl cousins" and (3) "Never, I was an orphan".

In the section dealing with married life, the pilots were asked "How often are you united with your partner?" Specimen replies to this are: (1) "As often as possible", 0.2%, (2) "Sheffield United and Manchester United" (may one guess this was the answer from a member of the Derby and Lancs. Club?) (3) "There are 3 partners in our group and we take it in turns to fly".

Dr. Kwinsey's attempt to deal with marital infidelity was another failure; the question was: "How frequently do you lapse from the path of rectitude, or what is your lapse rate?" There was the usual "As often as possible" from 0.2%, while 99.8% replied: "Dry adiabatic 5.6°F. per 1,000 ft., wet adiabatic, 3.0°F. per 1,000 ft."

At this point it seems that Dr. Kwinsey realised that he was beaten, for though he struggles on gamely with the questions and analysis, I felt that his heart was no longer in it. The end of the book is, in consequence, less satisfactory than the beginning and there are two large questions that the celebrated author leaves unanswered. The questions concern the significance of the mysterious 0.2% whose replies were so at variance with those of all the rest, and the problem posed by the undoubted fact that glider pilots do marry and, at times, have children, a rank impossibility if one believes Dr. Kwinsey's figures. Your correspondent has solved one of these problems for certain and submits for your consideration an hypothesis to explain the other.

Dealing with the 0.2%, I found that Dr. Kwinsey had interviewed 500 pilots, so that it could be that we were dealing with one single, exceptional, individual. Was he, perhaps, a Casanova of Cockpit or an Abelard of the Air? But no, investigation showed the whole thing to be a ridiculous clerical error. Dr. Kwinsey is, at present, preparing a work on the sex life of the Canines, and, due to a serious mistake, one set of these answers had got mixed up with those of the pilots. In fact, this 0.2% was found to be a slightly cross-bred foxhound kept as a pet by a Mrs. Mirabelle Bloggs of Piddle Trenthithe and called "Achilles" ("He's such a heel", said Mrs. Bloggs).

As to the problem of the existence of marriage and parenthood amongst a set of people who by their own admission appear to be entirely unaware of any aspect of the problem of procreation, I can only suggest that the explanation lies in schizophrenia or split personality. The "normal" glider pilot is as revealed by Dr. Kwinsey (with the contributions of "Achilles" removed), but some may well be schizophrenic. For these, when the split occurs, gliding temporarily recedes into the background and for a time the patient behaves in certain vital respects like his fellow men. After the fit, the gliding mind supervenes again with the characteristic complete forgetfulness of the events in the "split life": hence the replies to Dr. Kwinsey.

So there we are—a wonderful collection of facts and figures. But whether the book is worth the price of a year's subscription to one of several well-known gliding clubs, I leave the reader to decide.

B.G.A. News

Annual Awards for 1953

DE HAVILLAND CUP for greatest height: 15,240 ft. by Flight Lt. A. D. Piggott of Home Command Gliding Instructors School, with 2nd pilot—Cadet Flt./Sgt B. Whatley of No. 2157 Sqdn. A.T.C. (Mitcham), in a two-seater Sedbergh on 27th July.

MANIO CUP for best goal flight: 192 miles by G. H. Stephenson from Camphill to Lympne in a Sky on 3rd August. Honourable mention: Lt. Cmdr. A. Goodhart, 190 miles from Long Mynd to Leiston.

WAKEFIELD TROPHY for longest distance: 197 miles by J. S. Armstrong from Camphill to Hastings in an Olympia on 1st June. Honourable mentions: 192 miles by G. H. Stephenson and 195 miles by F. Breeze.

VOLK CUP for best out-and-return: 100 miles by P. A. Wills from Camphill to Rearsby and return, in a Sky on 1st August.

SEAGER CUP for best two-seater performance: to Flt. Lt. A. F. Piggott and Cadet Flt./Sgt. B. Whatley, for goal flight from Camphill to Grimsby Aerodrome (Waltham), distance 70 miles, height gain of 15,240 ft., speed 30 m.p.h. (British National multi-seater gain of height and 100 km speed records), in a "Sedbergh" on 27th July. Honourable mention: D. Stevens and Miss M. Poole, 88 miles from Lasham to Cambridge in a T-21b on 4th April.

DOUGLAS TROPHY to the Club putting forward three flights by three different club members in club aircraft, aggregating the largest total cross-country mileage: London Gliding Club, for flights of 192½ miles by G. H. Stephenson, 158½ miles by C. A. P. Ellis and 105 miles by G. H. Lee; total 456 miles.

OBITUARY

WE deeply regret to announce the death of Fg./Off. Ian Ridley Hinde as the result of a flying accident in Germany on 31st August, 1953. He was a founder member of the R.A.F. College Gliding Club, Cranwell, and the first member to gain his Silver C entirely in England. He joined the Army Gliding Club after graduating from College. He also participated in the B.A.F.O. Gliding Competitions. He will be greatly missed by all those who knew him.

C.M.H.

The British Gliding Association
Chairman's Report for 1953

DURING the past year it is safe to say that our Movement has shown a steady, even striking advance in the public awareness of its value, and many clubs have consolidated their position and improved their numbers both in membership and flying hours. I feel that at last gliding is now firmly part of the social fabric of our country. But this does not mean that there is any room for complacency.

Membership

Our Membership is now (1952 in brackets)

Full Member Clubs	16 (14)
Associate Member Clubs	12 (19)
Private/Group Owner Members	31 (24)
Individual Associate Members	32 (25)

It will be seen that Private/Group Owner Membership has now exceeded the figure which qualifies these members to nominate a representative on the Council.

Council Representation

The number of bodies eligible to nominate Council representatives now exceeds the permissible size of the Council, and so it is necessary this year to decide on who shall stand down, in the terms of the decisions taken at last year's Annual General Meeting. It will obviously be useful if some system can be agreed which will automatically take care of this problem not only this year but in the future, on a fair and equitable basis. The Council therefore suggests for your consideration that the necessary number of Club nominees should stand down each year in alphabetical order.

It will be recalled that members standing down for the year may send "observers" who can take part in all Council discussions but not vote. Since extremely few Council discussions result in a vote, these observers therefore should not lose very much in their influence on B.G.A. policy.

Operations

At the time of writing 20 clubs have completed the Annual Questionnaire and report that from their Club Sites they have flown a total of 10,586 hours involving 61,286 launches, and which shows an increase over 1952 of 2,009 hours and 6,353 launches. The R.A.F.G.S.A. Clubs (619 hours and 7,594 launches) are included in these totals. These returns cover all active U.K. clubs except the R.N.G.S.A., who were included in the 1952 totals.

Over and above these figures the Air Training Corps report 7,346 hours with 96,649 launches, against 5,203 hours and 92,692 launches in 1952. The 2nd Tactical Air Force Gliding Clubs in Germany report 2,097 hours and 18,800 launches.

The Association has issued during the year (previous year's figures in brackets) 1,591 "A" Certificates (1,613); 1,662 "B" Certificates (1,492); 272 "C" Certificates (355); 36 "Silver C's" (47); 3 "Gold C's" (3) and 2 Diamond Legs (4), made up as follows:

	A.T.C.	*Civilians*	*Services*
"A"	1,185	221	185
"B"	1,237	221	204
"C"	89	118	65

Finance

The income from certificates has been maintained to a satisfactory level, although the cost of the "A" Certificate has been reduced to 2s. 6d. The number of certificates issued in the year under review has increased by slightly less than 2 per cent over the previous year; 71.2 per cent (65 per cent) went to A.T.C. cadets, 12.8 per cent (18 per cent) to Service gliding clubs and 15.8 per cent (17.5 per cent) to the civilian clubs.

While the revenue from subscriptions, certificates, badges and logbooks are always regarded as the staple income of the Association and have been well maintained, gliding ties and publications, including GLIDING, are in continuing demand and assume a dependable source of revenue, whilst the contribution from the results of the 1953 National Championships was also helpful to the satisfactory state of the year's accounts.

The value of cable in stock purchased by loan from the Kemsley Flying Trust for re-sale to Member Clubs has been considerably written down. The remaining stock of Glider Poster Stamps has been written off

although remaining available for sale.

The Office and administrative expenses are kept at a very reasonable level in spite of the increasing work of the Association and this reflects very great credit on our staff, who conduct our affairs with painstaking economy and with efficiency without the appearance of austerity.

Kemsley Flying Trust

In the year 1953, nine of the established gliding clubs received financial help from the Trust to purchase additional and replacement equipment, and one new club received a loan. Several Owner Groups were also given loans for the purchase of sailplanes.

Arising from proposals made by the sub-committee set up to consider ways in which the Trust can further assist in the development of gliding, investigations are going ahead into the possibility of developing a prototype standard winch to go into quantity production. It is proving a lengthy process but it is hoped that some results will accrue during 1954.

The Trustees will be interested to learn of any proposals and suggestions for the development of established sites and the creation of new ones, having regard to their importance to the expansion of the gliding movement.

The expenses of the 1953 National Championships were underwritten by the Trust, and without a similar assurance it would not have been possible for the Association to have made its bid to hold the World Championships in this country this year. A substantial cash deposit has been advanced to cover the initial expenses of the organisation.

There have been rumours that the Kemsley Flying Trust will discontinue, and while it is true that this year it will have run its allotted plan, I am able to state authoritatively that it is not so and its good work will go on. During the seven years of its existence the Trust has become an integral and important part of our gliding movement, and without it we would not have progressed as we have done.

I am so glad that our enthusiasm and achievements have given Lord Kemsley so much confidence in us that he has made his decision to continue to give his help and support, and I am sure we all respond with a feeling of deep gratitude to him and his public-spirited action.

Work of the Council

The Council's work during the year covered a very wide field. An extremely important concession was achieved when the Ministry of Civil Aviation agreed that in future B.G.A. Certificates of Airworthiness might be granted, subject to individual agreement in each case, to prototype aircraft privately designed and not built to be sold commercially. Previously, if any private designer had part or all of his design built for him by a commercial concern, an A.R.B. Certificate of Airworthiness became compulsory.

The concession applies to the B.G.A. high-performance two-seater, but also clears the way for other private ventures in progress.

The B.G.A. has affiliated with the Central Council for Physical Recreation, a government-sponsored body which has already shown it can be of great assistance to clubs, particularly in the field of training camps.

Arrangements have been made with Mr. Lawrence Wright to purchase a copy of his film "Gliding Till Now", and also a copy of his well-known cartoon film "Cloud Cuckoo", and together with our growing slide library these visual aids will be available for giving lectures.

The Council are continually reviewing methods of improving the general publicity given our movement, and in 1953 the movement received increased space in the press, and increased time in B.B.C. sound and television programmes. In fact, the publicity was so good that all Courses in 1953 were over-subscribed, and several clubs reported that they could not accept any more members. In the publicity field the Council decided to try an issue of "Poster Stamps", and a sum of £150 was paid for the design and printing of such an issue. So far this has not proved very successful, and we are still £100 short of recovering our outlay. If we could reach a point where the young enthusiast started making collections of these stamps, and others like them, as used to be done with cigarette cards, we obviously would achieve very valuable results.

Committees

The following Committees were set up during the year: Flying, Technical, Publications, Accident Analysis, High Performance Two-Seater, Equipment, World Championships, the Instructors' Panel, and

the O.S.T.I.V. Co-Ordinators were re-appointed. (Reports of the Technical and Accidents Analysis Committees are given separately.)

Instructors' Panel

The Panel has not been very active during the year, as now all Full Member Clubs but one have qualified instructors; the remaining club is in the process of applying for categorisation. Of the Associate Member Clubs all but one have qualified instructors, and action is being taken in this case.

Publications Committee

GLIDING has had a good year. Its circulation continues to expand and its finances are sound. The question of increasing the frequency of publication from quarterly to monthly continually crops up, but the difficulty is great. We are producing a magazine which represents just about the limit of what can be expected from honorary unpaid workers. If we turn it into a monthly we must expect to have to pay something for the time given by those producing it; also we cannot be sure that our advertisers would be prepared to take twelve annual insertions against the present four. Therefore, we must decide whether it is wise to abandon a quarterly of first-class quality, which has been made to pay for itself, to try the dangerous seas of a monthly. GLIDING does a tremendous lot to hold our movement together—possibly a monthly could do little more, and in this sense might be regarded as a luxury; and the money we might expect to lose on it could be better spent in other directions.

High-performance Two-seater

Since I personally have been working on this project since around 1945, it is with something bordering on incredulity that I have to report that the prototype aircraft with wooden wings may, by the time of the Annual General Meeting, actually have flown, or at least be on the point of its first flight.

Messrs. Elliott's, who have constructed the wings and completed the prototype, have with Ministry of Supply and Kemsley Flying Trust approval been given an option on the World Design Rights, which they may accept or reject by the 7th August, 1954, by which time the machine should have shown its worth in the test-flying and World Championships.

1953 National Championships

The 1953 Championships were certainly the largest, and possibly the most successful we have held. The weather was difficult, but we flew on no less than nine days out of ten. A special word of thanks is due to the Meteorological Office, which provided both staff and a MUFAX tele-recorder and gave us a meteorological service on a new plane. Once again the Derbyshire and Lancashire Gliding Club earned all our thanks for the immense effort they put up for the benefit of the whole movement.

World Championships

The World Gliding Championships, to be held at Camphill from 20th July to 4th August, will this year provide the British gliding movement with at once the greatest opportunity and greatest task with which they have ever been faced. It is hardly too much to say that the eyes of the whole nation will be upon us, and the benefits which may come to us from a successful meeting may be very great indeed. But success can only come from the utmost co-operation from all of us. The main weight of the preparatory work must inevitably fall on the Derbyshire and Lancashire Gliding Club and on your already hard-worked secretariat, but much outside assistance will be needed. I have little doubt that it will be forthcoming. One problem is the provision of aircraft and trailers for loan to some of the more distant entrants. This is a must—we have undertaken to provide them, and the Championships will be a failure if we fall down on our promise. May I ask Club and Private Owner representatives to come to the Annual General Meeting with authority to offer such aircraft as they can. They will be fully insured and possibly a Club or Private Owner member may be included in each borrowing team to assist in seeing that the aircraft is properly handled on the ground. To reimburse Clubs and Private Owners for wear and tear and loss of aircraft for the three weeks period, we are prepared to pay £25 for each glider loaned. If any glider loaned by a Club meets with a mishap during the contests which puts it out of commission for some period, the B.G.A. will, if finances permit, endeavour to reimburse any such loss to the Club concerned.

Trophies

During the year three additional Trophies were presented to the Association and

gratefully accepted. The Douglas Trophy for inter-club competition, to be awarded annually to the club putting forward three flights by three different club members in club aircraft, aggregating the largest total cross-country mileage. The Slingsby Trophy to be awarded to the pilot making the most meritorious flight at the National Championships in a multi-seater sailplane of British design and construction with an aspect ratio no higher than twelve. The Furlong Trophy to be awarded to the entrant of the two-seater glider earning the greatest number of points in the National Championships.

The Future

Although, as I have said, I believe our movement to be expanding and consolidating, everyone will agree that much more remains to be done; four of the largest clubs have quite ambitious programmes of expansion in the current year, but other existing clubs could still put up their output by taking the necessary steps to fly and hold training camps on a six or seven-day weekly basis, at any rate through the summer months. I feel it is up to us to extend the use of our existing equipment to the utmost. The creation of new clubs, which is badly needed, or even the consolidation and expansion of many existing ones, is largely prevented by the apparent impossibility of obtaining security of tenure of suitable sites. Until something can be done in this direction with or without official support, it is extremely difficult for any large new vital club to become established.

PHILIP WILLS,
Chairman.

Technical Committee's Report

MEMBERS of the Committee:—Professor A. A. Hall, M.A., F.R.AE.S. (Chairman), F. G. Irving (Deputy Chairman), R. Austin, R. Brigden, C. Faulkner, J. Leach, M. Neale, K. R. Obee, R. R. Pinniger (Examiner of Inspectors), G. O. Smith, C. O. Vernon, L. Welch.

Advisers to the Technical Committee:—H. Kendall, C. W. Prower, K. E. Machin (Radio), K. G. Wilkinson.

The Committee held four meetings during the previous year: 103 Certificates of Airworthiness were issued (107 in 1952) and there are now 22 Approved Inspectors and 7 Approved Firms. Mr. Pinniger, Examiner of Inspectors, has visited five clubs and has in general been favourably impressed by the standards of the maintenance and repair, although in certain cases he found that aircraft logbooks were not receiving the attention they deserve.

At the time of the last Annual General Meeting, a Conference of Inspectors was held at Londonderry House, and there was a very useful discussion.

A set of German Glider Design Requirements has been obtained, which await translation. The Committee is also studying the plans of the Fauvel AV-36 Flying Wing, since there have been several enquiries from prospective constructors who wish to know whether the design would qualify for a B.G.A. Certificate of Airworthiness.

On behalf of the Committee, Mr. Neale has drawn up a Design Specification for a standard two-drum winch, which has been circulated to several interested manufacturers.

The Ministry of Transport and Civil Aviation has been approached to extend the terms of Exemption from A.R.B. C. of A. requirements to include the K-1, Harbinger and Camel. The Ministry has agreed to do so, provided that the owners make individual application when the aircraft exists. In this connection, the members of the Committee have been engaged in considering the certification of the K-1.

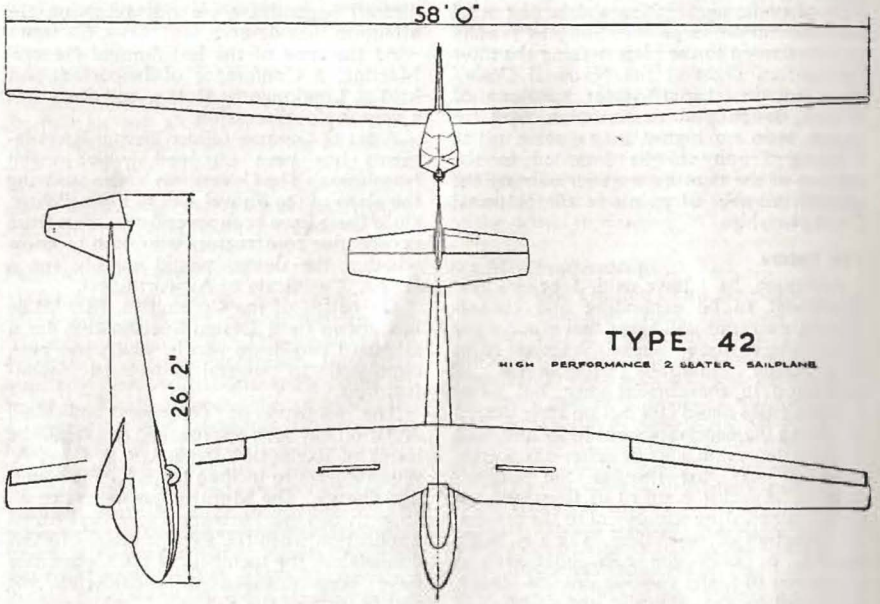
A sub-committee, under Mr. Vernon, has commenced work on proposals for modifying British Civil Airworthiness Requirements for Gliders, for submission to the Air Registration Board.

The routine work of renewing C's. of A. has been carried out almost entirely by the secretarial staff, and the Committee wishes to record their appreciation of the efficiency with which this has been done. Again, there have been a few cases which have required more detailed consideration by Members of the Committee. They again wish to remind anyone constructing his own machine to approach the B.G.A. as early as possible, to avoid the difficulty which has recently occurred, when application for a prototype C. of A. was first made when the machine had flown.

In addition to the office staff, as mentioned above, the Inspectors and Manufacturers have been most helpful and the Committee is most grateful to them.

F. G. IRVING,
Deputy Chairman, Technical Committee.

Slingsby Type 42 Two-Seater



THE Slingsby Type 42 has been designed to meet the need for a high-performance two-seater training sailplane which can serve as a replacement for the medium or low-performance machines at present in use. The design is intended to incorporate all the features which experience has shown to be desirable in training gliders. The design of the structure is simple and robust and allows for easy servicing and maintenance.

The machine should have a performance which is in advance of any two-seater sailplane at present available. A moderately low wing loading (4.6 lbs. at max. all-up weight) has been chosen to provide a good performance at low speeds and a low landing speed. The machine can be flown solo from the front cockpit by the removal of a ballast weight from the tail end of the fuselage. As a single-seater the performance should be comparable with the present Sky sailplane.

Although designed as a training machine, the Type 42 should be an excellent all-round high-performance two-seater and be quite suitable for contest flying. The stressing weight of 1,100 lbs. should allow ample margin for special installations, such as radio and oxygen, to be fitted.

The Type 42 can be transported in any trailer which will take a Sedbergh.

Span, 58 ft.; length, 26 ft.; wing area, 240 sq. ft.; aspect ratio, 14; mean chord, 4.14 ft.

Estimated tare weight, 630 lbs.; max. all-up weight, 1,100 lbs.; max. permissible load, 470 lbs. Positive stressing factor, 8.6; negative stressing factor, 5.6.

Airfoil Sections: Wing root, NACA 63_3-618; wing tip, NACA 4412; tail units, NACA 64-009. Wing aerodynamic twist 3°; wing root incidence, 5°; wing dihedral 2°.

All structural components, with the exception of fittings, are constructed of wood. Fibre-glass laminates are used where suitable for fairings, lightly stressed skins and cockpit fitments.

The fuselage is built as one component which also incorporates the fin. The forward part of the fuselage, which contains the two cockpits and the wing attachment frames, has a structure consisting of frames, stringers and longerons and is plywood-covered. The rear fuselage is a diagonally braced structure which is fabric-covered.

The cockpits are positioned in front of the wing and provide good visibility for both pilots. The rear pilot's rudder pedals are located at the side of the front pilot's seat; this allows the two pilots to be sufficiently close together for normal conversation to be carried on without the need for any system of inter-comm. All controls are fully duplicated and space is available for a full set of instruments in both cockpits. Access to the cockpits is obtained by opening the coupé; either pilot can enter or leave the machine without disturbing the other. The seats accommodate back-seat parachutes; if these are not worn, seat backs can be fitted.

The main undercarriage consists of a skid and a wheel. The skid is mounted on rubber shock-absorber blocks; it is made of ash and has a replaceable steel rubbing plate on the underside. The wheel has a diameter of 15 inches and a tyre size of 6.00 x 4.00; it is located directly under the main frame and is solidly mounted.

A tail-skid is fitted at the rear end of the fuselage; this consists of a metal spoon mounted on a leaf spring.

The wing is divided into three panels; these are centre section, port and starboard outboard wings. The centre section is 20 ft. span and has a constant chord of 5 feet. To obtain the required C.G. position relative to the wing, it has been necessary to sweep the tips of the centre section 12 inches forward. This gives the component an overall width of 6 feet.

The dive brakes are contained in the centre section of the wing; these are located aft of the spar and are operated by push-rods from the fuselage. The main spar is positioned at 40% of the chord. Forward of this point the wing is plywood-covered to provide an accurate profile; aft of this it is fabric covered.

The outboard wings are 19 ft. span and are attached to the centre section by a special arrangement of fittings, which only require the insertion of one pin. The ailerons are built in one piece and are operated by a horn one-third out on their spar.

The fin is built as an integral part of the fuselage and is plywood-covered to provide an accurate profile to the airfoil section. The rudder is a diagonally braced structure which is fabric-covered; it is mounted onto the fin by means of two hinges.

The tailplane is fully plywood-covered and is attached to the fuselage by two rigging pins. The elevator is diagonally braced and fabric-covered; it is attached to the tailplane by three hinges. An elevator trim tab is located at the trailing edge on the port side of the elevator.



Another new Slingsby product: the T-41 or Skylark II, a modification of the first Skylark, with larger wings, suitable for temperate climates. Span, 48 ft.; maximum chord, 3 ft. 6 ins.; stalling speed, 35 m.p.h.

A Waving South-Easterly

by Allan Pickup

Midland Gliding Club

FROM the Shrewsbury to Church Stretton valley on Sunday, 11th October, the broken strato-cumulus clouds could be seen at 12.00 hrs. capping the hills on either side. The wind, what there was of it, was blowing from the south-east quarter. A depressing sight.

On top of the Long Mynd, the sky was much brighter at 13.00 hrs. Launching had started by 14.10 hrs., when the sky had cleared completely. The Prefect was flying to the north-west, about half a mile away and 1,000 ft. above take-off point. The Wave was working. Flying had actually started at 13.28 when Horrell and Rickett took off in the T-21b and managed to contact the wave, but landed after 17 minutes. The conditions were so easy that most of those present could take advantage of them. The T-21b, Venture, two Olympias, Prefect and Petrel all took to the wave; only the Tutors were not permitted to fly in it, because there is usually a severe downdraught between the club site and the lift area.

John Hickling landed in Blue Olympia at 15.05 hrs. after 30 minutes' flight, having reached 3,400 ft. (all heights a.s.l. from here on). He had contacted the wave at 2,100 ft. just a little to the west of Asterton village (where most pilots contacted) and found the lift area extending well to the north end of the west-facing slope of the Long Mynd, parallel to it, half a mile out over the valley. The wave was very narrow.

By the time my turn came (15.30 hrs. in Blue Olympia) the wind had veered about 10 degrees so that, west of the launching site, pilots had to fly about three-quarters of a mile out, this being the south end of the wave. There had been normal sink from the top of the launch at 2,000 ft. to the point of contact W.N.W. of Asterton at 1,800 ft. when the variometer showed no sink. On flying still further down wind, the variometer readings quickly went up to 3 ft/sec., then through zero to 2 ft/sec. sink, just on the downwind side of the wave, the time taken to fly across the upcurrent being only about 20 or 30 seconds at 40 knots.

On returning to that part of the wave section which gave best lift, I turned north to join the other sailplanes which were flying in the wave at heights from 2,300 ft. to 3,400 ft. The variometer indicated a steady 3 ft/sec. all along the wave until I reached a point W.S.W. of Pole Cottage, half a mile out from the ridge, where there was a steady tapering off of lift down to 4 or 5 ft/sec. sink. It was in this area that Hickling in both his flights found turbulence. B. R. Wright in the Cream Olympia said that conditions were very rough west of Pole Cottage. The only rough bit that I found was whilst flying across the lift area at 3,100 ft. west of Asterton. The air was quite smooth while flying west over the wave in no sink; then, immediately over the centre of the lift area, the Olympia gave a violent double shudder, followed by smooth flight with the variometer still reading zero. John Anstey in the Prefect found "a narrow band of turbulence on entering the lift area and anomalous variometer and altimeter effects: i.e. lift when flying north, violent sink after turning to the south again."

By flying N. and S. along the lift area, I eventually climbed to 3,200 ft. It was now 15.50 hrs. and the Prefect was the only one higher than I. No matter how hard I tried, it seemed impossible to gain his altitude. In trying to find an area of lift I flew upwind over Asterton but only found more zero. When I turned to come back to the known wave position, there was 5 ft/sec. down, and when I reached the wave there was still only zero sink along the whole of the length. From the N. end of the wave I flew downwind in the direction of the Stiperstones (N.W.), but this only produced 3 ft/sec. down, and on returning I had lost 500 ft.

I noticed that there was a long sloping wall of haze extending the entire length of the wave and vertically below it, sloping down towards the bottom of the west slope of the Mynd, forming a V-shaped trough with it, which was wider at the south than the north end. The top of this wall was just level with me, when I noticed the variometer

show 10 ft/sec. down. I increased speed to 60 k.p.h. for half a minute until I was clear of the haze on the upwind side, then reduced to 40 k.p.h. and got 5 ft/sec. lift, showing that the haze contained down-currents and the air immediately in front of this was an upcurrent. Flying south again, I reached 2,800 ft., when the lift became weaker—3 ft/sec.—and I continued driving back and forth along the wave.

It was now 16.15 hrs., and it seemed that at around 3,300 ft. the area of upcurrent was now about a quarter of a mile wider than before, but generally weaker. At the north end of the wave, the lift extended from just over the Long Mynd's western slope to a point about half way to Wentnor. The length of the lift extended from about half a mile south of Pole Cottage to half a mile west of the hangar. B. R. Wright reported that lift extended well to the east at the higher levels. His flight of 1 hr. 10 mins. had ended at 15.05 hrs.

At this time it seemed that the wind had strengthened a little and veered a bit, and stronger lift (5 ft/sec.) was available, but only in about three isolated places at the north end of the wave. If an imaginary line was drawn between them, it made a triangle, with its centre about ¾ mile N.W. of the hangar, and the areas of lift being ½ mile apart. These areas were shifting about, and the lift was sometimes only ½ or 1 ft/sec. and they were very small, and I found the best way of using them was to do a figure eight so that the top and bottom of the figure overlapped two of the lift areas. There was no sink between. Neill, in the Petrel, seemed to prefer thermalling technique, and at one stage managed to climb to my level.

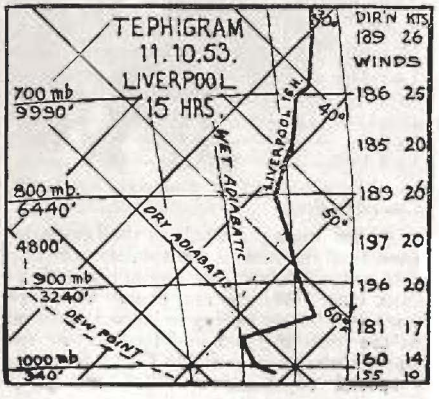
By 16.45 hrs. the Petrel and Cream Olympia had landed at the club site. But the two two-seaters were in the valley. Apparently the T-21b had spent some time, level with the top of the Mynd, struggling to maintain height, a mile west of Asterton.

By 17.00 hrs. I had just about strained the last drop of lift out of the wave and was now sitting at 3,800 ft. The Prefect, which has been "tooing and froing" below me for the last half hour or so, was also sucked down into the valley. Seeing the countryside so littered with gliders seemed to suggest that the stronger, veered wind had reduced lift at the lower levels, while at my height it was quite easy to maintain height, but not to gain any.

Before landing, I decided to tour, and see what the air was doing in other places. First, on setting course to the S.W., I lost height steadily at 3 ft/sec. until reaching a point about two miles south of Wentnor. Turning S.S.E. and flying straight to the south tip of the Mynd, I was still losing at 3 ft/sec. Over the Long Mynd at 2,400 ft. I set course for the landing ground to the north, and immediately ran into 10 ft/sec. downcurrent, which seemed to extend all along the top of the hill, and I only just arrived back by the hangar at 17.10 hrs.

There had been fourteen attempts to fly in this wave, and only two had failed to find lift. The maximum height was 3,800 ft. and total amount of time in successful wave flights was 9 hours 27 minutes.





Thoughts on Future Training

by John Free

Chief Flying Instructor, London Gliding Club.
Formerly C.F.I., Army Gliding Club.

Introduction

For a long time I have been seriously considering the advisability of introducing pupil pilots to their first and early solo flights on the two-seater, the type of glider on which the majority are fortunate enough to receive their elementary dual training.

In the case of the Army Club's current method of sending pupils solo in the Grunau IIb single-seater, after demonstrating their proficiency in the two-seater, this has proved one hundred per cent, as in three years' operations not one single accident occurred as a result of this psychologically tricky stage. But that is no criterion to suppose that improvement cannot be made.

It is my opinion that this transitory stage in a pupil's training (from dual to solo) should be dealt with as in fact it is done in power flying, and has been done with eminent success for many years. Only then will dual instruction, as we have seen it develop and come to accept it in gliding during the last five years, be brought to its logical conclusion.

With these thoughts in mind I put a written proposal to this effect before the Committee of the Army Club about a year ago, but unfortunately for various reasons it was not proceeded with, for even a trial period. As another annual B.G.A. Instructors' Conference is imminent, and as I am pleased to notice that more people are showing increasing interest in these new proposals for the improvement of future training techniques, it may now be opportune to discuss some of the details.

Considerations

By sending a pupil solo in the two-seater (and teaching him to use spoilers normally and naturally from the beginning) it is at once clear that time and energy would be conserved in not having to inspect, marshal at the take-off point and then test-fly the single-seater in preparation for his first solo —special organisation which the pupil himself must at times view in a lather of trepidation! When all has been made ready he is then not only confronted with the prospect of making a presentable and safe first solo flight, but burdened and harassed with the additional difficulties of memorising an entirely new briefing and cockpit, and being told to fly an unfamiliar machine for the first time in his life, with a general background of very limited flying experience upon which to draw. In the circumstances it is a source of continual amazement to me that pupils perform as creditably as they do!

By using the two-seater for the first solo phase there would be no time-lag in getting the pupil off on his first flight alone; he would be flying a rugged machine with which he is confidently familiar, and the briefing for such a fllight would remain unchanged. Obviously if there is any doubt in the Instructor's mind that a pupil is likely to hazard an aircraft, then he is not fit to be sent solo at all. No one must ever lose sight of the fact that the declared and dedicated life of an Instructor, and the two-seater for which he is responsible, is to make pupils fit to fly alone safely and well. What could be better or more logical and convenient than to send the pupil solo in the machine, and weather conditions, that he has known for what must be the most impressionable part of his flying career ?

Such considerations must surely outweigh the counter-arguments to the effect that a club only has the availability of perhaps one two-seater; that the "load" on the two-seater would be increased; in consequence there would be more frustration among pre-solo pupils; and that the number of launches required to go solo would not be reduced?

I do not anticipate that it would take longer to send a pupil off solo by this method, but even if it did I do not think that matters at all. Gliding has not yet reached the stage of development, as in aeroplane clubs, when a member can pay so much at a certain time and receive exactly x number of minutes flying time, and then be free to

go home again. I repeat that the Instructor's job is to train pupils to fly safely and with polish, and it does not matter how long it takes to achieve this, as for some there is no quick and easy road to success.

Method

The principle would be the same, of course, for winching as for auto-towing, which is the method described here.

Having taken the decision to send the pupil solo, the Check Instructor would get out of the two-seater, line it up into wind at the end of the runway and stop the auto-tow car at the launching point. The driver would be told that a first solo flight was about to be made, and given instructions to check the launching wire carefully on his way to the upwind end. The Instructor would remove a special ballast bag (kept on the car when not in use so that it is always to hand at the right time) which corresponds as closely as possible in weight to that of the Instructor. This ballast bag would then be secured in the vacant seat by means of easy-fasten safety clips attached to the seat frame and bulkhead as small permanent fittings. The safety harness would be done up tight and pinned, and the launching wire attached to the aircraft. In a matter of a few moments only, all has been made ready to launch.

The Instructor might then say something like this to the pupil: "This is your first solo; it is nothing more than you have already been doing with me; I want you to do exactly as you did with me just now; off you go and make a good job of it."

In order to consolidate this phase, and to make the necessary qualifying flights for certificate purposes, about half a dozen such flights would require to be made, after which the pupil could be converted on to the single-seater in the normal way—preferably one with spoilers or air brakes, and with better flying characteristics than some of the intermediate machines currently in use.

Conclusions.

I am convinced that this method of utilising the two-seater for first and early solo flights would pay dividends, particularly at hill sites where experienced pilots sometimes find it uncomplimentary and strange to fly a machine without spoilers or brakes. How much more of a nightmare for the pupil this must be! In fact, I think the more "difficult" the site the more necessary this system is.



The enclosed canopy for the Army Club's T-21b two-seater, designed and built by Don Campbell at the author's suggestion. Each side can be removed separately.

Furthermore, the lowering of the capital value and general usefulness of such types as the Cadet and Tutor, as was the case of the Dagling before them, will probably force this situation to be resolved eventually.

Postscript

On the subject of instruments (pros and cons) I must confess that I have trained pupils solo and dual, with and without instruments. I have also come to the conclusion that the only really satisfactory way is to use the instruments from the beginning. You must explain the points about instrument error, lag, lack of vibration, etc., and emphasize that the instruments are not to be relied upon entirely but should be used as a check only; nevertheless, they are to give assistance and to be used intelligently.

Dual instruction is at the stage when the pupil can be taught to fly perfectly well without having a howling hurricane blowing in his face all the time. I felt so strongly that this was right, that a year ago I asked Donald Campbell to design and construct an enclosed canopy (which is now on the Army Club's two-seater), as it is far better for both occupants to be comfortable and warm while instruction is in progress.

To cater for the alteration of the height of ground-level while flying cross-country, forced landings can be simulated to a useful extent at the site (or field selected for the purpose with the added advantage of affording rigging and de-rigging practice at the same time) with the altimeter covered up, but with the pupil more experienced and at cross-country standard, in the same machine

to be used for "going away".

Take the altimeter away from the pupil who is learning to fly, or practising circuits, and you deprive him of a valuable aid in planning his circuit and approach. Send him up without an airspeed indicator and he will not know the speed of the launch, except by luck, especially on a type he has not flown or on which he has not received any dual.

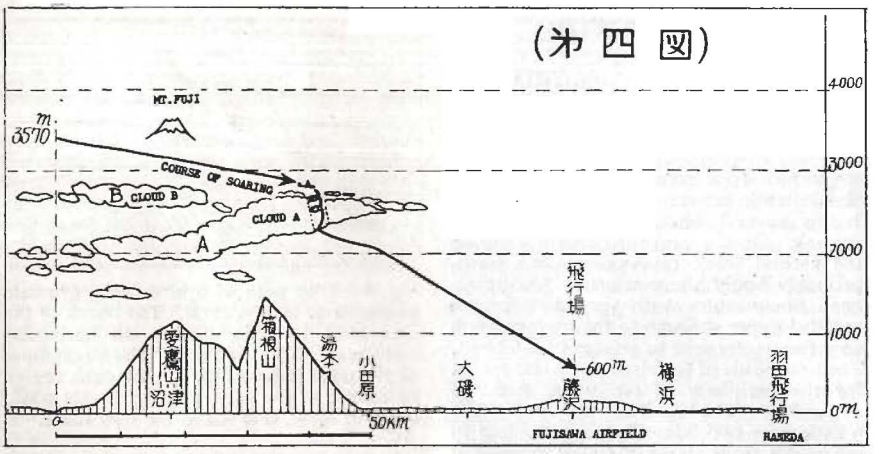
With good and careful instruction, instruments are a pupil's friend. By all means train and develop his senses, but let the instruments remain, or put them back. Flying aircraft without instruments really went out with the Ark, as time will show!

Gliding Club Statistics for 1953

EACH year all gliding clubs and organisations which are members of the British Gliding Association are asked to send in returns of the past year's activities and other particulars. From the returns sent in, selected items have been made up into the following table, which does not, however, include the Air Training Corps or the Service clubs in Germany.

Returns from Perak, Central Africa, Aberdeen and the Watton Branch of the R.A.F. Gliding and Soaring Association had not yet been received when the table was compiled.

Gliding Club	*Launches on site*	*Hours on site*	*Flying Days*	*Soaring Days*	*Membership*	
					Flying	*Non-Flying*
Army G.C.	5,000	715	—	—	211	6
Bristol	5,168	366	150	25	90	40
Cambridge Univ. ..	2,141	264	181	59	120	1
Derby & Lancs. ..	5,008	2,070	125	87	151	187
Surrey & Imp. Coll.	6,302	713	141	55	160	47
London	7,369	1,939	228	142	258	52
Midland	4,540	2,075	136	105	159	43
Newcastle	587	59	46	15	20	40
Oxford	3,691	275	115	37	61	—
R.A.F.G.S.A.						
Moonrakers ..	1,888	94	96	6	41	—
No. 7 Area ..	1,250	55	84	14	56	—
East Midland ..	1,167	63	59	14	24	—
Western Area ..	1,267	116	67	11	49	—
Wessex	1,911	148	95	—	100	—
Other R.A.F. ..	111	143	—	—	118	—
R.N.G.S.A.	1,982	121	60	2	148	—
Scottish G.U. ..	3,541	266	100	25	65	—
Southdown	2,591	346	120	70	77	27
Yorkshire	1,580	422	118	69	52	42
Avro	950	65	65	3	96	1
Blackpool & Fylde ..	324	—	—	—	15	332
Coll. of Aeronautics	859	144	27	4	32	—
Coventry	2,297	171	98	33	44	7
Handley Page ..	630	30	44	—	18	3
Royal Engineers ..	835	60	129	—	10	—
Hereford	99	6	—	—	12	—
Polish A.F.A. ..	180	20	32	7	7	—
Totals	63,268	10,707	—	—	2.204	—



Distance over Japan

by Katsu Koori

(Director of the Japan Gliding Federation)

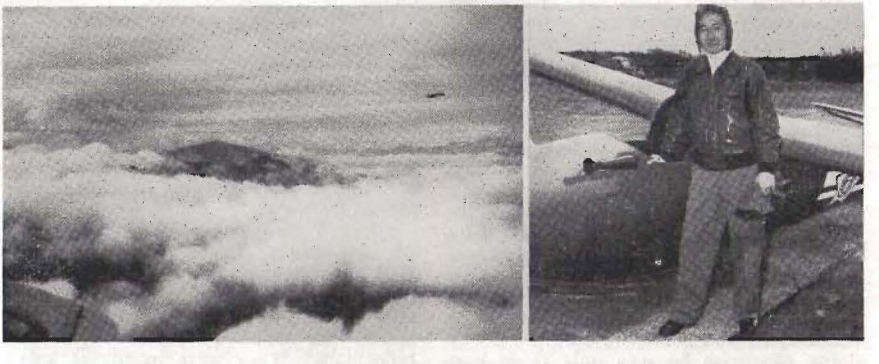
At 10.45 on 5th January, Kan Kondo started from Haneda airport in his Tohi-S.A. sailplane in tow of a Piper Super-Cub. By 12.25, he was directly over the mouth of Fuji River at 3,570 metres altitude (11,710 ft.), and released the cable and glided toward the east. At 3.15, he landed on Fujisawa airfield. The total straight distance from the release point to Fujisawa airfield was measured as 82 kilometres (51 miles) by the officials.

The previous distance record for Japan was 72 kilometres (45 miles), which was established in August 1940 by Isamu Oda, who started from a point 2,600 metres high (8,530 ft.) on Mt. Fuji.

This new record was recognised by the Directors' Committee of The Japan Aeronautics Association on 14th January.

Kan Kondo is a leading sailplane pilot in this country. He is 32 years old, and he joined the glider circle 13 years ago. His total flying time in gliders by to-day is about 82 hours. He is an aeroplane pilot of the Mainichi Newspapers.

The accompanying pictures and chart will explain the detail of this flight.



Left: tug and sailplane above the clouds. Right: Mr. Kan Kondo, the pilot.

Birds Soaring Over the Ocean

by R. S. Scorer

DURING two recent crossings of the Atlantic between Cobh and New York I saw several birds practising dynamic soaring. On the westward crossing during the second week of August some birds, probably Sooty Shearwaters or Mediterranean Shearwaters, with very dark brown mottled upper surfaces to their wings, were very frequently seen in groups of 2-6 birds. The under-side of the birds was white except for the periphery of the wings and the extremities of the tail. Their span is perhaps a little over two feet. They are difficult to see except from above or below because of the small area presented to the eyes, and when there are very few large waves they seldom do steep turns or rise more than a foot or two above the sea, so that without binoculars only fleeting glances of them are visible.

On the 10th August, 1953, the sea was pretty rough about halfway from Ireland to Newfoundland and it was the first day on which I saw them. They were soaring with great agility, rising from time to time up to 6-10 ft. above the water, mainly as they passed in a windward direction over the crests of the waves. As the sea was somewhat confused, the crests were only temporary and they passed in among them as if they could foresee the behaviour of the contours. It seemed as if they only passed over sharp crests when they wished to obtain energy, otherwise they passed over a col. Presumably it was over the sharp crests that they could make the most rapid gain of height (and hence energy). They flew into wind most of the time and nearly all their downwind flying was done from the top of an ascent above a wave, and they always turned into wind as they came down to the surface again—which is not what one would expect if they were using the velocity gradient close to the surface produced by some sort of friction. It seems as if they had to be ready to pass over another crest in an upwind direction. On the other hand, they may have been keeping up with the ship deliberately, and possibly I did not see any doing otherwise because only those that were interested in the ship came near enough

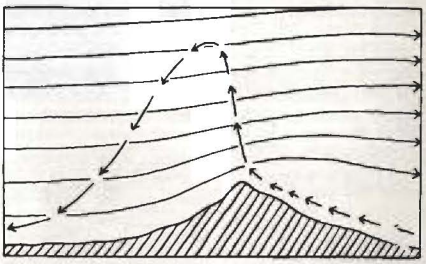


Fig. 1.—The path of a bird doing dynamic soaring over a wave crest. The length of the arrows on its path denotes the horizontal component of the air speed. The streamlines of the wind indicate the almost calm region to the lee of the crest and the strong wind, over the crest, into which the bird soars.

for long enough. It was indeed remarkable how they kept the same speed as the ship, but they made no attempt to exploit the wind currents around or in the lee of the ship, presumably because the type of soaring familiar to them was adequate. Nor did they search in the wake of the ship for garbage or take any notice of things thrown overboard as seagulls do. They obviously manage well enough without bothering about ships.

The birds made one dynamic ascent every 5-6 seconds on the average, many of them over the smaller waves. The main swell was passing with a period of 7-8 seconds (measured from the motion of the ship with which they were keeping level). Their airspeed was about 30 knots.

On this day they flapped scarcely at all and I only saw one settle on the water during about 5-6 "bird-hours" (much of the time I had two or three in view). This one settled for about three seconds. Some may have settled behind waves, but I watched them in all directions, and so they certainly did not settle preferentially on any particular side of the waves that happened to be hidden from view.

On the following day the swell was from the north and we were steaming towards the W.S.W. while the wind was from the west, but causing very little roughness. The birds seldom rose more than 2 ft. above the sea and so were difficult to find find except with binoculars. They were mostly in intermittent flapping flight. Thus the waves were

useless to them and they showed no aptitude in exploiting the wind gradient alone for dynamic soaring. After watching them for some time from the foredeck it occurred to me that the wash of the ship on the starboard side would contain waves that were almost across the wind and would therefore be a place where they could exploit the larger velocity gradients over the wave crests. On going aft I picked out a bird immediately: it was repeating a circuit across the most intense part of the wash where it lay across the swell and the wind. (The wash is confined within an angle of 39° from the ship but in places the waves in it make a greater angle with the direction of the ship than the boundary of the wash does.) The bird doing the circuit was only visible to me without binoculars on the upwind part, for on this it was banked away from me and its white underside showed clearly. It also seemed to have worked out a circuit which involved descending close to the water on the downwind leg, which is reasonable for dynamic soaring, for its airspeed is thereby maintained by sinking to lower levels. On arriving so low over the water that no further descent is possible, it must gradually lose airspeed and must turn into wind again before it reaches stalling speed. It seemed to take advantage of two wave crests and soared to 10-15 ft. twice on the upwind leg. The whole circuit was within the angle of the binoculars and so it was not lost, if it occasionally became invisible, because it always returned within the field of view. After 7-8 minutes it joined a group of birds following a school of porpoises, and no birds at all could be seen for some time after that.

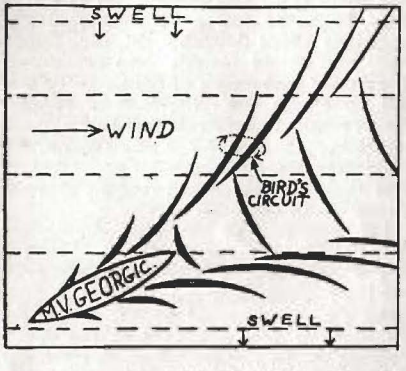


Fig. 2.—The circuit of a bird, doing dynamic soaring, in relation to the wash of the ship (steaming W.S.W'wards), the wind (from the W.), and the swell (from the N.). The circuit is where the waves of the wash are at about their highest and steepest, and lie nearly across the wind. The wash is fixed relative to the ship; the swell is moving southwards past the ship. Wave crests are shown.

Later on, the wind had strengthened and two birds were seen doing dynamic soaring by the method described by Philip Wills (i.e., doing circuits with the greatest altitude at the upwind end). By now there were whitecaps and the sea was rougher: the wind was no stronger but had blown for longer. The sea therefore provided a rougher surface and a deeper frictionally retarded layer in which dynamic soaring was possible.

Later still on that day the wind backed and began to blow across the northerly swell, and I saw one bird doing dynamic soaring over the wave crests as on the previous day. In the evening, however, the wind had dropped and whitecaps were rare: all the birds were then flapping. A school of large porpoises, each about 10 ft. long, passed by. Unlike the earlier school, whose members were small and emerged completely from the water, these only showed part of themselves above the surface. Neither were they followed by any birds: but whether the reason for this was in the wind structure and the soaring possibilities I do not know.

The return journey was made in a cold northerly wind in mid-October. There were very few solitary birds with mainly dark plumage, but what were probably Greater Shearwaters (or possibly Fulmars) were seen, sometimes in flocks estimated at 200-300 birds. These were slightly smaller and more nearly white all over than the birds seen on the outward journey: they did not come so near the ship. This was 500-800 miles to the west of Ireland. These flocks flew along, always flapping and higher above the water than soaring birds, i.e., 3-6 ft. up, parallel with the ship at about 200-300 yards distance for a few minutes before going away.

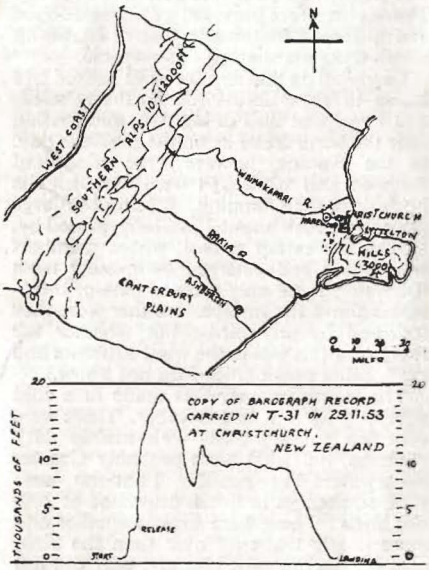
A rough calculation of the bird density suggests that there are between 10 and 50 million birds living over the North Atlantic Ocean.

New Zealand Wave

by J. Evans, Senr.

ON 29th November, 1953 the Canterbury Gliding Club was operating early at Harewood Aerodrome, Christchurch, using aero-tow launches, and hoping to contact something useful during the nor'-westerly conditions prevailing.

At 08.45 hours it was observed that R. B. Allison in the Club's new Eon Baby was gaining height over the north-east corner of the airfield, and it was hurriedly decided that John Evans and John van Til should



get airborne in the T-31 and see if they could better the existing N.Z. two-seater record of 1 hour's duration.

Not dreaming of altitude records, they were towed-off by the Canterbury Aero Club's Tiger Moth at 09.15 hours. The tow was bumpy up to 2,000 ft. but thereafter the air became smooth and lift was soon encountered. Over the Waimakariri river, at 3,200 ft., with the variometer showing 10 ft. per sec. rise, the release was made. At first there was a drift to the south and some loss of lift, but the pilots soon discovered that by flying north lift was recovered. A strong N.W. wind was blowing and it was found that, by keeping a speed of 40-45 m.p.h., a position within reach of the airfield could be maintained in rising air.

The sky overhead was partly covered by the high cirrus usual in N.W. conditions and the mountains to the west were also covered. With an eye on the revolving altimeter they went up with great satisfaction to 10,000 ft. without so much as a circle, but after that they began to feel the cold, not being adequately clothed for heights. They took turn and turn about with the controls, one trying to warm his hands while the other held the stick. Soon they tried holding the stick with their knees and sitting on their hands or stuffing them up their sleeves. They were now going up at 20 ft. per sec., but conversation was difficult as one pilot was wearing a flying helmet. At 17,000 ft. both began to feel a little worried and questions about downdraught, blue fingernails and height records were exchanged. They were well aware of the situation and felt no effects from the lack of oxygen. Evans recalled afterwards that he could not remember what the N.Z. altitude record in a glider was, although he knew perfectly well that Dick Georgeson had recently attained 22,000 ft. in the Weihe.

Lift now seemed to be increasing, the green ball having long since stuck at the top of the tube. A dive of 70 m.p.h. was tried but the ball remained fixed above.

As they approached 19,000 ft. on the altimeter, it was noticed that the A.S.I. appeared to be sluggish although there was no sign of any icing. The cloud still looked very far above. The air was very clear and they could see long distances across the Canterbury Plains. Ashburton, 50 miles to the south, was plainly visible and the idea of a cross-country thereto was suggested. This idea probably prevented further altitude and worse!

Course was changed, but it was soon found that to make good a south-westerly course they would need to head almost

directly into the wind, so the idea was abandoned. They were already drifting back over Christchurch and towards the sea; Lyttelton, normally hidden by the Port Hills, was visible, and the vast expanse of the Pacific all too near. However, lift petered out and they were soon down to 10,000 ft. and decided to head back to the airfield. At 7,000 ft. the wave was again entered and they rose quickly at 20 ft. per sec. to 12,000 ft. when it was unanimously agreed that they were high enough. Apparently they were on the upwind edge of the wave and found it an easy matter to move in or out of lift by simply increasing or decreasing speed. At 50 m.p.h. they would move into the downdraught and at 40 m.p.h. they would drift back into the wave. In this way they retained height at 10,000 ft. and position to the N.E. of the airfield for over an hour. It was then observed that the wind strength was increasing and that they were again drifting downwind. A dive into wind at 70 m.p.h. was made and the five miles or so upwind to the airfield was covered with a loss of 8,000 ft.

Arriving over Harewood with 2,000 ft. in hand, they made a circuit and a landing after being in the air for 2 hours and 52 minutes. Although the maximum height of 19,000 ft. was seen on both altimeters it appears that they will be credited with about 18,000 ft., but this is subject to confirmation.

The flight revealed that strong waves exist across the Canterbury Plains 50 to 60 miles from the Southern Alps where they originate. The pilots were none the worse for their experience and believe they could have gone higher if they had been properly equipped or had not, providentially, thought of a cross-country.



A back-seat photograph from a T-31 two-seater of the Auckland Gliding Club, New Zealand, showing the local countryside. A wave flight to 19,000 feet, made in a machine of the same type over South Island, is described in the accompanying article.

Celebrations at Kitty Hawk

by Commander Nicholas Goodhart

THE celebrations of the 50th anniversary of powered flight at Kitty Hawk lasted four days, the climax being on the fourth—the 17th December. All the major events have been well reported in the press; however, there were ceremonies on the first two days involving gliding, which will be of special interest to the gliding fraternity, and which have not been so widely reported.

A team of us from the Mid Atlantic Soaring Association trailed a Laister Kaufman 10 A down to Kitty Hawk from Washington and a towplane was flown down from the Philadelphia Glider Council, all ariving at the same time as very heavy rain set in for the night.

Monday morning dawned bright and clear with about 25 knots of wind and very cold; however, we were scheduled to fly at 11 a.m. so we rigged and got ready.

The site is marked by a fine monument but is otherwise remarkable only for its apparent unsuitedness to the purpose for which the Wright brothers came 600 miles to use it. It consists of a low conical sand dune of small slope and surrounded by typically rough sand-dune type flat land. There are markers showing where the initial flights began and ended. It seems that the gliding flights were made at another site.

As scheduled, we made our demonstration flight over the site, and it wasn't till afterwards that we discovered that everyone else had called off their flying on account of the very high wind. It was private-flying day and one could hardly expect the light aircraft to operate; our towplane pilot had to exert a considerable degree of skill in his clumsy biplane to stay on the runway.

In the afternoon, the high spot of the programme, from the gliding point of view, took place. This consisted of the placing of a wreath at the site from which the gliding experiments were made and the hoisting of





Brigadier-General Frank P. Lahm raises the S.S.A. flag over the Wright brothers' soaring site. On the right, the LK-10a sailplane soars over the monument.

the Soaring Society of America flag on a flagpole which had been erected there. This site looked even less suitable than the power-flying site, and one can only presume that the sand dunes must have shifted considerably since the beginning of the century.

Despite the cold and wind, a long convoy of cars proceeded about four miles as near as they could to the gliding site, where the hardier struggled through the sand to the actual point where the flights were made. In the absence of Captain Ralph S. Barnaby, U.S.N., who was delayed by weather, the wreath was laid by Lt.-Col. Floyd J. Sweet, U.S.A.F., who is the Washington director of the S.S.A. Amongst others, the ceremony was attended by Brigadier D. S. Campbell, U.S.A.F., and members of the "Early Birds" Association, including Brigadier-General Frank P. Lahm, U.S.A. (ret.) who was the second passenger to fly with the Wright brothers. Brigadier-General Lahm performed the flag raising, and after photographs had been taken the brief ceremony was over.

The next day we again successfully put on our demonstration over the monument, and also Floyd Sweet took advantage of the opportunity to speak before a distinguished audience on behalf of the gliding movement at the official luncheon held in a nearby hotel. After luncheon we had, at last, time to explore the monument and the static display items associated with the early experiments.

And so back the 300 miles to Washington, as none of us could spare the time to stay any longer.

Thus was tribute paid by the gliding movement to the memory of the Wright brothers.

Reinhalation and Anoxya

IN GLIDING (Autumn 1953, p. 109) Derek Piggott mentioned that he felt no ill effects—apart from cold—at 17,000 ft. in a Sedbergh, and yet another pilot—Stephenson, in a Sky—was suffering from lack of oxygen at 14,800 ft.: at first sight this appears to be due to individual idiosyncrasies, but after a little consideration other factors are seen to enter into it.

(1) Piggott in an open cockpit had a continuous supply of fresh(!) air, whereas in a Sky a large proportion of the air which Stephenson was breathing would be "second-hand"—he had breathed it before and removed some of the oxygen.

(2) Piggott was facing forward and his lungs, therefore, were being slightly pressurised. Stephenson was sitting in comfort in what would be quite close to static pressure. Piggott's air speed according to the airspeed trace on his barogram—immediately prior to the pitot head icing up—was 45 knots; the pressure difference in the two pilots' lungs, assuming they had been at the same height, would have been equivalent to about 130 ft., and if their airspeed had been 90 knots the difference would have been equivalent to about 500 ft.

From the foregoing it appears that enclosed cockpits should, in order to eliminate re-inhalation, have better ventilation even to the point where at high altitudes it will cause some discomfort. Also the ventilation should be taken from the part of the fuselage at which there is the highest pressure, probably the nose.

An alternative to this would be a mask fed by flexible tube from a point of high pressure outside the fuselage, and if the mask was so arranged that fresh air was passing through it continuously, then spent air would be removed from the mask as it was being exhaled. With normal oxygen masks which are designed to conserve oxygen there is always a proportion of exhaled air which is subsequently re-inhaled.

With equipment of this description it should be possible to attain a somewhat greater altitude without carrying heavy and expensive oxygen equipment.

The percentage of oxygen in the atmosphere is 21 per cent by volume, and as even at sea level there are signs of anoxya if the concentration drops to 12 per cent, it follows that at altitude even a small amount of re-inhalation will have a very marked effect.

PETER TEMPLE.

Correspondence

WORLD CIRCULATION

Dear Sir,

In reply to the advertisement for Barographs and other instruments in the Autumn issue of GLIDING, there were a number of replies including some from New Zealand, Italy, U.S.A., Switzerland, Egypt and Australia.

This rather surprised me, as the only other gliding periodical which, in my experience, can be seen *regularly* in this country is *Thermik*, and I had naturally assumed that there was a lack of exchange of periodicals in the gliding world.

for Marplesons Limited,
P. TEMPLE.

AIRSPEEDS AND FUMBLE FACTORS

Sir,

There are a number of points in J. C. Neilan's "Airspeeds and Fumble Factors" in the Winter '53—'54 issue with which I must take issue.

(1) Page 164: " . . . in the majority of cases you are already cruising faster than the best red ball speed . . . "

In fact, speed should always be raised in a downdraught; this is an important part of the optimum airspeed theory. The new optimum air speed can be found by adding the instantaneous downdraught to the achieved rate-of-climb and taking a new reading from Diagram 2 (page 163): e.g., achieved R/C 300 f.p.m., downdraught 200 f.p.m., equals 500 f.p.m.; total, therefore, new V_{cr} opt—67 m.p.h. instead of 59 m.p.h. in no downdraught (alternatively, see page 150, Vol. II, No. 4).

(2) Page 164: "The effect of altitude on optimum cruising speed is nil . . . " This is not strictly so.

The achieved climb for any particular indicated optimum speed must be raised by the $\sqrt{\sigma}$ factor. In other words, an imaginary indicated R/C is required. Agreed, however, that the effect of this is small at normal altitudes.

(3) Page 165: " . . . in a race strangely enough the 'spurt' is lower than your cruising speed . . . " No!

I am 25 miles from my goal in still air at 7,000 ft., climbing at 300 f.p.m. I wish to have 1,000 ft. in hand on arrival. Diagram 3 shows that if I then abandon cruising technique and adopt max. L/D, I get there in $\frac{25 \times 60}{45}$ equals 33⅓ minutes (actually a little less due to higher T.A.S. at altitude).

If I decided to continue climbing for 3⅓ minutes, I reach 8,050 ft. and am still 25 miles from my goal. I therefore cruise at 60 m.p.h. V_s equals 282 f.p.m. (see Table 1) and I take 25 minutes; height lost is 282×25 equals 7,050 ft. which is correct, and total time taken is 28⅓ minutes (actually less as above).

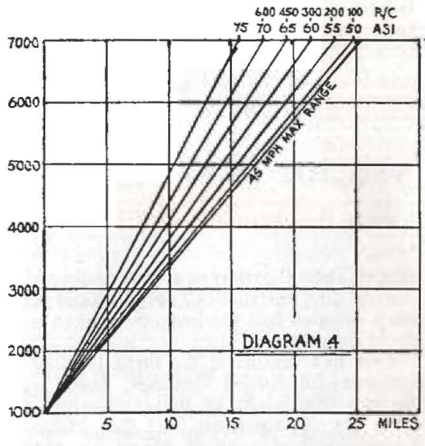
Clearly, therefore, never forget your optimum airspeed theory in a race unless you are forced to in order to cross a bad area or other adverse circumstances. Another major advantage of not adopting maximum range airspeed when completing a flight is that one can do away with any allowance for safety height over destination since, at any time, one can stretch the glide by reverting to the maximum range speed.

(4) The proposed technique for measuring R/C is one I have tried several times but have found very difficult. It must be remembered that the climb starts from the moment you start circling and, therefore, all abortive circles must be included. Furthermore, it is the average R/C over the whole flight that counts and not that achieved in any particular thermal. Another complication is *starting height*—assume that one crosses the start line at 4,000 ft. above the finish line height, and that the race is 60 miles with no wind. Total height required will be about 17,000 ft. but only 13,000 ft. will be climbed during the race; therefore, the mean achieved R/C during the race should be multiplied by 17/13 before selecting an optimum airspeed. This will have a very considerable effect.

H. C. N. GOODHART,
Commander(E), R.N.

MR. NEILAN REPLIES

The points made by Commander Goodhart are good. With regard to his first, theoretically I agree, but in practice, unless one is equipped with a "total energy" variometer, it is practically impossible to tell what the strength of the "instantaneous downcurrent" is, and even with one it is unusual for it to remain constant for long enough to allow you to settle on the correct airspeed; therefore, if you want to allow for downcurrents, my rule-of-thumb suggestion for allowing an increase of 5—10 m.p.h.



covers the majority of cases.

Your correspondent is also correct in his second point. I ought to have written "negligible" instead of "nil". I apologise.

His third point is the one that really makes a difference. I am afraid I led myself astray here, and I hope nobody has lost a race by following my instructions! My Diagram 3 only shows the maximum distance at which the final glide could be started. I would now substitute for it the accompanying Diagram 4, but please note that this is for calm conditions only. Separate charts would be needed for varying wind conditions. Method of use is to carry on until you, as it were, knock your head against the appropriate glide-path. Further thermals are ignored unless they are of greater strength than that corresponding to the gliding speed being used, in which case you would accept their lift until you bashed your head against the glide-path line for the new rate of climb, and then follow it with a glide at the airspeed for the rate. If, by accident, you went higher than the appropriate glide-path, you would use a higher gliding speed, chosen from the diagram, but in exceeding the height required for the correct rate and airspeed you will have wasted some time which you will not be able to make up. Downcurrent allowances could also be charted, but makes the whole issue rather complicated, and again the simplest system is the rule-of-thumb addition of 5—10 m.p.h. according to severity. In view of the downcurrent expectation I still think it is advisable to build in a "safety height" into the chart, as the amount you can stretch the glide gets progressively less the lower you get (see how the glide-paths crowd together down below 2,000 ft.), and it is only when you get low down that you can tell by judgment whether it is going to be necessary to stretch it.

I have no comment to make on Commander Goodhart's fourth point other than the fact that my own experience is opposite to his. I find the knee-pad method much more accurate than the guessing method. As a matter of interest, during the last eighteen years, many of which were barren of cross-country flights, I have, during 42 cross-countries, failed to record an average rate of climb throughout the flight of 240 ft./min. (4 ft./sec.), and I feel sure that those who consistently write of 10 ft./sec. climbs by observation of the variometer and guesstimations are either wizards, flying in cu-nimb, or are fooling themselves. As your correspondent points out, the average climb has to include all the fumbling from the first moment of "sniffing the green".

The complication of a 4,000-ft. starting height is one I had not considered, and it would appear that to cope with this one must first work out what height would normally require to be gained using an expected rate of climb, in order to arrive at the factor by which the rate of climb should be multiplied for choosing the new airspeed. This is a job to be done in the flight-planning stage, not in the cockpit. As a matter of interest, another important factor in a race is the height from which the final glide can be made. Using the 60 miles race in calm conditions that Commander Goodhart mentions, and assuming the average rate of climb is 300 ft./min. and the cruising speed 60 m.p.h., the mean cross-country speed is 31 m.p.h. (low start); but a glide in from 2,000 ft. raises the overall speed to 33 m.p.h., and a glide in from 4,000 ft. (heights above finishing line) raises it to 35 m.p.h. In the case of the 4,000-ft. start, the airspeed is raised to 62½ m.p.h., giving a mean cross-country speed of 35 m.p.h., which can be raised to 37 and 39 m.p.h. respectively by glides in from 2,000 and 4,000 ft. The moral is obviously: don't limit your average cruising height unless the lift is less than the average for the flight and you know that by not bothering about the last few hundred feet you can maintain the average rate of climb.

Because of the advantage that can be gained in the final glide, a triangular course carried out in a wind can be flown in the shortest time if it can be arranged that the last leg is into wind. Unfortunately the task setters don't usually give competitors any choice in the matter.

J. C. NEILAN.

Accident Analysis for 1953

by the Chairman of the Accidents Analysis Committee

ACCIDENT Statistics for 1953 and comparative figures for 1952 are attached and are based upon Reports received from all Clubs of the British Gliding Association except the Air Training Corps and the R.A.F. Gliding and Soaring Association.

So far as 1953 is concerned, we may draw the following conclusions from them.

1. Whilst the number of accidents reported and their cost has remained the same as 1952, accidents involving death or serious injury have been halved.
2. There is a gratifying reduction in the accidents to pupil pilots, and also in the number of accidents occurring "in flight" (e.g., spinning-in).
3. There was a most unwelcome and particularly costly increase in the number of accidents involving two-seater trainers.
4. The "approach" superseded "landing" as that phase of flight having the greatest accident potential.

Last year the Chairman of the Accidents Analysis Committee drew attention to two points which he considered needed special attention: improving instruction to prevent accidents due to loss of control; and better look-out to avoid collision. The 1953 figures seem to indicate that both points have been taken to heart. In addition, for the first time, no accidents were reported during "hops and slides".

As regards two-seater accidents, the increase cannot be shown to be due to greater carelessness or negligence on the part of the pilots in charge, as we have no figures showing the breakdown of launches as between two-seaters and other trainers. It seems fairly safe to say, however, that more two-seater trainers were in use during 1953 than ever before. Nevertheless our reports show that of nine accidents occurring during dual instruction, seven would have been avoided had the instructor taken over more promptly.

One new feature is the large number of unsuccessful forced landings; there were no less than eight of these, of which six were by competitors in the National Championships, and it seems clear that instructors must give more thought to training in this aspect of cross-country flying.

We have also noted from reports that 13 out of the 46 accidents involved pilots with varied experience in flying aeroplanes (40—2,000 hours), and although these had relatively the same number of approach and take-off accidents as the rest, they had substantially more landing breakages.

At the suggestion of the Instructors' Panel we have produced comparative accident rates between clubs operating from aerodromes and others; only clubs doing at least 1,500 launches a year have been included in these figures. The comparison is made between seven clubs operating from aerodromes who produced 28,140 launches, and five clubs operating from other sites, who did 21,088 launches. The average accident rate for the first group is one accident for each 1,560 launches, compared with one accident for every 1,004 launches. We have also examined the rate in relation to the hours flown in these clubs, which naturally give a somewhat different picture, being one accident per 446 hours flying for the hill sites and one accident per 154 hours for the aerodrome sites. In this analysis, the aerodrome clubs have, of course, been credited with accidents their pilots have had whilst flying from hill sites, and in this way the hill clubs have been credited with those accidents their pilots have had whilst trying to get into aerodromes.

CHARLES ELLIS,
Chairman, Accidents Analysis Committee.

Accident Statistics

Summary of Totals

Item	1953	1952
Accidents reported ..	46	46
Total cost	£3,783	£3,719
Fatal accidents	nil	2
Accidents involving serious injury	3	4
Aircraft operated by reporting clubs	142	151
Total launches	55,692	49,836
Total hours	10,067	8,223
B.G.A. Categorised instructors	65	50
Launches per accident ..	1,210	1,083
Cost of accidents per launch	1s. 4d.	1s. 6d.

According to Type of Accident

Type of Accident	1953	1952
During hops & slides ..	nil	5
Cost	nil	£235
During landing	14	15
Cost	£270	£372
During approach ..	23	11
Cost	£2,587	£863
In flight	1	6
Cost	£156	£1,820
On take-off	7	6
Cost	£686	£351

According to Pilot Rating

At the Controls	1953	1952
Pilot under training, flying solo	16	19
Cost	£1,112	£1,519
Qualified pilot	17	16
Cost	£1,626	£832
Instructors*	12	10
Cost	£1,045	£1,290

* *Not necessarily whilst giving instruction.*

According to Type of Aircraft

Type involved	1953	1952
High performance ..	1	nil
Cost	£90	nil
Medium performance ..	20	14
Cost	£1,721	£2,017
Two-seater trainer ..	11	9
Cost	£1,281	£387
Single-seater trainer ..	13	25
Cost	£484	£1,237

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A small number of second-hand, but unused, parachutes, glider pack type, are at present being inspected and checked by a well-known parachute company. Available shortly, approximately £25-£30. British Gliding Association, 19 Park Lane, London, W.1.

Wanted for new club. S.G. 38 or Eon Primary, and a Tutor. Preferably with C. of A's. Also details of any other equipment for disposal. Box No. 160.

Interpretation of Barograms

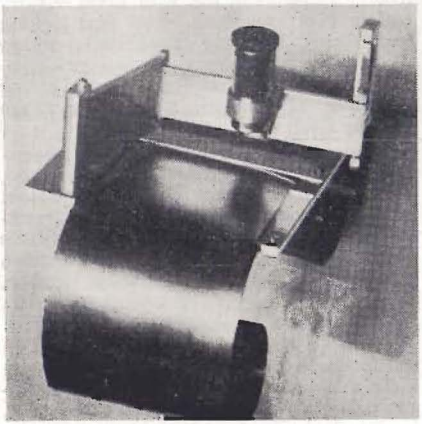
by Peter Temple

WHEN a barogram is checked it is possible with the usual methods to introduce rather large errors.

A method which is frequently used is:—a datum line is drawn parallel to the edge of the chart, starting at the lowest point recorded subsequent to cable release; the distance between this line and the highest recorded point on the chart is then measured with a steel ruler. The same distance is measured on the calibration chart and from this and a little interpolation the figure for gain in height is decided.

With this procedure the possibility of parallax errors crops up at least four times, and if the line is not absolutely parallel to the edge of the chart large errors can arise—on a 4-inch-wide chart covering 40,000 ft. one-hundredth of an inch (0.01") is equivalent to 100 ft. Further errors arise in the case of ink recordings due to the variation of width of the recorded lines. This is considerably reduced in the case of smoked paper and is negligible in the type of chart recently described in GLIDING (Autumn 1953, p. 119).

Four people were in turn given an ink recorded barogram to check; their figures were 3,900 ft., 4,150 ft., 4,100 ft., and 3,850 ft. When it was checked with a travelling microscope—which, of course, eliminated parallax—and measuring to the centre of the lines instead of the edge, the figure was 3,970 ft.



A travelling microscope would be an expensive instrument, even for a central body such as B.G.A. to purchase, but the accurate interpretation of a barogram can decide records and gold and silver certificates.

I therefore made a very simple device which for this purpose will do all that is necessary. It consists of a flat plate with an accurately machined shoulder to locate the chart against; on this is mounted a parallel linkage which, together with the simple lens system, eliminates parallax when viewing the barogram against a scale marked in divisions of 0.005 in. With this instrument it is possible to make an accurate interpretation in a few minutes.

The Fauvel AV-36

by a Swiss Pilot

ON the occasion of the 1953 national gliding eliminating trials at Grenchen from 18th to 26th July, the AV-36 flying wing was flown by 16 pilots who were at various stages of training, without any difficulties or incidents. I myself had the opportunity of a soaring flight of about half an hour and was surprised at the qualities and performance of this new aircraft, as I had expected something much inferior.

LAUNCH.—The aero-towed launch with triangular cable (cable attachment below the wings) gave rise to no difficulties and the aircraft is very manoeuvrable and pleasant on the controls while in tow.

FLIGHT.—In straightforward flight, especially at high speeds (80-120 km/h= 50-75 m.p.h.), the AV-36 is surprisingly stable about each axis and lies in the air like a board. I was struck with the way the speed built up rapidly with only a small amount of pressure on the stick.

CIRCLING.—Especially when circling in thermals, a pilot who is used to flying

relatively sluggish and stable sailplanes (Weihe, Sky, etc.) will find the sensitivity of the elevator control and the small degree of damping about the transverse axis somewhat unfamiliar. It is certainly not possible for even a practised pilot to fly neat circles in thermals right away, and thermal flying in the AV-36 needs a certain amount of training. The operation of the rudder control is as little or even less effective than with a conventional sailplane; but the designer intends to make good this deficiency substantially, when producing the machine in series, by enlarging the rudders and changing the installation of the rudder-differential. The aileron control, which operates exactly like that of a conventional aircraft, is very effective and the rate of roll is very good.

LANDING.—The efficiency of the dive brakes and the surprising facility in slipping are extraordinary. The aircraft can be landed as easily as any normal type.

None of the pilots had at any time any feeling of insecurity, and I think that—if the steering efficiency and control co-ordination, as well as the trimming of the elevator control, could be further improved—this new type represents a very interesting contribution towards overcoming the crisis in the provision of gliding equipment.

I can give no opinion on performance figures—sinking speed and gliding angle—but as a result of my observations I believe that the claims of the designer are by and large confirmed.

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Clubs and Associations

Midland Gliding Club

STATISTICS show that in 1953, with a flying membership of 159 and with gliding taking place on 136 days, 105 of which were soarable, the following totals were achieved:—1,373 hours flown by club members in club aircraft from 3,389 launches. Total flying from site, 2,075 hours for 4,540 launches; cross-country miles, 2,117. Best month, July with 700 hours. Certificates gained—20 B, 38 C, 2 Silver C and the following legs for Silver badge: 6 height, 3 distance, and 26 duration. For Gold badge, 1 height and 1 distance; the latter was also a Diamond badge leg.

The above figures do represent quite an improvement over anything previously achieved at Long Mynd; but they are not unbeatable, and we are constantly looking out for ways of getting more flying from our fleet. We added an Olympia late last year and plan minor improvements to existing aircraft soon—such as the fitting of spoilers on the Cream Tutor, etc.

Coupled with developments on the flying side, we now have a fully equipped workshop for glider maintenance and repair, and also a separate workshop for servicing motor vehicles. Perhaps the most satisfactory item of news, however, is that the new clubhouse is now complete and, along with its built-on kitchen unit, should prove a vital factor in the future development of the Midland Gliding Club, if not to some extent to the benefit of British Gliding in general.

The Easter Rally will be arranged as last year and covers the period April 16-20 inclusive. Competitions will be arranged daily under National Championship rules with April 16th as a practice day.

The period since our last report has not been very good from the flying point of view, but 27th December was an exception. It was also the day of the annual Christmas 'do', when 70-odd members sat down to an



Midland Club's new clubhouse on the Long Mynd, built on to the end of the hangar.

excellent meal prepared by Mrs. Donnelly and her staff. Flying went on as usual, however, and a small wave was used by Teddy Proll, flying the Avia to reach 6,400 ft. in the evening, and most of the members present enjoyed a flight during the day.

January 16th produced good wave-flying for a lot of people: Col. Benson reached 7,400 ft. in Creamo-O while Rutherford in Blue-O managed 6,900 ft., both during the morning; in the afternoon 3,500 ft. was obtained in silky smooth air by everything flying. The Club's Chairman, Roger Thwaite, had great difficulty in getting down at all while flying Petrel in the evening.

February 20th looked a much better day than it turned out to be, but a small thermal climb from a winch launch was made by Bob Neill, Snr., flying Prefect—the first for 1954.

Training has been affected by the adverse weather but Harnden took his B on 20th December and he and Leek a C on 27th December.

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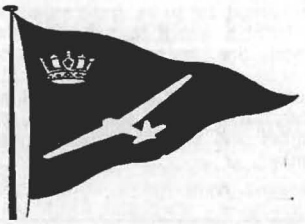
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Royal Naval Gliding and Soaring Association



ONLY two clubs, the Fulmar Gliding Club and the Portsmouth Naval Gliding Club, have battled on against the winter weather and have succeeded in keeping at least one machine in the air for their frostbitten members to fly.

The Heron Gliding Club have just said good-bye to their Chief Instructor, Lieut.-Commander David Elswood-Row, who has been appointed to the Far East. The club will miss his enthusiasm and keenness greatly, but hopes to continue its activities again soon under the guidance of Mr. Collingwood and Lieut.-Commander White.

The Gannet Gliding Club has also lost its Chief Instructor, but his successor, Lieutenant Stanley, is at the moment preparing himself for the task and hopes to have his club fully functioning soon after Easter.

Lieutenant (S) Hallam has taken over as Secretary of the Royal Naval Gliding and Soaring Association and is at present busy in trying to get gliding in the Royal Navy put on a firmer footing than at present. The Navy, having no gliding school, suffers severely from lack of instructors and has hopes of establishing a school at a Naval Air Station to overcome this handicap.

Hereford Gliding Club

ON 14th February the Vice President (Don Robinson) and the Secretary (Donovan Wilson) visited Lasham Airfield where they were greeted with great friendliness and hospitality. Everyone there seemed to think that Hereford Gliding Club had closed down; this is not true—we are still flying in Herefordshire but owing to the loss of a permanent site we have been forced to stop primary training.

We have three machines (Avia, Kite and Tutor), and have in the last year flown from four different sites, as the farming of each site allowed. D.C.W.

Air Training Corps

Review of 1953

DURING 1953 an important change occurred in A.T.C. gliding. On 1st April the solo or single-seat method of training at all gliding schools was abolished in favour of full dual training. Output figures for 1953 are (1952 in brackets):—

Launches: 97,114 (92,584).
Hours: 7,346 (not recorded).
Certificates: 1,478 (1,184).
Proficient: 1,403 (1,130)—B Certificate.
Advanced: 71 (54)—C Certificate.

These figures are very satisfactory. With only about 4 per cent increase in launches, output of Proficient cadets was improved by 24 per cent and Advanced cadets by 29 per cent. These improvements were due to:—

(a) full re-equipment with two-seater gliders,
(b) a higher standard of instruction as gliding instructors gained experienc of the dual method of training,
(c) hard work by gliding school staffs, particularly on continuous courses,
(d) reasonable gliding weather.

At the end of 1953, 44 A.T.C. gliding schools were functioning, all save one fully equipped with 3 two-seater gliders. The outstanding school was No. 89 Christchurch, which trained 101 cadets during the year. Nos. 104, 166 and 168 G.S. all trained over 70 cadets each. The average launches per certificate was 52.

As in 1951, the A.T.C. again participated in the National Gliding Championships, five teams being entered. Outstanding was the Home Command Gliding Instructors' School team captained by Flight Lieutenant A. D. Piggott, which, besides finishing 6th out of 25 in the team class, carried off two national gliding trophies for outstanding flights.

The H.C.G.I.S. at R.A.F. Detling completed a successful year and carried out 6,200 launches for 568 gliding hours; 326 students passed through the school on 28 continuous weekly courses.

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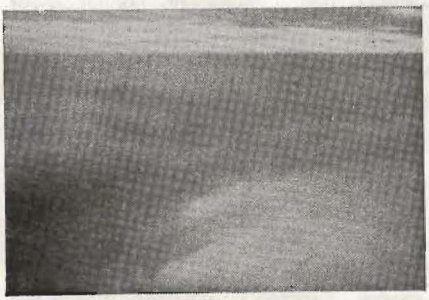
"Pioneers of British Gliding"

London Gliding Club

NOVEMBER'S most eventful day was the 7th, when George Scarborough hung on to the cable with the T-21 and kited up to cloud base at 1,600 ft.

December was notable for its east wind waves. On the 2nd a small one was found by Mike Russell in a S.S.E. wind blowing 15 kts. at the surface and 35 kts. at the top of an 800 ft. launch. He was in the lee of a stationary cloud which had formed over the power cables with a base at 600 ft. and top 750 ft. above the bottom of the hill (which is 250 ft. high). A warm layer of air sat on top of a 500-ft.-thick cold surface layer.

The big day was 7th December, when an east wind created a wave trough in the lee of Dunstable Downs, shown by a belt of clear air in an otherwise continuous fog layer whose top was at about 500 ft. above the Club ground, with a vague cloud base just below the top of the hill. West of the trough, the air rebounded up again, and created a roll of wave cloud with its windward edge just over the club-house and its top at 1,000 ft. In the morning Neumark climbed in this wave to 2,000 ft. above take-off and Doughty reached 1,500 in the two-seater; and in the afternoon the writer was taken up by Neumark to 1,600 ft., where we soared in a restricted belt of lift over the front of the wave cloud. While we were up, three other waves formed in the lee of it. This experience shows how many waves we must have missed in the past, either through not suspecting their presence, or because of fog.



Looking southwards along the trough of the lee wave on 7th December. The wind is pouring down Dunstable Downs on the left and rebounding up on the right.

During the past year, 1,939 hours were flown on the site from 7,369 launches. Adding many flights by Club members elsewhere, the total hours are well over 2,000.

Our first thermals of 1954 turned up as early as 3rd January, when they were found under passing clouds, and Riddell climbed to 1,500 ft. and Poulton 1,200 ft. above take-off. There was thermal lift again on 16th and 17th January, combined with a broad area of lift in the lee of Ivinghoe Beacon which was rather rough for a wave.

No sooner had the period for the winter cross-country prize expired, when Doughty made the first cross-country of the year on 1st March. However, the prize period has been extended for a month. Doughty took the Kite II about 40 miles to Romford, leaving the site at 1 p.m. and arriving at 2.10, having reached 4,000 ft. on the way. The journey back by trailer took somewhat longer, finishing at 1.15 a.m. with everybody frozen stiff.

We were pleased to welcome our new Chief Instructor, John Free, in early February.

Yorkshire Gliding Club

DURING 1953, 422 hours' flying was done from 1,580 launches, and 21 A, 16 B and 3 C certificates taken. Cross-country flights were: 34 miles to Cayton Bay by Gilli (completing his Silver C), and flights of 9 and 22 miles by Henry. Anderson did the 5-hour duration leg.

This year's most notable event so far was a terrifying gale on 15th January, reported to be 106 m.p.h. at Dishforth. The secretary, expecting the brick hangar to be torn down, dashed out into the heather to be clear of flying débris, only to be lifted off the ground by the wind and flung on her back.

Slingsby has generously given the club the metal fuselage of one of his wartime gliders. This will eventually be converted into an open metal trailer capable of carrying any type of glider, including the T-21. Pick has given the club an electric rev. counter which will be converted to a cupped type anemometer.

Instruction camps, open to non-members, will be held from 6th-12th June, 27th June-July 3rd, 18th-24th July. All-in charge 14 guineas. Prospectus from the Club Secretary at Sutton Bank, Thirsk, N. Yorks. One helper is required for each camp: reward, free food and 10s. per day.

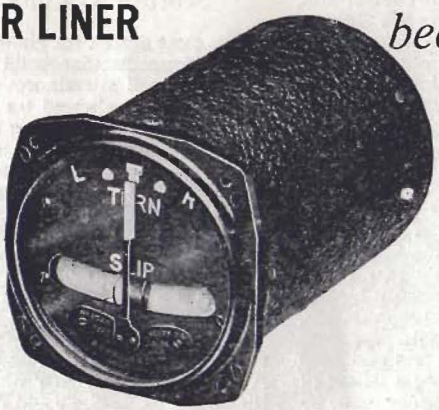
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Derbyshire & Lancashire Gliding Club

SOME 1953 statistics, just to hand, may be of interest to the more serious-minded:

Altogether we flew on 125 days, on 87 of which soaring was carried out, and on 104 of which training was carried out. None of these figures has varied by more than 5 per cent during the last three years, so it looks as though the weather is one of the few things that can be relied upon in the gliding world.

Total flying from Camphill was 2,070 hours, of which 610 was by club aircraft, 457 by private owners, 83 by the Air Training Corps and 919 by competitors in the National Championships. Total launches were 5,008, made up of 3,208 Club, 584 Private, 642 A.T.C. and 574 competition.

Not counting competitors in the Championships who are, of course, above such things, we had to report four accidents during the year, one of which was not a flying accident. Of the remaining three, no serious personal injury resulted, although one accident unfortunately involved two aircraft, one landing and the other on the ground.

Average utilisation of the club fleet of seven aircraft was 88.4 hours during the year, or 1.7 hours per week if you prefer it that way; while the gross cost of this 620 hours' flying was £1,008, consisting of £236 insurance premiums, £320 depreciation, £315 labour and £137 materials. Receipts from flying were £500 flying fees and £200 from insurance claims, leaving a deficit of £308 (or 10s. per hour flown) to be made up out of annual subscriptions.

The efficiency (or otherwise) of the use of petrol has been assessed separately for the competition period and for the rest of the year, since during competitions most of the petrol used is for actual launching and not for pulling aircraft about the field, while in normal life both these duties have to be performed. During the competition period 1,071 launches were given for the expenditure of 290 gallons of petrol, or 3.7 launches per gallon. During the rest of the year 3,295 launches were given by club equipment, using 1,307 gallons, or 2.52 launches per gallon.

In assessing the cost of launching, unfortunately we cannot separate the competition period from the rest, as depreciation, cost of wires, etc., comes into the calculation as well as petrol. For the whole year, therefore, we have an estimated total cost of £275, made up of £210 for petrol and oil, £40 for wires, £5 for spares and maintenance, and £20 for depreciation of winches and motor transport. All this for 4,366 launches, giving a cost to the club of 1s. 3d. per launch. This figure would have been greater, of course, if it were not for the competitions; but how much greater is a matter of opinion.

All the above activities resulted in 8 A, 8 B, 15 C, 2 Silver C and 1 Gold C certificates for club members, while a further 25 C certificates were obtained by the A.T.C. during their Camps for B pilots.

G.O.S.

Scottish Gliding Union

THE close season for gliding has been one of unspectacular solid work for the S.G.U. Good attendances and serviceable equipment has allowed training to go forward, the only interruption being caused by weather. Some variety was introduced when the Zlin Krajanek arrived in October. This machine fills a long-felt gap between the Tutor and the Olympia and much is expected of it in the future. Its performance is adequate for its purpose, it handles well and its light weight and belly-hook allow prodigious heights to be reached on the launch—a useful feature at Balado.

Sunday, 7th February, gave the only soaring in the period covered by these notes. A strong north-westerly wind was used at Bishophill by Sambale and Paterson to gain their C's. Conditions on the site were rigorous, and photographs brought back show the bungy crew plodding through a foot of snow—scarcely a gliding scene.

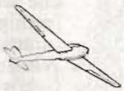
The same afternoon a lenticular formed at 4,000 ft. over Balado and the Krajanek, flown by Porteous, reached 5,100 feet from a 1,600 ft. launch.

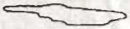
Six Summer Courses have been arranged this year. The cost is £12-12-0 inclusive of hotel accommodation. Instruction is on T-21 two-seater as solo training was dropped early in 1953. The dates fixed are 10th-17th April; 3rd-10th July; 17th-24th July; 31st July-7th August; 14th-21st August; 28th August-4th September.

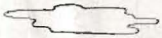
Aero-tows will in future be available at Balado as a Tiger Moth has been purchased and should be flying in April.

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Surrey and Imperial College Gliding Club

THE last three months have seen some very definite changes at Lasham and the introduction of a number of new ideas and methods.

First of all, the merger of the Army Gliding Club with the Surrey is now a *fait accompli* dating from 1st February. Neither club loses its identity but the Army Club members become Group Members of Surrey in a very similar fashion to the Imperial College members. All equipment is pooled and all operations on Lasham Aerodrome, both flying and domestic, are now run by the Surrey Club. The main advantage of the merger is that there is now a single unit under unified control and a lot of energy expended in the past on duplication of effort will be avoided.

Secondly, as the T-21b's come off their C's. of A. all training will be given using brakes—the system used in the past by the Army Club but not by Surrey. Also, it is proposed to train members up to and including solo on T-21b's and then to continue on the Prefect or Grunau until ready to convert onto the Olympias. With the Army's two-drum winch nearing completion it will soon be possible to operate four cables, and these supplemented by auto-towing and aero-towing should go a long way to eliminating frustration. One of the Beavers and also the second auto-tow car will soon emerge from the workshops, having both been completely stripped to the innermost bolt and overhauled. The aero-towing will incidentally be carried out with the Tiger Moth, which was presented to the Club recently by the Secretary; in fact, a certain amount of aero-towing has already taken place, including Rudolph, one of the T-21b's, and the Tiger is a definite improvement over the Auster we were used to at Redhill. As there is to be a standardisation on T-21b's, the T-31 and the Tutor are to be offered for sale and a further T-21b purchased.

Thirdly, on the domestic side we are very pleased to welcome to Lasham Mr. and Mrs. Horton, who will be helping with the general running of the clubhouse. The clubhouse itself will present a strange appearance to members who haven't been down recently, as it has been scrubbed down and painted; also, paths have been laid and a new soak-away dug.

We are running a number of courses during the year and these are as follows:—22nd March—9th April, 26th April—3rd May, 17th—29th May, 14th—26th June, 5th—17th July, 9th—21st August, 30th August—11th September, 20th September—2nd October.

Various expeditions are being planned for the Bank Holiday week-ends: the Easter one will probably go to Roundway and a fortnight's one will be held some time in the summer. We are hoping to hold a rally at Whitsun at Lasham for visiting pilots.

Anyone requiring any information on the courses or on the Club should write to The Secretary, Surrey Gliding Club, Lasham Aerodrome, nr. Alton, Hants.

H.T.

Handley Page Gliding Club

OUR flying activities fell off somewhat during the winter weather. November was reasonably good, as we flew on three week-ends. One of these was largely devoted to obtaining a B.1 category for Mr. Vernon, one of our instructors, who was examined by Dan Smith of the London Club and the B.G.A. Instructors' Panel. On the three available week-ends in December visibility at Radlett was too bad to permit flying. On one launch the two-seater disappeared from the tow-car driver's view at an estimated altitude of 100 ft.

On the first Sunday in January high winds rendered flying impossible, so the opportunity was taken to start the C. of A. on the T-31, though it was not then due, and the machine was flying again on 23rd January.

Some of the more cold-blooded members braved the snow and ice towards the end of January and were interested to find that on passing through a snow shower whilst airborne, considerable lift was experienced along its upwind edge. In spite of much discussion nobody has produced a satisfactory explanation of this phenomenon, particularly as conditions were such that there was probably a miniature inversion right down to the ground.

Our flying has been frustrated by the weather during these winter months, so we have used the time to overhaul and replace our ground equipment, most of which was well worn after last summer's use.

L.J.F.



A page from
THE ESSO HISTOIRE OF AERIAL LOCOMOTION
Adapted from the French de P. Crochet-Damais. Illustrated par Philippe Féty avec permission

OLIVER DE MALMESBURY

FOR twenty years an English Benedictine monk called Oliver of Malmesbury secretly ransacked the works of Ovid for data on how Dædalus had made his wings. Faintly flushed with success, he finally emerged from his cell one bright morning in 1060 and, announcing that his prototype was at last coming out of "Experimental", prepared to make the initial test flight. Security measures of the utmost strictness had been enforced, so there was an apprehensive buzzing of Benedectines as he climbed to the top of a tower, flapped his wings, executed a take-off run of several yards, and became more or less airborne at 0930 hours. Five seconds later, still flapping, he crashed in triumph through the roof of the monastery.

"And from now on", remarked the prior severely as Oliver came to, "you can just sit down like everybody else and illuminate some manuscripts." The chronicles of the monastery, wise after the event, observe that things might have been very different if Oliver had taken the obvious precaution of fastening a tail to to his feet. They might indeed.

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Cambridge University Gliding Club

DURING the academic year ending September, 1953, the Club flew 467 hrs. from 2,998 launches on 182 days; 11 pupils were trained ab-initio; 13 members with previous experience were converted to the Prefect; 10 Olympia conversions were made; 6 members passed for passenger-carrying in the T-21B, and 2 instructors were appointed; 895 miles were flown across country. These figures show an improvement on the previous year, i.e., 310 more launches, 17 more hours, 227 more miles across country for 2 days more flying.

Our open meeting which was held, as usual, at the beginning of the Michaelmas term, introduced nearly 30 new members to the club, of which 7 have gone solo already. This training has mainly been carried out by our general factotum, Ted Warner (nominally our ground engineer), who is the only week-day instructor at present.

A lecture was given on Bird Flight at the Engineering Laboratory on 12th February by Dr. Ralph Brown, a one-time member of the Club.

The highlight of the Lent term's activities was the "Annual" Dinner, held on 13th February in Cambridge, for the first time in three years! The guests included Air Vice Marshal C. E. W. Lockyer, President of the C.U.G. Trust Ltd.; Professor Sheppard of Imperial College, Commander and Mrs. Orde, F. N. Slingsby, Dr. R. H. J. Brown and our invaluable ground engineer, Ted Warner. Professor Sheppard presented the Brunt Trophy for 1952-53 to Chris Riddell, of this club, for his golden climb of 10,300 ft. in a cu-nim at Long Mynd in March, 1953. At the same time G. S. Brown, also of C.U.G.C., was announced as the winner for 1951-52 for his gain of height of 6,150 ft. at Cambridge in June, 1951. Professor Sheppard said that he hoped that the Gliding Movement would help him to make meteorology an exact science. This trophy was donated by Sir David Brunt for the greatest gain of height achieved by an undergraduate "in statu pupillari", and has been won by a member of this club every year since its inception. The President, Mr. Pringle, announced further that a prize of £5 had been offered by Professor Varley and Mr. R. Stafford-Allen for the first cross-country by a member of the C.U.G.C. or the Oxford Club, in either direction, between Cambridge and "that other place", and £4 for the first reverse leg, whichever way it might be. This marks a step in the direction of an official inter-varsity gliding competition, for which we have long been striving.

The evening was concluded by semi-organised entertainment. Dr. Slater performed "Nachtmusik", Bernard Cassidy gave an impersonation of Frank Irving's "sister", and the presentation of "Old Johnny's Opera" by Lionel and Barbara Alexander, Ken Machin and John Thompson was a well-remembered item.

At Marshall's, now that the E-W concrete runway has been completed, better winch runs are available in nearly all wind directions, giving 1,000 ft.-plus in a 15-knot wind, and when the ploughed field at the west end is bound by grass, an even longer run in the E-W direction will be possible.

The usual Easter Vacation Camp at Long Mynd is being arranged. Bluebell (T-21B), Prefect, Tutor and Olympia are being taken for a fortnight and the Olympia is expected to attend the task-flying rally at Easter.

Southdown Gliding Club

DESPITE restrictions on the use of our flying field we are glad to report 1953 was a very successful year. Our target of 500 flying hours was exceeded by a safe margin of 26, and our launches rose to 2,897, both of which are club records! Certificates were well up to average, a total of 41 being obtained.

Our two main sources of lift, the cliffs in a south-west wind and the South Downs in a northerly, again proved their worth. The number of trips across the Birling Gap to the bend on the far side of Beachy Head lighthouse and back were too numerous to keep count of, and several pilots returned from Beachy Head with sufficient height comfortably to bridge the Cuckmere Gap on our opposite side and continue their soaring over Seaford Head. On days such as these we soared on a beat seven miles in length. We flew on 117 days, on 66 of which soaring flights were made.

Conditions for bungying from Firle were less often favourable than in the previous year, but this was offset by our discovery one Sunday over the wooded slopes of our north face of unexpectedly good lift which must have been part of a standing wave

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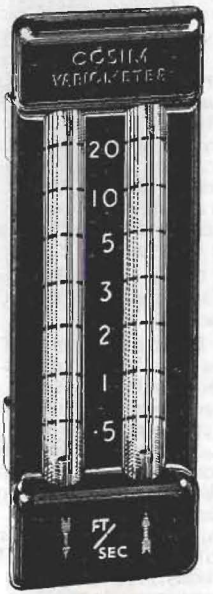
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system. The expedient tried for the first time of taking a winch to Firle was highly successful and opened the door to wider exploitations of this nearby site.

Our old friend the "evening thermal" again appeared faithfully on evenings which followed the combination of a hot sunny day and a north-westerly wind, and on one occasion steady lift was obtained over the Cuckmere valley to as far north as the Downs.

Flying at other sites was carried out more extensively than in previous years, and in addition to our regular expeditions to Lasham with the Olympia we flew for the first time with the Oxford Club at Kidlington. This site held out a great promise and we fully intend to exploit it this year. A small expedition to the Long Mynd at Easter was followed by a trip for a fortnight in force during July, when we took a spoilered Tutor in addition to the Olympia.

The former fully justified the long hours of toil we had put in in fitting spoilers, and though we had a liberal share of bad weather the good days obliged by providing either wave conditions or both slope and thermal soaring. Both Tutor and Olympia pilots gained experience of flying in standing waves, and several Olympia pilots had their first experiences of cloud flying. Three cross-country flights were made on this trip.

For the first time since the war we entered a team in the National Gliding Competition from which we emerged with an intact Olympia and much experience, but no prizes. Other innovations tried out for the first time last year were a soaring course at Friston during August, which was hailed as an unqualified success both by the participants and by the club, and an autumn dance at the Hayworthe Hotel, Haywards Heath.

On the financial side we are glad to report a substantial surplus in our annual budget for 1953.

During January and February of 1954 we have been doing C's. of A. at the workshop in Portslade and at Friston where a good beginning in flying has been made. Very recently we have lost the services of Ray Brigden, whose inspired leadership as honorary C.F.I. and ground engineer has played so very large a part in our post war survival and expansion. We expect to hear much in the future of his successful exploits with the Surrey Club. We also wish David Parsey, who is now acting as our C.F.I., every possible success.

Oxford Gliding Club

THE Club has now completed its second year of activity since its re-organisation after the War and we have every reason to be pleased with the progress made.

Our 1953 activities showed a marked improvement over those of 1952. We carried out 3,691 launches and flew a total of 275 hours, thus beating our 1952 figures by 1,313 launches and 122 hours. Membership is still increasing and we now find that we have a small but reliable hard core of willing enthusiasts.

Activities during the last few months have been confined solely to training. On 21st November Peter Pirow took his A and B and Richard Carter obtained his in January. On 21st January "Aj" Smith went solo on the Tutor, getting his A and B and narrowly missing his C after a noble attempt during which he soared the Tutor for 9½ minutes.

On 9th January business was combined with pleasure when the Instructors' Panel, Ann and Lorne Welch, paid us a welcome visit which resulted in Stow, Gibbons and Goodall receiving their B2 Instructors' Categories. The club has now five qualified Instructors.

On 12th January Eric and Nan Stow, together with Pat Sullivan, paid rather an adventurous visit to Slingsby's to collect the new T-21b and after dicing with sleet and wind managed, more by luck than judgment, to get the machine back to Kidlington where it is now doing yeoman service. On its first flight it was kited to 2,000 ft. with George Varley at the controls, and could undoubtedly have got higher except for the fact that the winch had run out of cable.

On 24th January several machines managed to prolong their circuits by some minutes, due to exceptional weather conditions, and Ernie Morgan gained 600 ft. in the Red G.B. Stow and Herbert have sold their Red G.B. to a new syndicate formed by club members headed by "Stormy" Gales, and the Goodhew Aviation Company is kept busy providing them with aero-tows to satisfy their thirst for altitude.

We have decided to run a Summer Holiday Course during June, lasting six days, when the two two-seaters will be used. Beginners and others are welcome.

Following the resignation of Marcus Goodall as Secretary, Eric Stow stepped into the breach.

E.R.S.

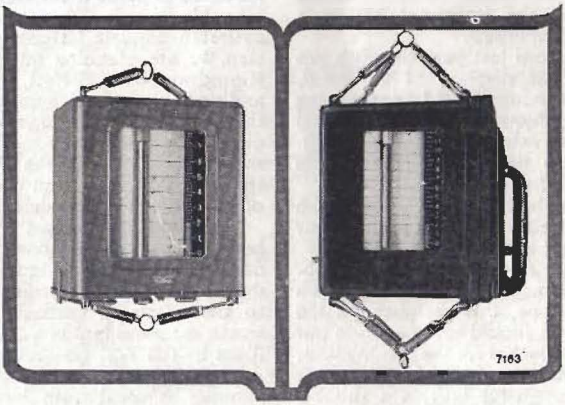


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Coventry Gliding Club

THE club operated during last year, its first year of existence, using one winch, one Beaver, one Cadet and one T-21. The G.B. was in use for comparatively few week-ends and in consequence little solo soaring has been done, apart from the occasions when Jack Rice brought over his Olympia for the benefit of the grey-haired brethren. With this equipment we have, in 98 flying days (including 8 week-day evenings), managed 2,300 launches for 170 hours flying and have obtained 12 A, 12 B and 4 C certificates. We are certain that several more C's could have been obtained if the G.B. had been available earlier, and confidently expect that the coming year will confirm this view.

The T-21 has been the mainstay of the club's activity, giving higher launches and longer flights than either the Cadet or the G.B.: the duration of its flights have been decided to a great extent by the length of the passenger list and few flights have been longer than an hour. For launch heights the sky's the limit, and, thanks to our capable winch drivers, a good standard of launching is maintained. The highest launch to date is 2,600 ft., and it is possible to hear somebody say, "I had to cast off at 2,000 ft. because of the cloudbase," without necessarily assuming the statement to be a gambit in Glidermanship.

On two occasions last year the club has taken part in air displays at Coventry, George Thompson, our C.F.I., performing in Jack Rice's Olympia. On the second occasion a winch launch and a hundred ft. of thermal were used to provide ample height for a full display of aerobatics.

So far we have had only one home-grown C certificate, obtained quite late in the year by Norman Bratt in the G.B.

Vic Carr and Buck Taylor are co-operating in the planning of a two-drum winch and if, as we hope, this gets beyond the planning stage we should easily achieve our target of 4,000 launches for the coming year. Our earlier plans to do a lot of auto-towing have fallen through for lack of a suitable vehicle, although in winds above 10 knots we are able to auto-launch the Cadet or the G.B. behind the Beaver, alternating with the winch-launching of the T-21 and bringing back both cables together, thus saving a little petrol.

An attempt is being made to bring the Viking into service.

At the Annual General Meeting on 10th February it was announced that the *Coventry Evening Telegraph* Trophy had been awarded jointly to M. Boyce and J. Joss for outstanding progress. The Founders' Trophy for ladies goes to Sheila Gregg and the "Jimmick" Trophy for the outstanding flight of the year goes to L. Fletcher, the presentation of these trophies to take place at the Annual Dinner on 26th March.

M.S.H.

Bristol Gliding Club

STATISTICS for 1953 show that we obtained 26 B, 7 C, and 3 completed Silver C certificates, compared with only 5 B and 12 C in 1952. Including the courses we obtained a total of 140 assorted certificates, 5,191 launches and 390 flying hours. We also acquired a T-31 and a Prefect, and, on the debit side, finally had to write off the Grunau owing to glue deterioration.

At present our major effort is being put into overhauls of both aircraft and motor transport equipment, so that we can make a full start by Easter. The T-21 is having the fuselage ply panels fabric-covered in an effort to stop the steady paint peeling, whilst our universal open trailer is being modified to make it sufficiently universal to take this aircraft. We must confess to some desire to emulate "Daisy" and, as a first step, we are planning an Easter Camp at Roundway with Prefect, Olympia, T-21B and possibly even a spoilered Tutor. On the vehicle side we were very surprised when our brake made the round trip to Kirby-moorside to collect the Prefect with no trouble whatsoever, and we hope to get all of the vehicles to this desirable standard.

Flying during the past three months has been almost entirely confined to circuits, and with Roundway temporarily inactive due to the loss of the Grunau and the repairs to the Olympia, perhaps the only thing worth mentioning was a 12-minute thermal flight by the T-21 on January 16th.

We plan to run our ab-initio courses this summer as usual from June to September and can promise prospective members a sound and rapid introduction to gliding combined with a pleasant holiday in Somerset surroundings. These courses in previous years have always proved a roaring success and not a few members return for a second or even a third dose.

M.G.

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