Sailplane and Gliding

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June 1960



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SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

Edited by Alan E. Slater, M.A., F.R.Met.S.

Published by The British Gliding Association, 19 Park Lane, London, W.1.

Magazine Committee: Yvonne Bonham, Godfrey Harwood, Rika Harwood, Walter Kahn Peggy Mieville, Ann Welch, Philip Wills.

Vo. XI. No. 3. Bi-monthly

June 1960.

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COVER PHOTOGRAPH.—A Skylark II launched by bungy at the Long Mynd. Photo by Betsy Woodward.

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"Pioneers of British Gliding"

World Championships, 1960

In this, our pre-Championship issue, we want to express the good wishes of all in British gliding to the pilots and members of our three teams representing their country at Butzweiler.

The latest news is that there will be 70 entrants from 26 countries, and the Standard Class, which was flown for the first time in 1958 in Poland, has already become the largest, with at least 40 entrants against the 27 entrants in the Open Class.

Seventy sailplanes will make this the largest World Championships ever held, though not as large as the 80 entries which we handled with ease in our British 1959 Nationals. To keep the total down to this number the Germans found it necessary to reduce each National entry to a maximum of three aircraft; and this forced the British Gliding Association to drop from our entry Elliotts' new Standard Class design, since there was some doubt that it could be ready in time. Hence our entry consists of two in the Open Class, the Olympia 419 and the latest Skylark 3F; and in the Standard Class the latest version of the Skylark 2B. If, in fact, the new Elliotts' design passes its tests in time, it may still go to Butzweiler to be judged by OSTIV for their prize, and we wish it well, for the news available since its recent first flight makes it seem a very possible candidate for this important award.

As for our pilots, the Goodhart brothers and Tony Deane-Drummond have each shown in the hard light of contest results that they are in the first class; Ann Welch is probably the most experienced Team Manager in the world; and each member of each ground team will carry out their arduous and unpublicised duties impeccably. Our Vanguard estate cars, Pye radio and the rest of our equipment are all without doubt up to world standards of reliability and performance.

So what else is needed? The answer is—Good Luck. For the winning team is that with the best pilot flying the best aircraft, supported by a first-class ground team operating first-class equipment, plus the fickle flash of art and good fortune which seems to light each time on one of the several pilots worthy of it.

And this is what we wish them.

The Day I Flew with the Vultures

by E. Dommisse

THE prelude to this story starts many years ago. It was in 1940 that I had my first close contact with vultures. During that year I spent some time on a farm at the foot of the Magaliesberg, which is 1,000-1,500 ft. above the plateau and runs E.-W. through Pretoria, 40 miles north of Johannesburg. My greatest pleasure during this holiday was to wander about the mountain-side. Early one morning I climbed to the very top for the first time. Here at the crest, the south slope dropped away before me nearly sheer for 1,500 ft. The world lay far below; the Golden City, Johannesburg, with all its noise and bustle lay faint and far away on the horizon to the south. I rested and felt at peace.

And then I saw them.

A little way down the north slope was a rocky pool of water formed by the previous night's rain. Seated on the rocks around the pool were vultures. I went nearer. The birds had bathed in the pool and the water was indescribably filthy and malodorous. The birds moved uneasily. They were sopping wet, looking nearly naked, holding their wings away from them like bare cocked elbows. They were basking in the sun to dry. One hopped off the rock and fluttered feebly down the slope, only to perch again on a rock further down. It was obvious that they could not fly.

I moved nearer very slowly to study them better. The heads turned; great hooked beaks and fierce unblinking eyes seemed to comprise the whole of the tiny heads. Bare necks craned, great claws gripped the rocks. They stank; they had not a single line or point of beauty. They looked like some evil thing one would like to wipe away.

For hours I lay quietly watching. This was something unheard-of and unique—vultures bathing. The sun rose higher; their feathers dried, giving them more body and covering the naked grey-black flesh. For hours they sat unblinking and unmoving.

The first faint speck of white cumulus cloud appeared in the sky about mid-morning. The birds now began to move, to shake out and preen their feathers, stretching their wings at full length with every feather separate.

One took a trial flight, beat the air with a great whistling of air, but soon gave up and settled again, clumsy and heavy.

A sound of stirring air like a swarm of bees now came to my ears. The birds galvanized into action, taking the air *en masse*, beating their wings and circling. The grass and bushes beneath them were agitated with far greater force than that caused by the light breeze. It was unmistakably a thermal breaking away from the hillside. As a sailplane pilot I knew and had used this force of nature in soaring flight; but here, for the first time, the wildly flapping and circling vultures fixed my fascinated attention to the sight and sound of the birth of a thermal.

At a height of about 50 ft. above the stirring grass the great birds spread their wings and soared away, gaining height with every turn of their tight circling flight on now quiet out-stretched wings. Away they went, higher and higher into the boundless blue sky.

HUNDREDS OF VULTURES

I now noticed for the first time that hundreds of vultures were flying, flapping and soaring beyond the south face of the mountain. By climbing far enough up to see down the sheer south face, I discovered thousands more. This was their nesting place, the only one I had ever seen or heard of. The Krantses (sheer rock cliffs) were almost white from years of guano. On every ledge and projection vultures were thickly clustered. Disturbed by my presence they took off in thousands, with a great whirr of wings.

Morning went to afternoon. Spellbound, I did not notice passing time. These ugly beasts were masters of the air, incredibly beautiful in flight. I watched their technique of flying and soaring. Under varying conditions they would use different methods of flying, always conserving their own energy by using the forces of nature.

Happy and carefree, I walked down the mountain at sunset. A dream had found birth. I was firmly resolved to come and soar with these birds. But the war passed and years slipped by with my desire unfulfilled.

I suppose I would have procrastinated for many years more if I had not met Rene.

Rene Comte, a Swiss sailplane pilot, came to South Africa on business. Our weather, so wonderful for soaring flight, soon had him flying very enthusiastically. Flying sailplanes is my one great passion also, so our joint interest soon brought us together.

I happened to meet him at Baragwanath aerodrome, near Johannesburg, one bright afternoon shortly after he had landed at the end of a soaring flight. The sky was filled with cumulus clouds and he had been flying among them. This by any standard is already a great thrill, but on this occasion Rene was most excited by the brief glimpse of a vulture soaring with him.

Standing in the sun under that sky of towering white clouds, I listened to Rene telling of his encounter. The man was afire with the romance and beauty of his experience. With only that one brief glimpse, he had recognised a master of flying greater than himself. His enthusiasm rekindled my old dream and I told him of my own meeting with vultures many years before.

"Boetito", he said, giving me the quaint nickname of his own making, "we shall go there at once; it is the most marvellous thing I have ever heard of".

He also suggested that we should take his friend Dick Reucassel with us. Dick is a famous South African producer of documentary films. Dick and Rene were making a film on gliding.

Within a week we had organised a party of enthusiasts for a lovely summer's week-end of adventure. Rene would fly with his machine and Dick would fly with me to take films from the rear seat of my Kranich. Our wives would prepare the picnic lunch and do some mountaineering in order to view all the wonders we spoke of and to take photos from the mountain top. Geoff Green would be our tug pilot.

On the Saturday of that week-end we towed the sailplanes to our previously cleared landing strip at the foot of the Magaliesberg and were ready to start early the next morning.

ON SUNDAY MORNING

There was no hurry on that Sunday morning. The thermals, and therefore soaring flight, could only start after the sun had properly heated the air in the valley. Activity among the vultures would tell us when to start.

By mid-morning thousands of them were circling around. We were very excited. To fly and circle in that same column of birds, to have them wing to wing, would it happen? With an aeroplane it would be dangerous; besides, the birds do not like it and always shy away at the approach of noisy fast aircraft. Would they come near, stay with the silently soaring sailplanes? We sincerely hoped so.

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Dick and I rapidly strapped in and towed off behind the Tiger Moth. Geoff made straight for the nearest cluster of circling birds. The Tiger climbed slowly. Then we also circled far below the birds above us. The air was rising in this particular spot and we now gained height rapidly. Suddenly we were in amongst them. Vultures flashed past dangerously near the Tiger. One closed his wings and dived away to avoid us. I released the tow cable in alarm. The Tiger dived away and we were left circling in a strong thermal. The vultures had disappeared. Up we went on rising air, gaining height so fast that the world seemed to drop away from under us.

We flew around seeking lift, watching Rene being towed up. This time Geoff kept well clear of the mountain and the vultures, going well away to find lift over the floor of the valley. We saw Rene release and circle, gaining height. Tiny specks now darted through the sky towards him. Soon a procession formed in the sky—the sailplane with Rene leading and a long straggling line of vultures stringing out in single file behind him, the nearest only a few feet away from his rudder.

Dick and I watched the comic sight with rising excitement.

The camera in the rear seat of my sailplane whirred suddenly. An agonized stage whisper reached me.

"Boet! Boet! Look! Look at it!"

I had been watching Rene. I looked

slightly behind me. Wing tip to wing tip a black and grey vulture was soaring and circling with us.

Silent and ghostlike he had suddenly appeared from the vast recesses of the sky to hang, seemingly motionless, to our wingtip. One by one more vultures drifted silently up to us.

One manoeuvred above and ahead of my cockpit. Had it been possible to reach through the perspex, I could have touched him. He manoeuvred about, first looking over his back at me, then craning his neck and turning his head to look back below himself at me. The fierce curved beak made a lasting impression on my mind.

FANTASTIC SIGHT

The fantastic sight was accompanied by a vast uncanny silence, in which all sense of movement seemed to depart, though we were moving through the air at 60 miles per hour. The vultures' wings were outspread and steady, only their heads and necks were never still. The fierce eyes were watching us and all horizons, above, below and all around.

Rene had gained height and now came straight towards us with his following still tailing out behind him. Flying magnificently, he took up a position below and to the inside of our circle, right in the eye of the camera lens. Unbelievable film scenes were now enacted all around us. Dick and I shouted at each other in excitement and I did some queer manoeuvres to enable him to get in his shots, yet the accompanying vultures were not disturbed at all.

At 5,000 ft. above the ground the surge of lift ceased. The vultures left us and streaked away in level flight. They closed their wing tip pinions and seemed to hunch their wings closer to them at the shoulders; then they jetted away at terrific speed and without seeming to lose height. Our sailplanes could not possibly stay with them in level flight.

"I have a fortune in magnificent film here," exulted Dick from the rear seat; "I wish I had miles more—my spools are all empty".

"Shall I land, then?" I asked.

"Not on your life: keep flying, Boet. we cannot see enough of this", exclaimed Dick most emphatically.

Dick is no athlete, but the artistic kind. By now, sitting exposed in the rear seat from which we had removed the canopy, he was distinctly weatherbeaten, his face swollen with wind and the cold of higher altitude. Under these circumstances it takes a great experience indeed to have any desire for continued flying.

We flew on, low above the crest where the mountain party waved at us, circling over them with the vultures in close formation while they took pictures. We speeded up or slowed down, watching our escorts. As we slowed down we saw a rare sight. The vultures also slowed down, getting their tail feathers well down and arching their wings to hold more air. My machine could go slower still. I pulled gently back on the stick. Suddenly the vulture on the wingtip let down his undercarriage. Down, out of the feathers where they were hidden, the legs appeared, but even this extra drag was not sufficient. I could fly slower than he could. Suddenly his body feathers ruffed up in the turbulence of a dead stall. He dropped away for a few feet, regaining speed until the smooth airflow of normal flight pressed the awry feathers back in place. With legs still down, he flapped once to regain his position in formation.

The amazing thing was that they wanted to fly with us. All day they followed us about, leaving their own thermals to come circling where we were instead of constantly leading the way. As soon as we got good lift and rapidly gained height, dozens of them would flap out from their high perches on the krants to come circling into the lift beneath us.

The magic day ended too soon. We had to retire early, as Geoff still had to tow both sailplanes back to Johannesburg.

During that long aero-tow home I relaxed and re-lived the wonderful day. The sun set and the air was like velvet. I found myself dreaming of floating on wings for ever.

Warren Storey

Sailplane and Glider Servicing

★

THRUXTON AERODROME, ANDOVER

The World Gliding Championships 1960

BUTZWEILER, GERMANY, 4TH TO 19TH JUNE

On 29th May the British Team sets off for the World Championships for the eighth time. In the first three events their placings were unexceptional, and then in 1952, in the heat of Madrid, Philip Wills won. In 1954, in England, he was second. In 1956 Nick Goodhart and Frank Foster won the Two-seater Class at St. Yan in France. Last time, in Poland, Nick was second in the Open Class. What are our chances this time?

There are two classes again, the Open and the Standard, but this time there are only about 20 gliders in the former, and something like 60 in the Standard. Originally we had four entries—two in eacn class, but then the Organisers reduced the teams to a maximum of three for each country.

Our hopes are Nick Goodhart, with an Olympia 419, and Tony Deane-Drummond, Skylark IIIF, in the Open Class, and Tony Goodhart on a Skylark II, doing battle in the Standard Class. In the Open Class, I think we have an excellent chance of winning provided that the contest days include some "British weather". In perfect soaring conditions it will be nearly impossible to beat the exotic (and exorbitantly expensive) gliders, but if the conditions are sometimes moderate or even weak, then the practical British gliders really come into their own. Both the pilots have the ability and equipment to win.

I do not intend even to hazard a guess as to our chances in the Standard Class. Since last time it has changed enormously, and so much effort has been put into new gliders by the countries who have gone for this class in a big way, that anything is possible.

One of the problems that the Organizers have had to overcome concerns the national cloud-flying regulations. They have, therefore, decided that a maximum height for each flight will be set, and barographs will have to be carried to ensure that pilots do not exceed this heignt. It will be interesting to see how this one works out: whether the limiting height will still apply if permitted national frontiers are crossed because the barograph chart will not indicate the



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moment of crossing and whether a pilot is totally disqualified for the whole flight if his barograph fails in any way.

All launches will be by aero-towing (probably with Dornier Do-27's) and the start point will always be in the centre of the one-runway airfield so that, regardless of the wind direction, it will be a permanent fixture. It is understood that the British selection of launch time and take-off systems will be used in general, but no details are yet available. It will be interesting to see how they internationalise.

On the subject of help, I would like to mention the crews, that mixed collection of individual glider pilots, who go to World Championships because they thoroughly enjoy it, but who nevertheless work extremely hard, and for three weeks metamorphose themselves into a fine and untried team without even being asked to do so.

This year, Lorne Welch and Frank Irving will be crewing for Nick Goodhart—old hands these, beginning to go grey in harness. Tony Deane-Drummond will have Evie (his wife), and John Archer, the same as last time; and Tony Goodhart will be crewed by George Burton, on his first World Championship, and Toby Harrison, who has done it before. In addition, the base organisation will be built up by John Williamson, in charge of radio, who would have been reserve pilot if the team had not been reduced to 3 aircraft; Andy Gough, in charge of maintenance; and the vitally necessary "Wally" Wallington, who can really tell us what the weather will be. For the practice period, David Ince, who would have flown the fourth entry, will be there as No. 1 reserve.

Coming as well, of course, will be Doc. Slater, the editor of this paper, who has never missed a Championship yet, and Rika Harwood, to assist in the gathering and sending off of news.

The 1960 Championships should be extremely interesting, and include new ideas and produce some fine performances if the weather is kind. They will, however, be different in one particular way from all previous ones. For the first time Philip and Kitty Wills will not be there. Philip, even, imperturbable and always able to bring off a fine flight in discouraging conditions; and Kitty, always cheerful, helpful, and seemingly tireless. We will all miss them both.

ANN WELCH.

DONATIONS AND LOANS OF EQUIPMENT

WE take this opportunity of expressing the gratitude of the British Gliding Association and the British gliding movement as a whole for the continued support of all those who have made it possible to send a British team to the World Championships, both this year and in the past.

Equipment

The Standard Motor Company: four Standard Vanguard Estate Cars.

Slingsby Sailplanes: one Skylark IIIf and one Skylark IIB.

Elliotts of Newbury, Ltd.: one Olympia 419.

Pye Telecommunications: Glider and Car Radio Sets.

Shell B.P.: Maps, Navigation Sets, and Motor Oil.

Esso: Continental Maps.

Ever Ready Battery Co.: Batteries and Torches.

Automobile Association: Membership and other facilities.

P. B. Cow and Co., Ltd.: Marvel Airbeds.

Donations to Fund

	£	s.	d.
Society of British Aircraft Constructors	750	0	0
R. L. Neill	10	0	0
Flt. Lt. Richardson	5	0	0
J. E. G. Harwood	2	2	0
L. C. Nash	1	1	0
A. Doughty	1	1	0
R. D. N. Harper	3	3	0
P. A. Wills	5	0	0
Oxford Gliding Club	5	0	0
Sir R. Conant	2	2	0
Taunton Vale G. C.	5	5	0
Air League	25	0	0
	814	14	0
Team Contributions			
A. J. Deane-Drummond ..	120	0	0
H. C. N. Goodhart	120	0	0
G. A. J. Goodhart	120	0	0
C. E. Wallington	30	0	0
J. S. Williamson	30	0	0
A. W. Gough and D. H. G. Ince	30	0	0
Mrs. A. C. Welch	30	0	0
A. E. Slater	10	0	0
Mrs. R. Harwood	10	0	0
	500	0	0
TOTAL	1,314	14	0

WORLD CHAMPIONSHIPS LIST

Open Class

AUSTRALIA		
1	A. Gaze	Skylark
DENMARK		
2	H. Jensen	Skykrafter
GERMANY		
3	E. G. Haase	Phoenix
FINLAND		
4	H. Tandefelt	Ka 6 CR
FRANCE		
5	C. Labar	Breguet 901
GT. BRITAIN		
6	A. J. Deane-Drummond	Skylark IIIF
7	H. C. N. Goodhart	Olympia 419
HOLLAND		
8	F. Seyffert	Skylark III
ITALY		
9	G. A. Ferrari	Skylark
ISRAEL		
10	M. Barr	Zugvogel 3
JAPAN		
11	I. Oda	Zugvogel 3
YUGOSLAVIA		
12	B. Komac	Meteor 57
13	J. Mrak	Meteor 57
POLAND		
14	E. Makula	SZD-Zephir
15	J. Popiel	SZD-Zephir
SWEDEN		
16	I. Sven Jonsson	Zugvogel 4
SWITZERLAND		
17	René Comte	Elfe
18	B. Müller	Weihe
CZECHOSLOVAKIA		
19	V. Marecek	Demant
20	V. Zejda	Spartak
U.S.S.R.		
21	V. Efimenko	A-15
22	M. Veretennikov	A-15
HUNGARY		
23	N. Opitz	Gyor 2
UNITED STATES		
24	R. Johnson	RHJ-6
25	R. Schreder	Air-Mate HP 9
ARGENTINA		
26	J. Ortner	Skylark III
27	R. Hossinger	Skylark III

Standard Class

AUSTRALIA		
31	R. S. Rowe	Ka 6
BELGIUM		
32	J. d'Otreppe	Mucha Stand.
33	A. Xhaet	Ka 6 B
BRAZIL		
34	G. Münch	Ka 6
35	C. Junqueira	Ka 6
CANADA		
36	G. Oates	Ka 6
DENMARK		
37	J. Friis	Mucha Stand.
38	N. Sejstrup	Ka 6 BR
GERMANY		
39	H. Böttcher	Ka 6 BR
40	H. Huth	Ka 6 BR
FINLAND		
41	J. Jalkanen	Pik-3c
42	O. Rautio	Pik-3c
FRANCE		
43	D. Barbera	Breguet 905
44	J. Lacheny	Breguet 905
GT. BRITAIN		
45	G. A. J. Goodhart	Skylark II
HOLLAND		
46	S. Andrea	Ka 6
47	W. Toutenhoofd	Ka 6
ITALY		
48	L. Brigliadori	E/C 39
49	G. Silva	MLoo-s
ICELAND		
50	P. Filippusson	Ka 6
ISRAEL		
51	D. Arbar	Breguet 905
52	A. Jardeny	Breguet 905
YUGOSLAVIA		
53	E. Korsic	Ilidenka
NORWAY		
54	E. Backe-Mathisen	Zugvogel 4
55	T. Johannesen	Ka 6 B
AUSTRIA		
56	J. Fritz	Stand. Austria
57	H. Resch	Stand. Austria
POLAND		
58	A. Witek	SZD-Foka
SPAIN		
59	M. Ara	Ka 6
60	L. Juez	Ka 6
SWEDEN		
61	P. A. Persson	Zugvogel 4a
62	I. Silesmo	Ka 6 BR
SWITZERLAND		
63	A. Gründisch	Breg. Fauvette
S. RHODESIA		
64	E. J. Harrold	Ka 6
CZECHOSLOVAKIA		
65	R. Mestan	Standard
U.S.S.R.		
66	V. M. Ilchenko	Standard
HUNGARY		
67	E. Kisely	Stand. Futar
68	E. Mandl	Junius 182
UNITED STATES		
69	P. Bikle	SGS-1-23-H
ARGENTINA		
70	J. Arteman	Skylark II

A Rare Phenomenon

by Colin Richardson

Reproduced with acknowledgements from "The London Gliding Club Gazette"

ONCE or twice I have had a good laugh at the expense of people who maintained that they thermalled up *outside* a cumulus cloud. "Impossible," I said; "if you were in a convection current and above cloud base, then the water vapour in the air would have condensed and you would automatically be in a cloud."

And then the very same thing happened to me! But I was lucky enough to be able to see what was happening, and form an explanation. Let me tell you about it.

On this particular occasion I was trying for Gold distance and was coming up towards the coast south of Honiton. There was hardly any wind, and a nondescript cloud street was all I could see ahead. I made my way towards it, for want of anywhere better to go, and was surprised to find tremendous lift. I was soon in cloud with the lift remaining strong, and it was apparent that I was in a new growth since I was higher than the original cloud street had been.

At 10,000 feet there were rough downcurrents and I stopped singing and started concentrating. I finally straightened, and emerged from the cloud just short of 11,000 feet, wiped the "huff" off the inside of the canopy, and turned round ready to re-enter in the hope of Gold C height.

On turning round I was surprised to see how close I was to the top of the cloud, which was an isolated peak. As I flew towards it again through clear air I encountered weak lift and therefore started circling, slowly gaining 500 feet (but not getting higher than I had been in the cloud). But the strange thing was that the whole cloud was sinking and the top of the cloud was eventually a good 1,000 feet below me. I was higher than the top of any cloud in sight!

My explanation is that, because the lift was so strong, the cloud had a tremendous upwards momentum which took it past its point of equilibrium, up into an inversion, where it was colder than the surrounding air. It must have been then that I left the cloud. Having lost its upward momentum, it then sank back to where it was the same temperature as the surrounding air. But because the top of the cloud was sinking, air had to rush in from all directions (including upwards from below) to fill in this vacated space, and it was in this that I was circling outside the cloud. Even though it was above the condensation level, this rising air did not form cloud because it was "environmental" air and had not come all the way up from the surface.

Feasible?

Easter Rally at Long Mynd

by Geoffrey Benson

FRIDAY 15TH APRIL was declared a No Contest Day on the strength of an unfavourable weather forecast. There was, however, a few hours' ridge-soaring of which most competitors took advantage. Some also had of necessity to practise field landings by getting too low to return to the airfield.

From then on, conditions improved with the arrival of a high-pressure system and light north-easterly winds which lasted without material change for the next four days.

SATURDAY, 16TH APRIL.—Task: Out-and-return race to Cosford 54 miles.

Most competitors got away on their first launch. Many, however, found conditions difficult after leaving the Mynd, more especially in the case of early starters. Philip Wills, however, was an exception, returning for a late lunch and taking off again. On his second attempt he flew much faster, but unfortunately, owing to very bad visibility, he failed to locate the Mynd and landed at Knighton. Doc. Gregg also failed to find the Mynd in the haze and flew

over very near the south end at over 5,000 ft. and landed at Clun.

Those who completed the course were:—

Pilot	*hr.*	*min.*	*Marks*
David Cretney ..	1	51	100
Philip Wills	2	16	90.6
John Williamson ..	2	30	88.1
Charles Green ..	4	1	82.6

John Williamson flew an Olympia 419 and the other three finishers flew Skylark III's.

difficult conditions, returned for lunch after having been airborne for 1½ hrs. He took off again after lunch and did the fastest time of the day, 3 hrs. 55 mins., closely followed by David Cretney and an hour later by Ted Shephard in the Army Skylark II.

To our great pleasure and surprise, Philip came back from Cornwall, arriving at 3.35 p.m. He was launched at 3.53 p.m. and failed to get back to the Mynd by only



Launching is expedited by the Midland Club's cable-retrieving winch.

Photo by A. E. Slater

Ted Stark in the Army G.A.'s Olympia 419 also completed the task, but failed to identify the signal at the turning point and was not observed by the observers; in consequence he earned no marks.

SUNDAY, 17TH APRIL.—Task: Projected line (dog-leg), Lasham-Yeovil.

The outstanding flight of this day was Philip Wills's flight to Callington, a distance of 267 miles.

Nobody else could approach this distance, though Ronald Dunn (sharing the R.A.F.'s 419 with Cretney) did 175 miles to Henstridge airfield. Brian Jefferson flew to Salisbury. Charles Green rounded Lasham and landed 10 miles S.W. of it. Doc. Gregg, Anne Burns and Ted Stark all landed at Lasham.

MONDAY, 18TH APRIL.—Similar weather conditions to the previous two days. Task: Triangle race, Mynd-Cosford-Mortimer's Cross-Mynd. 80 miles.

Again the earlier starters tended to find conditions difficult, and the area of Much Wenlock and Wenlock Edge was fairly liberally scattered with aircraft. Ted Stark, however, after reaching Wenlock Edge in 5 miles. Next best was Charles Green, who was first at the last turning-point with nearly 4,000 ft. in hand, but was uncertain of his position though he was identified by the observers and in fact gave the correct identification mark on his return. However, he was not satisfied that he had in fact identified the turning-point and used his height in searching for it, finally landing at Shobden airfield near Mortimer's Cross.

TUESDAY, 19TH APRIL, the final day, gave rather stronger N.E. winds and the task was a Cross-wind Race to Nympsfield, 60 miles.

Conditions were poor in the morning and no competitors left before lunch; then a few made an abortive attempt.

By 2.30 p.m. conditions improved and most competitors got away without undue difficulty. The first to arrive at Nympsfield was John Williamson in the R.A.F. 419, and soon after Ted Stark in the Army 419 arrived in the area but could not manage to "climb the hill", so landed in the valley. The Derby & Lancs. Skylark II also failed to quite make it and landed at Moreton Valence, 5 miles north of his goal. No other pilot reached Nympsfield.

Best marks for this day were: "John Willie", 100; Stark, 75; Angus Thompson, 72.

In order to be fair to competitors who could not fly on the Tuesday, provided this fact was declared on entry, such competitors were credited this day with their average daily marks of the previous days. This applied both to Philip Wills and David Cretney, the two leaders on Monday night. The position was then that no other competitor could catch them, and Philip Wills was the winner by a very narrow margin *before* the start of the last day's marks.

Finally, in the Inter-Club Contest between the Midland and the Derbyshire and Lancashire Gliding Clubs for the "Beer Tray", the Midland Club managed to retain the trophy by the narrow margin of 11 marks.

MIDLAND GLIDING CLUB TASK-FLYING RALLY, 15th-19th APRIL, 1960

Participants and Scores

Pilot(s)	*Aircraft*	*16th*	*17th*	*18th*	*19th*	*Total*
P. A. Wills *	Skylark 3	90.6	100	73.5	88*	352
F. D. Cretney, R. A. E. Dunn*	Skylark 3	100	64	97	87*	348
J. S. Williamson, J. A. Evans	Olympia 419	88.1	24	33.5	100	245.6
C. Green	Skylark 3	82.6	42	63	44	231.6
E. Stark	Olympia 419	—	42	100	75	217
J. B. Jefferson, A. H. Baynes, K. W. Blake	Skylark 3	40.5	58	—	44.5	131.5
E. C. Shephard, L. Pike	Skylark 2	—	30	92	21	143
H. N. Gregg	Skylark 3	73.5	42	16	—	143
A. Burns, D. Burns	Skylark 3	59.1	42	—	—	101
K. Johnston, A. Thompson	Skylark 2	—	28	—	72	100
J. H. Hickling	T-42 Eagle	—	24	15	30.5	69.5
— Stratton, — Chandler	Olympia 2	—	9	54.5	—	63.5
S. Morison, R. C. Pick	Swift	—	38	—	24	62
D. Darbishire S. B. Wills	Olympia 2	—	18	—	29	47
K. R. Mansell	Olympia 2	—	8	15	—	23
N. P. Anson, V. Ginn	Olympia 2	—	—	—	—	0
R. F. Brigden	Skylark 3	—	—	—	—	0
M. P. Seth Smith	Skylark 2	—	—	—	—	0

* Having to leave before the end, these entrants were credited with their average scores of the last three days.



L. to R.- Ray Brigden and his crew: Ron Willbie and Don Snodgrass.

Photo by A. E. Slater

NOTE TO CONTRIBUTORS

BEFORE any contribution can be considered for publication in SAILPLANE & GLIDING, the identity of its author, whether to be published or not, must be known to the Editor. Will the author of a contribution signed "P.H.B." kindly inform us of his name and address.


SOME CROSS-COUNTRY FLIGHTS DURING
EASTER 1960
AND PRECEDING & FOLLOWING WEEKS
Figures give date of flight (April)
N
PORTMOAK
T. P. DOCHERTY 23rd 24
ACKLINGTON
Newcastle
USWORTH
KIRKBRIDE
R.A.F. KINLOSS 9
SUTTON BANK
D. COLLINSON 16
Ardee
Slane
M. MELLOR 17
Mullingar
T. GLATTENGER 17
Dublin
BALDONNEL 16
DONCASTER
Gainsborough
CAMPHILL
CLWYDA GATE
CRANWELL
C. RICHARDSON 21
SWANTON MORLEY
A. WARMINGER 21
T. SCOTT 21
LONG MYND
T. CORBETT 7. D.
COSFORD
DUNSFOLD
A. WINGATE
WESTON ON THE GREEN
DUNSTABLE
J. JEFFRIES 15
NYMPSFIELD
LONDON
LASHAM
REDHILL
LYMPNE
FIRLE
P. WILDEBUR 16
DUNKESWELL
EXETER
Bridport
Callington
P. A. WILLS 17
PERRANPORTH
SCALE OF MILES
0
50
100

Easter Rally at Lasham

A SMALL rally was organised at Lasham over Easter for those pilots who did not enter the Mynd rally. Task-setting was done by Ann Welch. George Burton telephoned Wally Wallington every morning for the weather forecast. As there was no starting line, the time of take-off plus five minutes was taken for the purposes of speed.

FRIDAY, 15TH APRIL.—No Tasks.

SATURDAY, 16TH.—Task set was an Out-and-return flight to Upavon aerodrome. Pilots were required to identify the gliders at Upavon as turning-point evidence. Unknown to us, the club at Upavon had moved to the adjoining airfield of Netheravon for the week-end. Tony Deane-Drummond and Frank Irving turned at Netheravon without going to Upavon and thus did not qualify for any points.

SUNDAY, 17TH.—Task set was a goal race to the Taunton Vale Club at Dunkeswell in Devon, a distance of 98 miles. This was set to avoid too long a retrieve.

MONDAY, 18TH.—Task set was 100-km. triangle: Lasham-Stockbridge-Hungerford-Lasham. Only two pilots completed the task.

DAILY RESULTS

Place	*No.*	*Sailplane*	*Pilot*	*Remarks*	*Points*
			Saturday, 16th		
1.	36	Skylark 3	Roger Mann	2 hrs. 53 mins.	100
2.	4	Skylark 3	Wally Kahn	3 hrs. 15 mins.	95
3.	65	Skylark 3	Hugh Mettam	3 hrs. 21 mins.	90
4.	58	T-42 Eagle	John Corbett	Landed Alresford on return	65
5.	11	T-42 Eagle	Lorne Welch	Landed 3 mi. E. of Upavon	36
6.	67	Skylark 3	Jill Walker	Landed Andover	8
7.	96	T-42 Eagle	Paul Minton	Landed Thruxton	7
			Sunday 17th		
1.	3F	Skylark 3f	Tony Deane-Drummond	2 hrs. 15 mins.	100
2.	67	Skylark 3	George Burton	2 hrs. 19 mins.	97
3.	4	Skylark 3	Wally Kahn	2 hrs. 40 mins.	80
4.	66	Skylark 3	Paul Minton	3 nrs.	70
5.	65	Skylark 3	Rika Harwood	3 hrs. 30 mins.	65
6.	96	T-42 Eagle	Bernard Davey	Landed 83 miles away, Binnington	46
7.	20	Skylark 3	David Carrow	Landed Mere, 58 miles	28
8.	11	T-42 Eagle	Ann Welch	Landed Chilbolton	2
	80	Swallow	Godfrey Harwood	Landed Chilbolton	2
			Monday, 18th		
1.	3F	Skylark 3f	Tony Deane-Drummond	2 hrs. 30 mins.	100
2.	4	Skylark 3	Wally Kahn	2 hrs. 58 mins.	95
3.	96	T-42 Eagle	Frank Irving	Landed Whitchurch on return	50
4.	65	Skylark 3	Hugh Mettam	Landed Hungerford	40
5.	67	Skylark 3	George Burton	Landed Inkpen Beacon	37
6.	11	T-42 Eagle	Ann Welch	Landed Andover	30
7.	66	Skylark 3	Bernard Davey	Landed Chilbolton	23

FINAL RESULTS

Place	*Pilots*	*Points*
1.	Wally Kahn	.. 260
2.	Tony Deane-Drummond ..	.. 200
3.	Hugh Mettam/Rika Harwood	.. 195
4.	George Burton/Jill Walker	.. 142
5.	Frank Irving/Paul Minton/ Bernard Davey	.. 103
6.	Roger Mann (one day only)	.. 100
7.	Frank Irving/Paul Minton/ Bernard Davey	93
8.	Ann and Lorne Welch	68
9.	David Carrow/Mike Gee	28

The marking system used was the same as the revised National Contests marks except that no slide-rule was used.

W.A.H.K.

A New Glider Radio

by Ted Stark

At last, a radio designed to aircraft standards and suitable for use in sailplanes is shortly to be available to the gliding movement. It is a small, extremely robust set, made and marketed by the firm of Burndept Limited, Erith, Kent, whose participation in the field of airborne radio is long established.

A prototype set, which is to be known as the "BE 255", was recently evaluated by the Army Gliding Association; when installed in a Skylark 2 it was used during this year's "Wave Safari" (a report on the expedition appeared in the April issue).

The set, which measures some $7 \times 4\frac{1}{2} \times 11\frac{1}{2}$ ins. and weighing only $6\frac{3}{4}$ lbs., was mounted directly above the battery, in the special quick-release tray provided with the set. A small remote-control box containing the final audio stage, which is transistorised and fed to a 3-in. speaker, socket for microphone and earphones (if required), and also the transmit switch and volume control, combined all in one unit, was installed within easy reach of the pilot on the right-hand side of the canopy. To avoid any possibility of confusion, the master on/off switch from the 12-volt battery supply to the set's transistor power pack was mounted separately on the instrument panel.

The aerial used with the trial installation was a single pole of approximately a quarter wave in length (19 in.), earthed to a ground plane of just double that length in the form of a "T", the whole assembly being placed on the side of the fuselage and fixed by covering with 2-in. masking tape. The feed to the set was with 45-ohm coaxial cable. If one had been making a more permanent installation, then without doubt it would have been better to use a standard whip aerial and mounting as normally seen on light aircraft, such as the Auster.

During flight, the pilot had only to turn on the master switch, wait a moment or two for the set to warm up, then transmit or receive without further ado, adjusting the volume of the incoming signal to the desired level. The ability to adjust the volume proved invaluable, especially when on tow, as the close proximity of the tug radio tended to produce signals which completely swamped the glider set.

Contact with the ground station, which had been set up at the Midland Gliding Club on the Long Mynd, which itself is some 1,500 ft. a.s.l., was established over distances of some 40-50 miles from aircraft heights varying from 3,000 to 9,000 ft. a.s.l. which was considered to be extremely good. taking account of the aerial which was only a very temporary fitting with unknown radiation characteristics. Use of the correct aerial should further improve the air-to-ground range of the set.

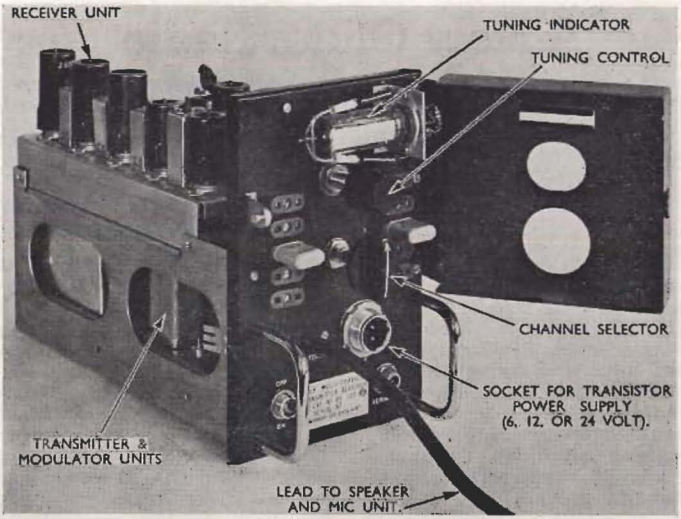
Experience gained during the expedition indicated that only one simple adjustment was necessary to ensure optimum results. This was setting the transmitter for maximum strength prior to the first flight of the day. The transmitter is, in fact, tuned inductively by two mechanically ganged dust iron cores which vary the inductance of the crystal oscillator anode, and the P.A. circuit, with the tuning indicator on the front of the set enabling the pilot to see when the correct power has been reached. This was a very simple operation, taking but a moment, and was performed as part of the normal D.I. on the aircraft.

For the technically minded, the set is a 5-channel (single if required) amplitude-modulated R.T. Transmitter/Receiver with a power output of 1.25 W. It is designed to operate in the range 117-134 Mc/s V.H.F. band, which means that it covers the frequency expecially allocated for glider use in the U.K. (130.4 Mc/s.).

The whole equipment is contained in a light, well-ventilated metal cover, with the receiver mounted above the transmitter and modulator on aluminium side panels, which form a light, but strong, rigid assembly. Intercommunication between the units is by an 8-way socket and jumper lead. The modulator has a 300-ohm balanced input.

The receiver is basically a double superheterodyne, employing two crystal single oscillators, one fixed and one variable. The second detector, A.V.C. detector and first audio stage are combined in a single valve, and a diode noise limiter is also incorporated.

A common audio output/microphone amplifier is employed, and this gives intercommunication and side-tone facilities,



which are available on both send and receive, unless the loudspeaker is in use, when it is automatically cut out to avoid parasitic oscillation. The intercommunication facilities have little practical value gliding-wise, but this set is also aimed at the light aircraft fraternity where the noise level in aircraft is a little greater, we understand.

One of the most telling features of this new radio is its transistorised power pack, which can be adjusted to operate from 6, 12 or 24 volts. This provision for working from the sort of power supply normally available in gliders, and the fact that transistors are inherently efficient, giving both long life and reduced battery consumption, also the removal from the scene of the rotary transformer with all the troubles its moving parts were apt to cause, is of the greatest interest and practical value from the gliding point of view. Battery consumption was a little over 3 amps from the 12-volt supply as used for the trials (2 × 6 V., 9-amp Bosch), which provided a more than adequate reserve of power. These values would of course be halved if a 24-volt supply were used.

An objection to the use of radio by many glider pilots in the past has been the need to wear headsets, which some tended to find not only rather tedious during long flights in the heat of summer, but also apparently disturbed their ability to connect and stay with thermals—their ears perhaps being more important thermal devices than they had ever suspected. One radio manufacturer has endeavoured to get round this snag by providing a single earphone only, but, like all compromise, it was only partially successful. With the introduction of a transistorised final audio stage producing more than sufficient output to operate a speaker, with the volume under the direct control of the pilot (all provided with negligible increase in battery consumption), we feel this objection is to a great extent overcome.

A further point which should commend itself, particularly to the gliding world, is that all fittings are standard and as used by the R.A.F. and, as one would expect, become available from time to time on the secondhand radio market, usually at very low cost. Also the set can be operated to the normal type R.A.F. mask; thus the aspiring pundits may, should they so desire, operate both radio and oxygen together.

A much longer period for trials is obviously necessary to discover how it will stand up to the rough-and-tumble of normal club operation; but it is an interesting note that no maintenance of any kind proved necessary throughout the whole of the expedition, and the set appears to be completely impervious to damp, cold, and the normal run of glider-type landings.

La Ferté Alais

OR: HOW TO GET A DIAMOND IN 30 MINUTES

by Ann Welch

Date: 4th August, 1959
Pilot: Ann Welch
Glider: Skylark III
Course: La Ferté Alais to Angoulême airfield.
Distance: 360 km. (223.7 miles).
Results: (a) Diamond Goal;
(b) Women's British National Goal-flight Record.

We were in North Switzerland in August with the family and Nick Goodhart's Skylark III, waiting for the weather to improve. Lorne had been flying at Samedan and now, at last, I was hoping to have a real assault on the Gold C distance which had been so long elusive. We had a few more days only before the glider had to return to England, and our indecision as to whether to stay where we were, or pursue the weather across Europe, was fortunately settled by a chance meeting with René Comte, who told us to go north into France as soon as possible.

So at 6 the next morning we set off on what nearly became a Grand Tour after all. Lorne drove Nick's car and trailer, and I the Bedford with the tents and children, and by 6 that evening we reached the gliding club at Nancy. We had a warm welcome from M. Fèvre; but, owing to the damp windy weather, left again towards Paris almost as soon as we had shaken hands. That night we camped at St. Dizier, and at 6 a.m. set off once more in the direction of La Ferté Alais. On the way the weather showed signs of becoming good at last, and by 11.30 we arrived, unheralded and without even knowing whether the club would be able to provide a launch. As we burst into the office, M. Péchaud glanced up and, without showing any surprise at his unexpected visitors, said:

"You want to fly distance?"

"Yes, 300 kilometres."

"Then it is not too late if you go at once, *but at once*, and you must go to Angoulême".

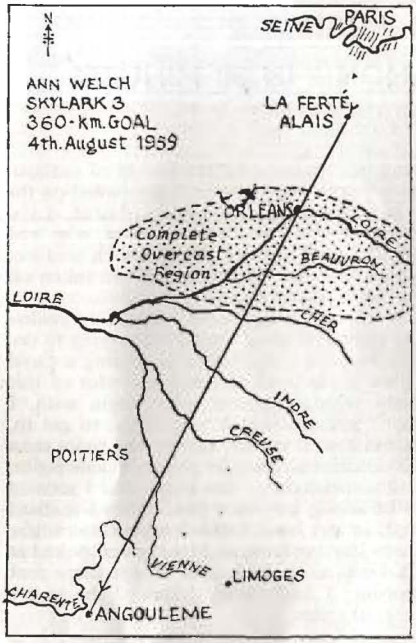
Lorne and I looked at each other in slight astonishment and then set to. I rushed off to change and to tell the girls what was happening. Lorne drew lines for me on his map, and supervised the crowd of enthusiastic Frenchmen who had descended on the trailer. In 30 minutes I was airborne. Even more surprised was the tug pilot, who had hooked on to him a glider which was not even on the airfield when he had taken off on the previous tow.

It was only now that I began to realise the implications of what I was trying to do, and that the possibilities of getting a Gold C, let alone a Gold Diamond, out of this flight were negligible. To begin with, I didn't know where I was trying to get to, except that it was an aerodrome more than 300 kilometres away in a southerly direction and somewhere on the maps that I seemed to be sitting on was a line. Then I realised that, in any case, I didn't even know where I was starting from as I had never looked at La Ferté on a map, and to get there that morning I had merely followed the trailer for 120 miles.

LATE START

It was after midday when starting, and I was proposing to hurry along a line of unknown length, *and* without a watch (having broken it the day before). I dug out Lorne's maps, which he always sticks together, and searched feverishly through this bulky concertina for my line, while the tug wavered up and down in front. The finishing touch came when I failed to find anything on the map except Madrid and Munich; and I came to the conclusion that the situation was out of hand, and that it would be much simpler to land back and have a nice peaceful lunch. Then simultaneously I found my LINE and the tug waved me off.

The day really looked quite good with 3/8 cumulus of no very great depth at about 4,000 ft., and there seemed to be a more or less following wind of about 8-10 knots (this was something else I hadn't discovered before starting). Fortunately the lift was plentiful in this early stage of the flight, and although it was not very strong—200-300 ft. per minute—it gave me a good breathing space to settle down, particularly navigation-wise, because I knew that I



could afford no time for wandering off course, let alone getting properly lost. As a result I got LINE mania to such an extent that I was never more than two kilometres from it the whole way, and then only to visit a better-looking cloud.

As I approached Orleans on the great bend of the Loire, cloud cover increased steadily until I passed over the city at 4,000 ft. in what appeared to be a complete clamp as far as it was possible to see. Visibility deteriorated to 2 or 3 miles, and the day looked as though it was finished. I very nearly turned back to save retrieving miles, thinking of the incessant driving of the last few days, but decided to fly on for 5 minutes and, if nothing turned up during this time, to then try to return at least some of the way.

The clamp continued for a further 15-20 miles, but there were patches of lift about, so I went on, daring neither to deviate right or left in case I lost myself in the rather featureless country, and feeling rather hopeless about the whole thing. The map showed that the locality was dotted with lakes, but from the air they were the most undistinguished puddles, shallow and grey-green like everything else around, and not at all the navigational feature that one might expect.

On crossing the Cher river my hopes were raised by breaks in the 8/8 cover, and a fairly rapid rise in cloud base to 5,000 ft. I had managed to keep high through the clamp area by scrabbling about in every bit of lift I found, and so set off rapidly and full of enthusiasm for the clearing sky ahead. This nearly proved my undoing, because the thermals now became much more difficult to use. They were stronger, but narrow, rough and rather widely spaced, and the cumulus, as well as becoming more separated, rapidly became extremely transient.

I realised that in these sort of conditions it would be folly to get low, quite apart from the fact that it was also intolerably hot nearer the ground. I therefore decided to continue to use everything which helped me, unless it was obvious that there was something better close ahead. While making up my mind about this, I was in the middle of one of the very long straight glides which became a feature of the later stages of this flight. Fortunately, after having failed to centre in two thermals and left them in disgust, I went for smoke from a bonfire at 3½ thousand feet (the lowest point in the flight) and rose rapidly to near cloud base, where the lift died away.

Cloud base was still going up and was at about 6,000 ft., although I never seemed to be able to go higher than 5,750 ft. Having no watch, I was feverishly watching the sun, which was steadily marching down the sky to my right, and there still seemed an awful long way to go. I had used a Roman sort of road running precisely parallel to my track line, to check on possible wind changes, but there seemed to be none.

Visibility had now become very good indeed, and I had a fine view of the Chateau Chauvigny on my right, and the town of Montmorron away to the left; and then I was across the Vienne.

But time was getting short. I reckoned it must be somewhere in the region of 5 o'clock, if not later, and although the thermals were still rough, narrow and strong, their spacing was becoming very wide indeed. I was encouraged, however, by the only three cumulus in the whole sky, and although they were minute and short-lived, they all three stretched ahead exactly along my line. They came and went as individuals, of course, but cumulus kept appearing just

where I wanted them, and I used the lift, half in and out, furious that I couldn't find a centre, and satisfied that at least I wasn't going down, watching the Vienne river wind away to Confolens, and peering ahead, hoping that I could see my goal, for it seemed possible now that I might arrive. Instead came another long straight glide, which went on and on through silky air. Hastily I did inaccurate sums, which assured me that from my 5,000 ft. I would grind to a halt in the middle of the forest a few miles this side of Angoulême.

I flew on and on, praying for just one more thermal, however miserable. It came. It wasn't miserable, but almost the best thermal of the day, and feeling that one should not spurn a gift of the gods, I used it right to the top and sailed over the forest above 4,000 ft. It was easy then to reach the airfield, and having made 100% certain that it really was the right airfield and not a military strip or a racecourse or something else, I sat back to wander around and really enjoy the magnificent view and the now superb visibility of this summer afternoon.

I landed at 6 o'clock, finding one other glider there. The pilot was also from La Ferté but had been trying to reach Bordeaux for his 500 kms. He looked at me rather doubtfully when I said I had come from La Ferté, and said rather firmly, I thought, that he had been still there at 11 o'clock, and wasn't it strange that he hadn't seen me? He also said that Chris Wills was trying to get to Angoulême, and so we waited a while before telephoning back, hoping that he would come in; but he was unlucky, although he got his 300 kms. all right.

To my astonishment the entire family arrived with the trailer at midnight, having done 400 miles of motoring during the day with Lorne as the only driver. He had burgled the gates of the aerodrome and we had a hilarious conversation outside the windows of the guardroom, in which the Moroccan guard were sleeping soundly with the curtains drawn back and all the lights full on.

We put all the camp beds in the bar, carrying in the four-year-old who had gone to bed in the car, and who woke up in the morning facing a huge scarlet, black and white mural and with the temperature up in the 90's.

When we got back to La Ferté Alais we set up camp and were able to see what sort of an organisation it was that could successfully hurl off a perfect stranger in 30 minutes without turning a hair.

The airfield in many ways is similar to Nympsfield: for all practical purposes a one-strip field and on a hill surrounded by trees. It is, however, flatter than Nympsfield, and the hill is not really soarable. Two-seaters, mostly aero-towed, are used for training, and the club fleet consists of about 20 gliders of different sorts. There are no private owners. Aero-tows take off in one direction, with gliders landing in the opposed direction, but sometimes the tugs land across the field, using a very short secondary run. This system seems to work and the standard of competence is very high. The hangars are small and overcrowded, needing Myndian ingenuity to get everything in. There is a bunkhouse, a general office and a canteen-cum-bar, which is surrounded by several hundred acres of woodland, blackberry bushes, and sandy hollows, suitable for barbecues. There is an excellent swimming bath in the local town.

The facilities, in fact, are nothing exceptional, but the enthusiasm and spirit of the place are enormous. The training is thorough, carried out with dash, but with a high degree of discipline. The standard of soaring is high and there is an almost religious fanaticism about using a good day. Every capable pilot is sent off, if necessary completely clearing the contents of the hangar to do so. And I mean sent off. The *Chef du Centre*, M. Féchaud, declares the tasks and hands out "*Ordre de Mission*" to each pilot, who departs feeling that clearly it is not permitted to fail.

The problems of retrieving are simply not considered when sending pilots away, and it pays to take a sleeping bag in the glider. There is, however, a system used all over France which is full of possibilities, but which works. When the gliders have gone, a car and a universal trailer sets off, and in due course one, or two, aerodromes are designated collecting points and the trailer gathers up the gliders and deposits them there; meanwhile, tugs shuttle back and forth, usually starting at dawn, towing the gliders home two at a time. After a really big day this may take some time.

The Club at La Ferté is extremely lucky in its President, who also paints the priceless cartoons which adorn the clubhouse walls; in the Chef, M. Péchaud, who, apart from being a fine pilot himself, is a first-class organizer; and in their instructors and engineers.

We are planning, to return next year.

NEW APPROACHES TO SOARING

by August Raspet

Aerophysics Dept., Mississippi State University

This paper, which was presented by Dr. Raspet at a Technical Symposium on Soaring organized last year by the Soaring Society of America, is reproduced by permission from "Soaring", the official organ of the S.S.A.

RECENT progress in sailplane aerodynamics has brought quite a few sailplanes to the point where the glide ratio is near forty to one. Among these are RJ-5, Meteor, Elfe M, and the latest to join the ranks, Phoenix. In general the approach to high performance has followed that laid down for RJ-5, namely drag reduction by extending the laminar regime and by eliminating pressure drag areas*.

To exceed the forty to one glide ratio appears to be a difficult task. Perhaps by going to gigantic sailplanes where high aspect ratio can be used without becoming involved with low Reynold's numbers one may make a small step forward.

But it is not the purpose of this paper to discuss small steps where bold steps appear needed. What we wish to discuss then are the new sources of energy which may be used to improve the glide ratio of our contest and record breaking sailplanes.

First, let us look at the process of solar energy extraction as employed in soaring. The sun heats up an area on the ground above where the air will also be heated. Convection starting in this heated air takes place in a narrow column of the atmosphere. It is the sailplanist's mission to circle in this upward moving column of air thereby extracting some of the energy contained in that column. In general the efficiency of this process is extremely low.

Suppose now instead of the sun heating an area on the ground we allow the sun to impinge on the upper surface of the wing. On every square foot of wing area at normal incidence there will be 0.2 h.p. of solar energy collected by any device capable of transforming the solar heat into pressure, electricity or gas generation.

One efficient process for solar energy conversion is photosynthesis. However, at the moment this process is hardly practical for sailplanes.

However, the newly developed solar cells which have an ultimate efficiency of 22 per cent are now available with efficiencies of 11 cent. This means that a sailplane having its upper surface covered with 140 sq. ft. of solar cells will deliver 1,000 watts of electrical energy.

This energy may be used to drive a propeller having an efficiency of say 70 per cent with the result that a little less than one horsepower will be available for propulsion. One horsepower would reduce the power losses on Phoenix at 40 m.p.h. from 1.65 h.p. to 0.65 h.p. This means that the maximum glide ratio would jump from 40 to 1 to 93.5 to 1.

Perhaps for the best cross-country sailplane the solar energy had better be used for boundary layer control for in this case penetration will be vastly improved. To achieve a full laminar flow on a sailplane wing such as Phoenix, would require 0.6 h.p. cruising at 100 m.p.h.

In an OSTIV paper Carmichael (Reference 1) showed the benefits of suction for drag reduction for sailplanes of various aspect ratios. In particular, for a sailplane of aspect ratio equal to 18 the maximum glide ratio would go up to 50 to 1. However, the gains at higher speeds would be most valuable for high speed cruising speed improvement. For example, at 100 m.p.h. reducing the drag of the Phoenix by 50 per cent will result in the glide ratio being doubled at 100 m.p.h., i.e., L/D = 34.

In order to delay the stall so that a higher wing loading could be used without sacrificing circling speed the Phoenix would require only 0.2 h.p. of suction power. Cornish (Reference 2) suggested a two-seater in which the observer furnishes the power for suction. However, with solar cell power for suction a single-seater can be designed

* See article by Dr. Raspet in GLIDING for July 1951, p. 73.

for both low drag and high lift boundary layer control.

Obviously the ideal use of solar energy would lie between straight propulsion at best glide ratio to all out suction for the very low circling speeds and the high cruising speeds. Adjustment of the relative distribution of this power will result in varying the general flight characteristics of the sailplane.

Eventually solar cells will be made so efficient that enough power will be available for level flight. In this case the slow cruising speeds at which minimum power occurs will not be fast enough to win contests or to break records. Then both solar cells and solar energy in thermals must be utilised to maximum cross-country soaring. However, this is a problem that must be deferred while we do research to utilise the presently available solar cells.

Extraction of Energy from Atmospheric Turbulence

Under some conditions next to the surface of the earth, i.e., in the earth's boundary layer, there exists considerable energy in the form of turbulence. Spectral power distributions show that this energy peaks at a frequency of about one cycle per second. This means that the turbulence cells containing the maximum energy are of the order of a span in size.

This being the case it appears that any attempt to extract energy from these cells must be done with a device having a response time at least as fast as one second. The sailplane responds in pitch at such a speed but it really does not have to pitch in order to gain energy from turbulence. Klemperer (Reference 3) has shown in his monumental paper that for energy to be gained by an aircraft flying through a turbulent air mass the sailplane must merely hold a fixed longitudinal attitude. This implies a sailplane with neutral stability. Therefore if we wish to improve the glide ratio of our sailplanes in passage between thermals we merely need to install a weight which can be moved toward the tail so that the center of gravity is moved to the neutral point.

However, such a simple expedient may not under dynamic conditions hold a fixed pitch attitude. In this case a stabilization by means of a rate of pitch gyro coupled to a servo on the elevator would provide the dynamic stabilization.

During the summer of 1958 Dave Raspet carried out some experiments along this line but to date no results are available. Difficulties with the autostabilization scheme still must be solved.

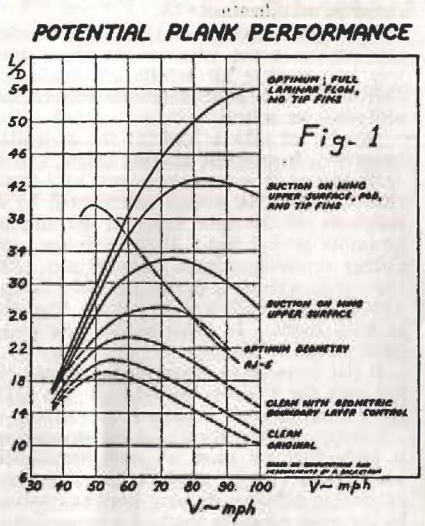
But let us take a look at the potential gains which dynamic soaring offers. In a turbulent environment measured by Lettau (Reference 4) the energy intercepted by a sailplane of 50 foot span at 60 m.p.h. amounts to 6.0 h.p. If the efficiency of energy conversion were only 25 per cent there would result a power gain of 1.5 h.p. This is nearly sufficient to sustain Phoenix in level flight. In other words, the glide ratio would be infinity.

If the conversion efficiency were only 10 per cent the Phoenix would enjoy an L/D jump from 40 to 1 to 63 to 1.

Clearly, the potential of dynamic soaring is such that we must at least investigate what gains can be made by such energy extraction schemes as have been suggested. In the past no clear method was available for discriminating the action of this process. However, the comparison flight technique, whereby two sailplanes of identical geometry and wing loading are towed to altitude and flown as a team, does permit a clear delineation of dynamic soaring versus gliding. All one needs do is fly the team in turbulence and measure the relative altitude loss of the two sailplanes. If the one fitted for dynamic soaring stays consistently above the classical sailplane we know the answer. Furthermore by measuring the difference in sinking speeds we know directly how much horsepower is being extracted by the dynamic soaring machine. If, at the same time, the sailplanes carry turbulence measuring instruments one can arrive at a measure of the efficiency of the energy extraction.

Away From High Aspect Ratios

With the suction boundary layer now fairly well reduced to a practical system we must re-examine our lust for high aspect ratio. In general high aspect ratio yields a high glide ratio at a comparatively low speed for wing loadings found most practical for thermal soaring. Of course, the optimum wing loading will vary with the region in which soaring will be done. However, the current range of wing loading does not vary the location of the best glide



peak on the speed scale by more than 10 m.p.h. This being the case we must ask how we can put the peak in glide ratio in the cruising speed regime of inter-thermal speeds.

The lift coefficient at which best glide ratio occurs is the square root of pi times aspect ratio times parasite drag coefficient. Quite clearly a sailplane which has its best glide ratio at low lift coefficient implies low drag and low aspect ratio.

A typical sailplane of this configuration is the EPB-Plank. However, the extremely low drag needed to make such a configuration useful must be obtained by suction boundary layer control. In Figure 1 are shown curves of glide ratio versus speed for the Plank in various states compared with RJ-5. One can readily see that the low aspect ratio, low drag machine is capable of amazing performance in regions where thermals are strong but not necessarily wide.

Conclusion

The author realizes that this paper suggests many concepts beyond the scope of the average sailplane designer and builder. However, we must begin thinking and doing something to break through the 40 to 1 barrier. Perhaps a simple scheme can advance the art of soaring by a large increment. This paper is aimed at inspiring some activity toward such an end.

References

1. Carmichael, B. H., "Possibilities of Drag Reduction on Sailplanes," OSTIV Publication II, 3-13 July 1952.

2. Cornish, Joseph J. III, "Improving Sailplane Performance with Suction Boundary Layer Control," 6th OSTIV Congress, July 1956.

3. Klemperer, W. B., "Theory of Soaring Flight," SOARING, 1943-44-45.

4. Lettau, H., "Atmosphärishe Turbulenz," 1939, Edwards Brothers reprint 1944.

Commenting on Dr. Raspet's paper, reproduced above, Dr. Paul B. MacCready suggests that a sailplane with a sink as low as 1 ft./sec. "might be able to stay up almost any place, any time," as there are usually "at least some local vertical velocities" of that order, so zero sink is unnecessary. But such a machine would have to be light, with poor penetration.

Cloud lift can be boosted by seeding that part of it above freezing level with dry ice or silver iodide, which, if released into an upcurrent, rises faster than the glider and then takes only five to fifteen minutes over the seeding process. A thoroughly overseeded cloud will not ice-up the sailplane, Dr. MacCready points out, "and there is always the chance that the rain or lightning produced by the seeding may slow down a competitor who reaches the cloud after you have left it."

He also refers to the idea of tossing out powdered carbon black to absorb the sun's radiation and start a thermal (see SAILPLANE & GLIDING, February 1959, p. 13), and suggests that "for sailplane use, probably a long vertical line of carbon black particles would be better than a puff."

Another suggestion by Paul MacCready is for a sailplane in a strong upper wind to lower an "air anchor" into a weak wind lower down, and climb like a kite. In a region of strong wind shear, such as near the border of a jet stream, a pair of sailplanes could use each other as the air anchor.

It is with the deepest regret that we have learned, as we go to Press, of the death of Dr. Raspet on 27th April as a result of injuries in an aeroplane accident in the United States.—ED.

Prospects of Distant Thermal Detection

by D. Brennig James

THE current practice in aviation is to expose the bodies of countless numbers of algae to the sun's light, then after a long period of time their decomposed remains are extracted and burned in steel pots in such a way that the expanding products of combustion supplies thrust to push a glorified glider through the sky. The overall time taken to do this is several hundred million years and seems rather a roundabout way of doing things. Bright sunshine is the equivalent of anything up to half a million horse-power per square mile, and a good percentage of this finds its way into thermal convection currents which occur with an average frequency of about ten per square mile. The present technique in soaring is to detect a thermal by flying into it and recording the aircraft's resultant climb. The plan form of a sailplane "scans" approximately 2,000 square feet per second, an area small in relation to one tenth of a square mile which is the area to be covered to give an even chance of finding a thermal.

Most of the development work in sailplane design has been with the purpose of flattening the angle of glide, so that from a given height a sailplane has the maximum amount of available area to scan. Further progress in this direction is now heavily restricted by the law of diminishing returns, so that a heavy cost increment gives only a small performance increment.

Since there are about ten thermals per square mile on the average, the distance between each should be about one-third of a mile, so, provided that the pilot could have previous knowledge of their location, getting from one to another should be a simple matter. Distant thermal detectors such as cumulus clouds, birds and other sailplanes already exist, and their presence makes the soaring pilot's task much easier; however, the surprising thing is that cross-country flights of over 200 miles can be made in their absence, a tribute as much to the pilot's tenacity in enduring this form of mental torture, as to his skill and judgement.

It would seem logical to develop thermal detectors if they are feasible so as to increase the lateral range of detection from about one-third of a span to the ideal range of about 2,000 feet. On current theory this does not seem feasible, but with a range of only 200 feet a dramatic improvement in performance and in the pilot's frame of mind should accrue (the theoretical maximum would seem to be about 1,000 feet).

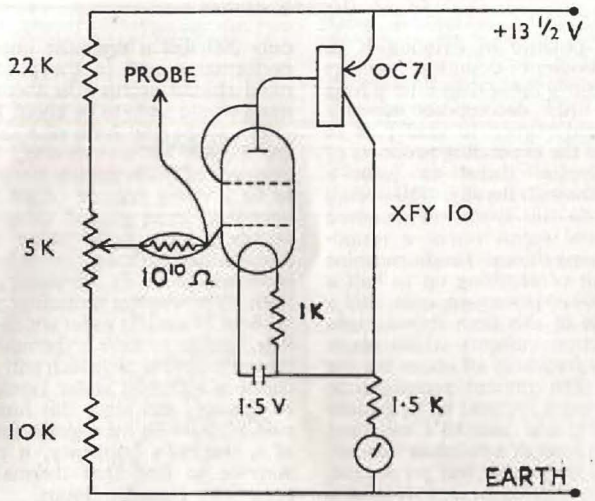
The shape and form of a thermal is still the subject of controversy, but for the purposes of this argument it will be assumed to be a rising column of air substantially unbroken from ground to inversion. Its buoyancy may result either from its increased temperature in relation to its environment or its increased humidity, or both. The average molecular weight of air is about 29 against water which is 18, so that it is feasible to have a thermal colder than the surrounding air which still ascends as it contains sufficient water vapour to reduce its density; and since this humidity factor may account on the average for about 30% of a thermal's buoyancy, it comes as no surprise to find that thermals are often capped by cumulus clouds.

Other factors which distinguish thermals are increased dust content and a positive charge. Dust content is only useful when the amount is great, as in a large smoke plume; the possibility of its detection by rather sophisticated polarised light apparatus is feasible but remote, since the packet of air one wishes to detect should be at a gradient of about 1 in 5 downwards and ahead of the machine, so that the clear background of the sky is no assistance to its detection. The temperature of distant thermals cannot be detected by infra-red radiation, but it would seem feasible to use 1.25 cm. radar to find them on the basis of water absorption in this band.

The most promising possibility is to take advantage of the thermal's positive charge to detect it by the horizontal static potential gradient it produces. The instrument required is a sensitive valve electrometer of about 10^{10} ohms resistance and ± 5 V full-scale deflection—a suitable circuit diagram is shown. This should be earthed and well screened from local sources of static by foil or wire gauze.

The choice of a suitable probe raises several problems; however, the simplest to start with is a capacity probe consisting of a few yards of coaxial cable acting as a high resistance condenser. This is connected across the poles of the electrometer and

CIRCUIT DIAGRAM OF METER



introduces a temporal lag into the system so that the meter indicates the rate of loss or gain of potential with time. Increasing the capacity increases sensitivity at the expense of a high lag, so that the optimum value should be found by trial and error.

This is a cheap and simple piece of apparatus; it is suggested that interested pilots should knock one up for use in the coming summer. Quite definite deflections on entering and leaving thermals have been found, but the results require considerable interpretation; it is hoped that someone can develop the device into a suitable distant thermal detector (and save us all a lot of money).

ACKNOWLEDGEMENTS.—I am indebted to Dr. Ament and George Burton for advice on the general topic of thermal detection, and to Mr. J. Pender for the development of the electrometer. The best books of reference are:

Recent Advances in Atmospheric Electricity, by L. C. Smith (Pergamon Press);
Atmospheric Electricity, by J. A. Chalmers.

Young Fellow goes Solo

by Julian Primett

I SAT there smoking and staring gloomily out of the clubhouse window. Flat late-afternoon clouds faded and dissolved over Long Mynd. The other fellows all sat around the tea table, laughing and talking to one another, but I couldn't face them. I was totally absorbed in my fear and in all the things at which I'd ever failed. I knew there was to be no reprieve for me that evening; the air over the district for miles in every direction was flat and still. A hush of doom had gathered about the sunlit scene. Neither typhoon, nor gale, nor any heaven-sent whirlwind could save me that evening.

Sure, it's the same with anyone before solo. But this was my solo, not anyone else's.

With much scraping of chairs and jostling, the group at the table rose to leave. One of them beckoned me and, with a sense of awful finality, I joined them as they trooped through the doorway. Glancing back, I was sad for all the little things I might see no more; packets of Players, bottles of

Worthington, and battered copies of *Lilliput*.

They were flying circuits out on the hill. People jumped into T-21s and Prefects, smiling and sometimes even roaring with laughter. Nothing to it; up, across and down. Then get out and grin. At this instant I was suddenly struck by the frightful reality of it all. I was to fly, not anybody else. I, solo. My last reserves of resolve caved in and I had started to edge towards my car when I realised that a little group had gathered about me. They effectively cut off that escape route and I decided to retreat. I turned around and what I saw made me cringe with fear. There was Prefect, wing down and empty. A dungeon gate slammed to.

One fellow led me, numb and incoherent, to the cockpit. Then he strapped me in, all the while talking of airbrakes, and sink over the hill. I just let him talk. But then I recognised him as the one who had given up his launch for me. A bitter smile curved across my face when, on looking around, I also saw the fellow who had put me through spins.

There was nothing for it but to give "take up slack" and wait. Nothing happened. No one except the signaller moved. No faint breeze ruffled the heather. Nothing stirred until, with an almost audible crack, my last nerve shattered. I had seen the cable snake across the heather. I gave a strangled "All Out", then the aeroplane and I careered across the hill. We bumped and were gently borne aloft.

After that the worst of the fright went—just like anyone else's solo. Slowly, and with a great rushing of air, we soared above the hill. All my meagre powers of concentration were fastened on cable-breaks. At three hundred feet I brought the stick back and kept it gently going back. That elemental fear of falling down and back was gone, and I headed straight for the sky. I was flying up a long, safe corridor of air out of which it felt impossible to fall. Up I rushed, feeling like a '14-18 war pilot, with the wind singing through my hair. At just nine hundred feet the cable rumbled. I dipped forward, released, and felt my stomach squirm as I visualised the cable searing down to the winch.

Then came the conscious realisation that I was not at all frightened. Prefect and I sat in the air with placid ease. We were as free as cotton wool, and there were miles of blue in every direction. I could stretch out my hands and grasp it. I could roar with laughter and nobody would hear. I went through a stall and shouted as I tore earthward after it.

That's the way I felt.

I banked right and the sun, slanting across Wales, caught my wings and etched them a rich red, against the browns and greens below. Then I abandoned all romancing and flew home by the book. Very careful downwind leg—even to remembering the instructor's warning about airbrakes on Prefects. I gave the lever a hard tug and felt a clutching hand reach up from the ground. I rapidly replaced the brakes, then glanced down to estimate my height and smiled at the anxious little knot of people all straining and willing me to get safely down from the sky.

As four hundred feet came up I was placed just right for the crosswind beat. I banked. A flutter of fear then. After this a short crosswind leg and turn in. Brakes out. Time running out. Wind noise mounting. All change for Jordan. Height right. Don't say any prayers, you're going to make it. Check. Bump, gentle bump.

We slithered across the heather, but that rather solid-looking fence was coming up rapidly. Too rapidly. More fear. However, we stopped before it. I gave a huge, "phew!" relaxed, and felt enormously happy. I grinned at the others and pretended modesty while my heart sang in my ears. All fine, except I'd pulled the brakes only half out.

Then the B. There was less excitement to start with but, as it turned out, more sink. I forgot all about sink on the hill and burbled happily down the ridge, falling stonewise with gay abandon. This continued until it came time to turn over the clubhouse. Rude shock. I could have flown into, or around, but not over the clubhouse. As it happened I flew around it and landed in heart-stopping fashion between a T-21 and the umbilical little knot of people who had lived with me through my birth pangs. Someone signed my log book and the cord was cut.

That's how I received the high initiation. Then was I licensed to throw away my clean raincoat and don a T.V.O.—stained, evil-smelling, flying suit, and multi-hued woollen hat!

June 1960

The R.A.F. Wave Project

When Group Capt. N. W. Kearon, Deputy Chairman of the R.A.F. Gliding & Soaring Association, took command of R.A.F. Carlisle last year, the proximity of the Northern Pennines, the site of the famous Helm Wave, stimulated him to organize an "R.A.F. Wave Project" in which members of R.A.F. gliding clubs could take part. Originally scheduled to take place in March 1960, the project has been extended on two occasions until it ran beyond the Press Day for SAILPLANE & GLIDING, and in consequence a promised detailed account of the meeting will have to wait until the August issue.

Meanwhile, here is a list of the more interesting wave flights, most of which were done in unexpectedly good waves created by the Lake District mountains in south-east winds.

6TH MARCH.—Gp. Capt. N. W. Kearon, climb to 8,700 ft. in Olympia 401; cloudless sky, wind S.E. by E.

10TH MARCH.—Sgt. J. S. Williamson and "Lofty" Eldridge, climb to 10,400 ft. in Eagle; later Gp. Capt. Goodbody and Sgt. J. S. Williamson, climb to 8,000 ft. in Eagle: lenticular clouds above, complete cloud cover below; wind S.E.

18TH MARCH.—Gp. Capt. Kearon, 6,700 ft. in continuous wave which formed in lee of Lake District mountains *and* Pennines *and* the Eden Valley between them.

24TH MARCH.—Gp. Capt. Kearon, climb to 13,500 ft. in Olympia 401, and stayed above 10,000 ft. for three hours; Air Chief Marshal Sir Theodore McEvoy in Olympia and Flt.-Lieut. A. Loveland both exceeded 10,000 ft.; S.E. wind.

27TH MARCH.—Flt.-Lieut. F. D. Cretney, climb to 21,500 ft. in Eagle flown solo (see his article in this issue); Gp. Capt. Kearon, 17,800 ft. in Olympia 401; in N.E. wind at the Helm site but without characteristic Helm clouds.

21,500 Feet in an English Wave

by F. D. Cretney

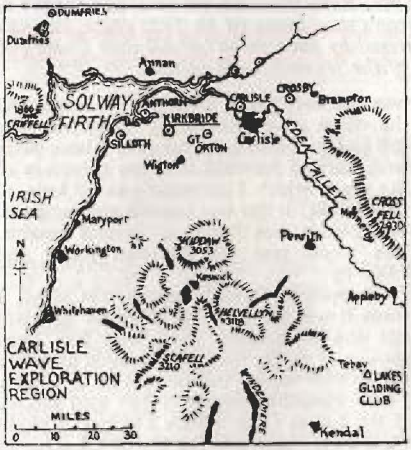
With this flight, made during the R.A.F. Wave Project at Carlisle, Flight-Lieut. Cretney reached the greatest height yet attained in a wave over the British Isles.

I travelled up to Kirkbride on Friday, 25th March, with Squadron Leader Brownlow of the Wessex Club, to spend a second period in the area. Saturday, the 26th, produced nothing but low stratus and a strong easterly wind at Kirkbride, which made aero-towing out of the question; but by 4 p.m. the wind had dropped sufficiently for John Brownlow and myself to explore the Eden Valley between Carlisle and Penrith in a Chipmunk. There was no doubt whatsoever that the wave was working, for stratus could be seen pouring down the lee side of Crossfell, and then there was a narrow line of blue sky and a very turbulent roll cloud just to the lee of the hill. However, it was too rough to risk a tow.

Sunday produced a bright morning with a blue sky and surface wind of 050°/15 kts., but by 10.30 the sky had become a very good thermal picture. The Preston met. man said that waves were unlikely due to the strong instability and a decreasing wind with height, so our hopes died somewhat, and having sent someone to have a look at the Eden Valley with no success, we contented ourselves thermal soaring.

However, about 1 p.m. we noticed a classic high lenticular to the south-east of Kirkbride, visible through a hole in the sheet of cu and strato-cu, so we decided to tow Paddy Kearon down the Eden Valley above the strato-cu sheet to explore. I towed him off at about 2 p.m. and released him just to the east of Penrith above six-eighths cloud in strong wave lift. He radioed back to say it was working well, so I roared back and jumped into the Eagle, only to find it had sprung an oxygen leak during the day, so the ensuing fumble to refill kept me on the ground until 3.40 p.m., when I was towed off (solo in view of the doubtful oxygen capacity).

I was released at 8,500 feet over Penrith in 100 f.p.m. lift. It took me a little while to get sorted out, but eventually I managed to maintain a rate of climb of 100 f.p.m., which took me to 17,700 feet, when I lost the lift. I could now see a classic roll-cloud in the lee of Crossfell, and then about eight



rolls of strato-cu, but the high lenticulars had disappeared. I had been in the third wave, so I moved forward through severe sink (1,000 f.p.m.) and, having lost 1,500 feet in the process, found lift again over the second wave cloud which took me up to 21,500 feet. No amount of searching would produce any more height, so I decided to move forward to the front wave cloud which looked as if it should have produced something extra; but all I could find was reduced sink, so I retired hurt to the second wave, having lost some 2,000 feet in the process. Once again 100 f.p.m. lift was contacted and again I got back to 21,500 feet.

Each time I reached 21,500 feet the lift increased slowly to about 400 f.p.m. and then there would be a few sudden bangs and we would be back in down. The first few times this happened I assumed I had wandered out of lift, but after about the sixth time I came to the conclusion that this, in fact, was the top of the wave. This conclusion, and the fact that it was by now 6.15 p.m. and beginning to get dark, and the fact that I was so cold I could not feel any fingers or toes at all, and was above seven-eighths cloud in not the most friendly country in England, made me decide to return. So firstly I set off downwind through the waves, which produced gradually less lift and sink respectively, as I went downwind. I then set a compass course for Kirkbride, and after 30 minutes I saw the Solway Firth below from 15,000 feet, so I pulled the brakes out and descended through a gap, landing back at Kirkbride at 6.45 p.m. after a little difficulty scraping the frost off the instruments so that I could see the Airspeed!

I have since heard that Chris Riddell, of the Yorkshire Club, operating independently from a field at Melmerby, reached 9,000 feet from a winch launch at the same time as I was airborne—so for those who go at the right time and release at a sensible height and/or carry a passenger, Diamonds and two-seater records are there for the asking.

I have not yet had a met. analysis of the day concerned, but the forecast winds were: surface 050°, 15-20 kts.; 5000 feet, 040°/25; 10,000 ft. 040°/20; 20,000 ft. 040°/15. It was very apparent what little wind there was at height, and my finger tips still tell me that it was jolly cold up there that day!

B.G.A. News

Huit Jours Angers

As none of the seeded pilots have applied to enter for these competitions, to be held from 2nd to 10th July, the entry is now open to anyone who has a Silver C and flies a single-seater. The tasks will be triangles and out-and-returns. Some of the costs of the journey will be borne by the organisation. The closing date for entries is 1st June, and probably only one team from each country will be accepted. More details are obtainable from the B.G.A. office.

Gliding in Spain

The British Embassy in Madrid has informed the British Gliding Association that the gliding school at Huesca can accept seven glider pilots from Britain this year.

9,000 FEET—BUT WAS IT THE HELM?

by J. C. Riddell

On 27th March, the day that two R.A.F. pilots reached 21,500 and 17,800 ft. respectively after aero-tow to the lee of Cross Fell, Chris Riddell, of the Yorkshire Gliding Club, had a winch launch from the same spot in the Eden Valley from which the late Noel McClean made his first climb in a Helm Wave 21 years ago. Following Mr. Riddell's notes, we give, as a matter of historic interest, some extracts from Mr. McClean's description of his 1939 flight, the only one yet made in a typical Helm Wind characterized by the "Helm" cloud over Cross Fell and the "Helm Bar" at the top of the "rotor" in the valley.

THIS flight was very turbulent and I found it very unpleasant. I took a winch launch to 800 ft. (1,800 ft. a.s.l.) and sank to 600 ft. before I found strong lift and climbed away. This lift was very elusive to begin with, as I was about as low as contact could be made. The lift improved rapidly as soon as I was in the wave, and between 4,000 ft. and 5,000 ft. I was climbing at 2,400 ft. per minute. I timed this on my stop-watch and the climb between these heights took 25 seconds. I reached 9,300 ft. a.s.l. but did not wish to go any higher as I had a cold and I didn't want any trouble.

The wave was very interesting because it did not start until 2.30 p.m. My take-off was at 3.25 p.m. The wave developed rapidly and stayed stationary over the ground some two miles from the crest of the Pennines. The wind measured by an A.S.I and Pitot that I had rigged up was 15 kts. gusting to 20 kts. There was no Helm Cloud on the Pennines although the wave cloud itself had a base at 4,000 ft. and a top at 9,000 ft. One feature that was unusual was the very steep front of the wave and the wisps of cloud carried away from the top and suggesting turbulence. These wisps were carried forward into the direction of the wind, which I estimate was 20 knts. at this height; it did not impede my progress. Turbulence was found at several heights. The worst was felt between 6,000 and 7,000 ft.

On further thought about this wave, I think it was a mild form of Helm and was not the rip-roaring wind that has been spoken of in the past. The whole area was set up with waves but none were as strong. I flew casually over to Tebay and landed at the Lakes Club where I soared a slight wave over their site for about 15 minutes and watched them put their aircraft in the hangar.

The flight was carried out in the Skylark I which had just been repainted. It was an ideal aircraft for the purpose due to its ease of handling. This was the first time that I had seen lift off the ×2 scale on my Cook variometer.

THE FIRST HELM WAVE FLIGHT

by Noel McClean

Reproduced from THE SAILPLANE & GLIDER *of August, 1939*

THREE attempts were made at contacting the Helm Wave; by Savage, McClean and Allan respectively. All launches were from the Newcastle Gliding Club's normal flying ground at the foot of the ridge at Bank Hall Farm, the usual positions of machine and winch being reversed.

Savage was launched by winch on Wednesday, 21st June, in the Grunau Baby, and on releasing at 500 ft. flew at once down wind towards the Helm Bar. He had plus six inches showing in the Cobb-Slater variometer all the way to the Bar and reached there at 600 ft. above take-off. At this time we held the theory that the wall of cloud marked the upward flow of the wave. We know now that it marks the apex reached by the various layers of air. In accordance with our former theory however, Savage proceeded to circle under the Bar, but as soon as he flew to the west side of it was forced down so quickly that he had no time to do more than scramble a landing anywhere. By the time we had retrieved him flying was finished for the day.

On the Thursday, 29th June, the Helm was still blowing so I took a launch in the Grunau and at once found lift. I quartered a little towards the Bar, but profited by Savage's experience and did not approach too closely. The lift speedily mounted to 25 ft. per second and except for some stickiness at 1,000 and again at 9,000 ft. above take-off had a perfectly pleasant, if cold, ride to 11,140 ft. above take-off. My object in not waiting to explore the wave fully was to permit Allan and Savage to get their Gold C height, after which I intended having another flight, with some exploration this time. But greed did not pay, because when Allan took off in a 50 mile-an-hour Helm he struck only a violent down-draught and a very sticky landing ground, and by the time we had hauled the machine back to the proper landing ground it was late evening. Apparently the entire system had moved out a mile or so from the ridge.

Barge Lift

by Flight-Lieut. P. D. Lane

C.F.I. Clevelands Gliding Club

On Sunday, 21 February, the Clevelands R.A.F.G.S.A. Gliding Club at Leeming were having difficulty in doing any constructive training because of very severe turbulence in the airfield circuit. Small short-lived cumulus between 2,000 and 4,000 ft. which refused to give any workable lift floated across in the local areas only in the westerly wind. The instability they suggested refuted the idea of a stable layer, and the sky was otherwise clear. It was not until after lunch that the penny dropped.

The surface wind varied considerably in direction and strength all the time, despite the steady westerly aloft, and on almost every launch we experienced violent upward gusts in the upwind end of the circuit, with an unusually strong gusty downdraught on finals. Having at last concluded that the rotor underneath a standing wave was lying N.-S. across the airfield, I decided to go as far as possible from the next launch to find the updraught of the wave. The Sedbergh was alone on the airfield, so at 14.45 the Land Rover launched me with L.A.C. Hitchman on runway 22/04. I hung on to a very turbulent autotow until the extreme west end of the runway, and cast off at 1,100 ft.



Flying at the upwind end of the airfield was extremely rough, but after flying barely a quarter of a mile upwind the turbulence ceased and smooth lift indicated the updraught of the wave proper. Flying at 42 kts. directly into wind, we maintained station and allowed the Sedbergh to be drifted very gradually back and up the slope.

The lift soon settled to around 250 ft. per minute and became perfectly smooth. At 5,000 ft. we could maintain station at 35 knots indicated, and were able to explore the wave cross-wind.

The wind increased in strength with height and forced us to put the Sedbergh's nose directly into wind again shortly after but we managed to travel some three miles along the wave. Flying at 45 knots in the open cockpit, we began to feel very cold and put our parka hoods over our heads, but the lift continued unbelievably smooth and the aircraft climbed "hands off" for over 1,000 ft.

At around 8,000 ft. the lift began to fall off, and at 9,300 ft. the vario fell to zero.

Exploring up and down wind produced

sink, so we allowed the Sedbergh to drift cross-wind both ways to be sure that we had reached the top, and then moved back to measure the downdraught. By this time we were both practically frozen, so, having decided that a downwind dash would not prove anything, we descended into the airfield circuit through the downdraught, which seemed to be of the same order as the lift.

Coming back into the airspace occupied by the rotor below 2,500 ft., the turbulence was felt again, and at 1,500 ft. over the downwind end of the runway it could be described as violent, but at least it prepared us for the approach to land, which was marked by the same violent downgusts as before.

Plotting the positions of the rotor up- and down-draughts, the point of contact of the wave lift and the apparent crest, on the map, suggests that we were flying in the second wave crest produced by the Pennines due west of Leeming, which is some ten miles downwind of the 1,000-ft. contour, with a wave ength of around six miles.

Apart from the time taken to thaw out from this trip, our only regret was that the speed range of our faithful two-seater gave us little room for exploration; but the next time our resident wave sits overhead in clear air, no time will be lost in recognising the fact.

Hide and Seek

by W. E. Crease

THE pilot, sliding back along the Clwyd Range as the evening wave folded up, saw the trailer waiting for him at the foot of the hill. It was opposite the best pub in the district.

"No flies on my crew!" said the pilot to himself.

"And since the trailer is so conveniently placed, why go even as far as the normal landing fields? The farmer has kindly moved his cows out of the field next door. Let us lob straight into the crew's arms."

Skim the pub by a nice ten feet and touch down between the cowpats. There was the trailer, sticking up behind the roadside hedge—but no crew came running.

"Too busy drinking, I suppose," said the pilot resignedly.

Tip into wind. Parachute on it, and walk over to the trailer.

"Oh dear! A trailer but no car! Now where have the clots got to?"

An enquiry at the pub—"No! they've not been here."

A quick pint.

Put a note pinned to the trailer—"I am just over the hedge. Hurry up!" Then back to the Oly, just in time to stop the farmer turning his cows loose on it.

Keep the cows off till dusk. Then tip a small boy to keep an eye on it while one goes for another beer. Walk towards the trailer and suddenly see it level off and begin to move!

Run frantically across the field and leap into the road in time to see the end of the trailer disappearing in the direction of Ruthin. Curse!

Ring Clwyd Gate. "Tell those clots when they ring, the Oly's opposite the pub and I'm in it!"

Return to Oly. Re-tip small boy. Tip small boy's mother who wants him to come to bed. Return to pub for by-now-much-needed beer.

Get involved in a game of darts for the local team, who are one man short.

Want double top. Aim for it. See trailer pass window heading for Clwyd Gate! Miss double top! Rush into road. See tail light disappear.

Ring Clwyd Gate. "Tell those clots, etc. . . . "

Wait half-an-hour.

Ring Clwyd Gate again. "Have you seen those blue-pencilled, asterisked, etc. . . . ?"

"Yes, their starter's jammed. They're shaking it!"

Return to pub. Buy another beer. Get double top. Wait another half-hour.

Alarms and excursions without. Crowd enters. On second thoughts not crowd, but Clayton and two Carrows make a lot of humanity.

Buy another beer. Buy three more beers. "Cheers all round." Four hours for 1½ miles. Another fast retrieve!

John Milton—Father of Gliding

by Kenneth FitzSimons

I SUPPOSE that most of us have always taken it for granted that gliding is a comparatively new sport. No doubt this is the reason for our overlooking for so long the claim of John Milton, the great seventeenth century poet, to be considered the father of gliding. This claim is based on a wonderful passage in Book Two of "Paradise Lost" describing a gliding flight in cloud, made under conditions of extreme turbulence, probably in a large cu-nim.

The fanciful seventeenth-century language cannot conceal Milton's accurate knowledge of our sport. His reference at the beginning of the passage to thermals is followed by a vivid description of the severe sink found in the region of cu-nims, the climax being a remarkable account of flying in strong lift found at the core of these clouds. Here is the passage to which I refer:

". . . At last his sail-broad vans
He spreads for flight, and, in the surging smoke
Uplifted, spurns the ground; thence many a league
As in a cloudy chair, ascending rides
Audacious; but that seat soon failing, meets
A vast vacuity. All unawares,
Fluttering his pennons vain, plumb-down he drops
Ten thousand fathom deep, and to this hour
Down had been falling, had not
The strong rebuff of some tumultuous cloud,
Instinct with fire and nitre, hurried him
As many miles aloft. . ."

Milton must himself have been an experienced pilot to have gained the material for the writing of this passage. He has had to use, probably for the benefit of non-gliding readers, some metaphorical expressions such as ". . . fluttering his pennons vain." This beautiful and poetic line depicts wonderfully the frantic action of the glider's ailerons as the pilot banks desperately from left to right in his attempts to get out of the "down".

The first words also—"At last his sail-broad vans he spreads for flight"—how well they conjure up for us the hours of effort before the pilot finally gets his glider rigged and is ready for launching!

Probably fear of being accused of witchcraft prevented Milton from leaving more explicit details of his gliding activities; but we are fortunate indeed in having this poetic record of a memorable flight.



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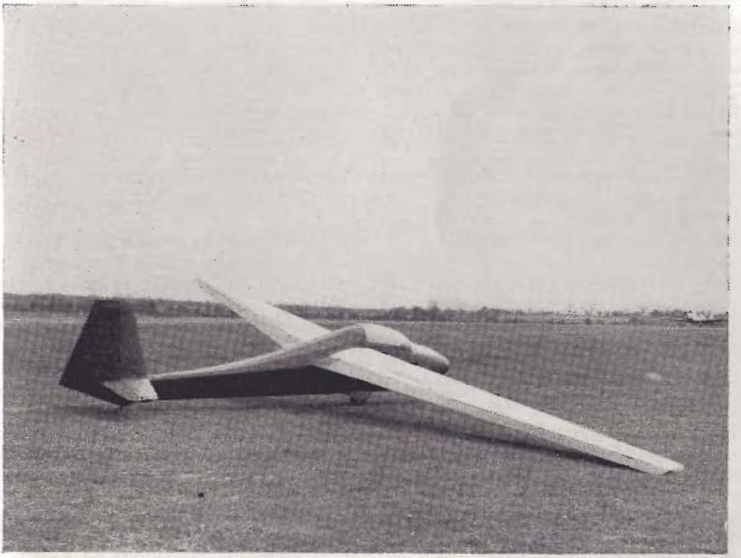
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Ultra-Light Inflatable Sailplanes

by O. W. Neumark

ENCOURAGED by Air Commodore L. P. Moore's most excellent article "Gipsy Type" in the February issue, I would like to take his theme one step further.

The enjoyment of soaring is, with very few exceptions, limited to the members of large and well-equipped gliding clubs situated in highly civilised countries with an abundance of airfields, good roads and smooth landing fields. Even in our crowded islands there are vast areas where conventional sailplanes cannot be or are not operated, and this is not always because the sailplanes themselves are too expensive.

One of the many reasons is that too many helpers are required on the ground or, put in a slightly different way, conventional sailplanes are too difficult and too expensive to launch and far too selective in their take-off and landing field requirements.

The new methods of construction, the resinated glass fibre/balsa sandwich of the Phoenix, the box spar and plywood skin reinforced by expanded plastic of the D-34, the resinated glass fibre and paper honeycomb core of the successor of the D-34, the plywood and expanded plastic sandwich of the Fauvette described by L. P. Moore, can all help to make high-performance sailplanes much easier to handle by small syndicates operating far away from giant gliderdromes.

But as soon as it is suggested that the Fauvette or the Phoenix should be miniaturised with a certain loss of performance and a higher stalling speed for the sake of easier handling, one is liable to lose more than can be gained. Many are blinded by the new materials and forget that the Phoenix at least was designed round a desired performance curve aimed to give maximum cross-country speeds by flying slower and circling tighter and hence climbing faster without too much loss in penetration. Its inception was not influenced by any woolly ideas of restricted standard classes.

If one is really prepared to sacrifice performance for the sake of all-round utility, one must look to inflated structures. Recent advances in synthetic fabrics and proofings and in the design of inflated aerofoils at last make it possible to design an inflated sailplane which could compete with a Prefect and possibly an Olympia.

If the prospect of inflatables ended there, one could well conclude that thought, effort and money could find more rewarding fields.

But let us consider the characteristics of a clean fully-cantilevered inflatable sailplane of about 40 ft. span and weighing only 50 to 80 lbs.

1.—A skid would be provided for take-off and landing, but the pilot's legs would be free to keep the sailplane level before take-off. This dispenses with the wing-tip holder.

2.—When slope lift is available, the pilot would be able to take off by running down the slope without anyone's assistance.

3.—As the pilot can carry the sailplane and keep it level, use of the pre-tensioned pilot-activated bungy, developed independently by various lone operators in the past, can launch pilots over the edge when there is no wind.

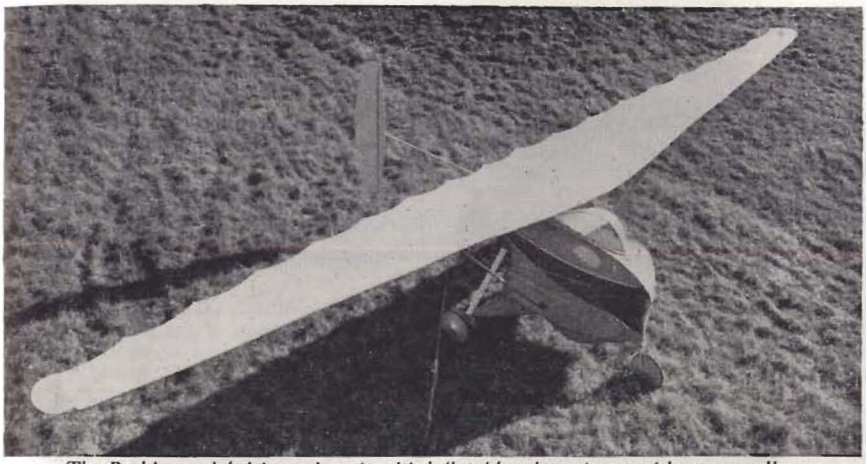
4.—Due to lightness and low wing loading, only one helper would be required in flat country to give 1,000-ft. launches using a light piano wire. Motor-cycle, horse, camel or outboard motor boat would suffice.

5.—Not only would the sailplane be able to alight on the sea without danger or damage, but take-off from the water would also be possible with the aid of water skis on the pilot's legs, which would be kicked off after take off. This opens up the possibility of soaring anywhere in the world where there is water, from Norway's steep fjords to rivers in tropical jungles. Note that, unlike any other amphibian, the inflatable sailplane does not have to carry any extra weight or excrescence.

6.—Due to the small weight, low wing-loading, stalling speeds in the region of 20 to 24 m.p.h., and above all due to the use of feet in addition to the skid, it will be possible to land on tiny and rough patches of ground.

7.—While more sensitive to thorn bushes, the inflatable might survive accidents which would reduce conventional gliders to matchwood. Structural damage might be easier to detect in an inflatable.

8.—Although its penetration would be worse than that of an Olympia, its tighter



The Perkins pedal-driven aircraft with inflatable wing, shown without propeller

[Courtesy "The Aeroplane and Astronautics"

circles at slower speeds would yield a faster climb and thus the cross-country speed would only suffer on cross-wind and into-wind tracks.

9.—The deflated sailplane will pack into the boot of a car, on to a saddle or on to the pilot's back. It can be sent by air-freight and could even be delivered by parachute. No trailer is required and roads are also quite unnecessary.

10.—In certain parts of the world such a sailplane could actually be used as an efficient means of transport: if one lands short one can climb the nearest slope and try again or roll up and carry the sailplane.

These would be the immediate aims for the development of an inflatable fixed-wing sailplane. While first prototypes are likely to be rather conservative, it would not be long before variable-thickness aerofoils and better low-speed controls appear.

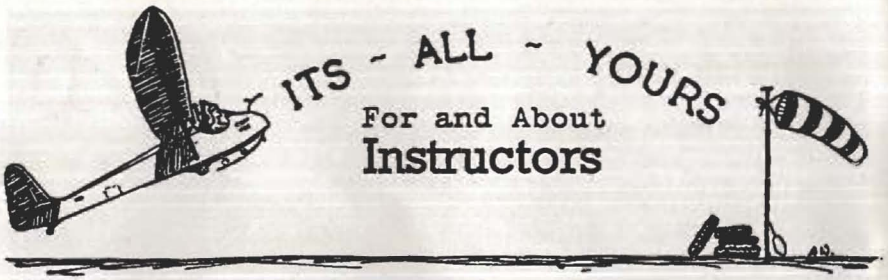
It is quite certain that a successful inflatable fixed-wing sailplane would lead to the creation of an ornithopter sailplane. The purpose of this would not be to glory in one's muscle power, which appears to be the main objective of most ornithopter enthusiasts, but, by flapping, to reduce minimum flying speed to 12 to 15 m.p.h., to facilitate unassisted take-off from slight elevations, and then to stretch the glide to about 1:100 for a few minutes while searching for the first thermal and to achieve real spot-landing capability.

What, then, are the prospects of actually seeing an inflatable sailplane take-off?

The time is ripe for such endeavour; the Goodyear Inflatoplanes have several years of rigorous wind-tunnel and flight testing behind them, and while the original Cardington/ML delta wing with its spanwise corrugations is of little interest except for initial tests for towing "sailing" boats, D. Perkins of Cardington has demonstrated that a clean 40-ft. span wing with a reasonably high aspect ratio can be built for a weight of only 30 lbs.

Although our ideal inflatable sailplane might be cheaper when in production than a conventional sailplane, the first prototypes are bound to make serious demands on time and money. Apart from these two overriding obstacles, any new development suffers from lack of sympathy in official and "expert" quarters, as proved by nearly every innovation.

The British Gliding Association could perform an invaluable service by setting up a special committee to encourage interested parties, be they aerodynamicists, stressmen, proofed fabric experts, amateur inventors or various specialists of the Ministry of Aviation at Farnborough or Cardington, to pool their experience and ideas. The mere existence of such a Committee would ensure that the gliding movement would not be by-passed during the inevitable development of inflatable aerofoils.



IT is some time back (August 1958 issue) since I wrote a case for aero-tow training, and for the much more widespread use of aero-towing, on this page.

Now, at last, one club, The Imperial College, has done all its training for the last few months entirely by aero-towing, using an Eagle, and some notes by Paul Minton, the C.F.I., follow.

He points out one of the most important economic benefits, that of getting more flying time from the glider in non-soaring weather than is possible with winching. With the high price of gliders it is, of course, important tnat they earn as much money as possible, and they do this only when airborne. This longer time can obviously be achieved better by aero-towing.

The actual cost per minute of glider time will depend on the cost of the tow, but will be cheaper as the performance of the glider improves. At the present cost of aero-towing the cost per minute of glider time achieved becomes cheaper than that produced by winching, if the performance of the glider is equivalent to an Olympia in non-soaring weather. It would be uneconomic with T-31 type performance.

The Eagle is very good for the job—almost too good, in fact. What is so badly needed is a new British training two-seater—lighter and tnerefore a little easier to handle on soft or rough ground, not quite so expensive at the cost of slightly reduced performance. With such an aircraft the clubs could take a great leap forward—getting more flying for less slavery on the ground, giving training up to more advanced stages, including cross-country soaring, and having instructors of wider experience, who could continue instructing longer without frustration.

Other countries are on the way to achieving this happy state of affairs. To be old-fashioned becomes expensive in the long run.

ANN WELCH.

Aero-Tow Training

by Paul Minton

THE main danger of an accident to a glider pilot occurs when he is just starting to teach himself, but is still inexperienced. At present this "self instruction" covers the most difficult part of gliding—soaring judgment. A pupil nowadays graduates quite quickly from a low performance winch-launched two-seater to medium or high performance solo aircraft launched by aero-tow. Three possible ways of preventing accidents at this stage due to inexperience would be:

(a) to retard the pupil's soaring progress by using low performance aircraft and winch launching only;
(b) by constant supervision and careful briefing and de-briefing;
(c) by aero-tow training in a two-seater of comparable performance to the solo aircraft.

While the first method is at times a financial necessity, it increases the time required to train a pupil, and the second requires numerous devoted instructors. Hence it is worth considering the possibilities of aero-tow training.

The full advantages of this type of training will only be gained if we realise that

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the end product should be a competent soaring pilot able to land away with safety. The stage at which this instruction can be given depends largely on the availability of an Eagle or similar aircraft, but it would seem best either to train the pupil from scratch, or when just solo.

Considering *ab-initio* aero-tow training in an Eagle, there are some differences from normal training worth noting. The tandem position makes instruction more formal and it is not easy to get the pupil to relax and look round. With sensitive controls it takes longer to teach pupils to turn accurately and trim the aircraft, but this is compensated for by the increased flying time available even in unsoarable weather.

Towing is complicated by the ability of the Eagle to pull the tug's tail, and it pays to help the early pupil correct any large errors in position. Generally half-a-dozen tows are sufficient to give the pupil the knack of anticipating the tug's movements from its changes in attitude, and then all is well.

As one hopes to get a pupil solo in less tows than winch launches, circuit planning has to start from the first tow. This conveniently breaks the flight after release into two parts, the first being concentrated handling and the second circuit planning. Due to the good stability and effective controls, approaches present very little difficulty, and this makes the process of landing much easier.

If possible it pays to have two instructors to an aircraft taking alternate launches, a pupil having two tows a day with plenty of time for briefing. With one glider and tug, a normal rate of launching is one tow every 24 mins., giving from 14 to 16 launches a day and 3 hrs.' flying, compared with a T-21's 20 launches and 1½ hrs. Hence flying time is doubled, the chances of soaring increased, and pupils seem well satisfied. Whether they are better trained can only be found in the future by comparing rates of progress and safety records.

ARCHIE STEELE

C. F. I. ABERDEEN G.C.

IN 1953 the Aberdeen Gliding Club were faced with a problem; that was, to select a C.F.I. From a number of possible people one seemed an outstanding choice: his name—Archie Steele, a teacher by profession, who had started his University career at the beginning of the war; this being broken off to join the R.A.F., where Archie learnt to fly and spent the remaining



war years as a pilot with Bomber Command. After the war he returned to civilian life as a married man and completed his degree.

1951 saw the foundation of the Club, Archie being one of the first members, who, by his intimate knowledge of the Ford V8 and his extreme care with glider repair work, soon became a "Pillar of Strength" to the Club. In 1953 he agreed to become C.F.I.; for this the Club offered him a magnificent heap of firewood and fencing wire—an SG-38—with which to train pilots. Despite the odds, the job was tackled with enthusiasm, and it was not long before the first T-31 arrived on the scene. Every pilot in the Club except two has been trained under his keen eye, and apart from this he has trained five assistant instructors. Archie is a natural teacher, and as such is able to impart knowledge to members without them realising it; this quality comes out both in gliding instruction and the associate interests.

During the past summers the unfailing sacrifice of his holidays has led to our courses; these have proved themselves a tremendous success, not only to the individuals who come on them, but the movement in general and, needless to say, the Club finances. At this point our thanks go to Archie's long-suffering wife Joan, who not only gives up so much to let Archie be with the Club, but also helps to organise some of our money-raising schemes.

Archie Steele is indeed a good C.F.I.; he sets a first-class and highest possible example, leaves pilots in no doubt as to their capabilities—good or bad—and is very much liked and respected by us all.

J.P.W.

Gliding Certificates

DIAMOND FOR DISTANCE

No.	*Name*	*Association*	*Date*
313	A. W. Gough	R.A.F. Gliding & Soaring Association	1.3.60

DIAMOND FOR GOAL FLIGHT

No.	*Name*	*Association*	*Date*
243	A. W. Gough	R.A.F. Gliding & Soaring Association	5.5.59

GOLD C CERTIFICATES

No.	*Name*	*Club or Association*	*Date of Completion*
58	F. A. O. Gaze	Bristol Gliding Club	16.2.60
59	A. W. Gough	R.A.F. Gliding & Soaring Association	1.3.60

SILVER C CERTIFICATES

No.	*Name*	*Club*	*Date of Completion*
897	J. A. Dack	Moonrakers R.A.F. Gliding Club	14.11.59
898	A. D. Hill	Yorkshire Gliding Club	28.2.60
899	B. B. C. Watson	Army Gliding Club	16.8.59

C CERTIFICATES

Name	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*
G. L. Kemp	Four Counties	M. S. Romrig	East Midlands	D. S. Allan	H.Q. 2nd T.A.F.
W. G. Dyer	Newcastle	J. S. Bennett	621 G.S.		
A. Kelsey	Taunton Vale	A. G. Yirrell	613 G.S.	J. H. Pless	Surrey
J. H. Wilson	Surrey	R. S. A. Bunker	H.Q. 2nd T.A.F.	I. F. Cadwallader	Crown Agents
T. D. M. Stefanowicz	Cornish	J. T. Prince	Windrushers	N. L. Bailey	East Yorkshire
T. S. Zealley	London	E. C. Parker	H.Q. 2nd T.A.F.	H. E. B. Mayes	R.A.F. College
J. N. Caruana	East Midlands			A. J. Fereday	London

GROUND HANDLING

by Godfrey Lee

Adapted from articles in the "London Gliding Club Gazette"

"Take her up tenderly,
Lift her with care;
Fashioned so slenderly . . ."
(*Thomas Hood*)

THE widely-held belief that, on the ground, gliders are handled by gangs of morons equipped with two left feet and ten thumbs arises from the large amount of seemingly wanton damage done to motorless aircraft on the field or in the hangar. In truth, however, gliders are for the most part handled by those who fly them (though some flyers might well do a bit more lifting, and perhaps *vice versa*), and damage results not from malevolence, but from ignorance, carelessness, laziness and plain clumsiness. Accordingly, the following notes are intended to enlighten, make careful, energise and, if possible, declumsify the readers.

Causes of Damage

The three broad categories are:—

(i) Wind damage (i.e. blowing over, control surface flapping, etc.);
(ii) Damage whilst aircraft are being moved, usually on the field;
(iii) Damage whilst aircraft are being parked, usually in the hangar.

WIND DAMAGE.—It is clear that an aircraft normally flying at 30 or 40 m.p.h. fully loaded is liable, in the unladen condition, to blow over in the sort of winds that often prevail on gliding occasions.

Because of wind gradient, the wing of a glider headed into wind is in a faster airstream than the tail; this means that the full stabilising effect from the tail is not present and thus the aircraft is probably unstable aerodynamically, a condition aggravated in an empty machine by the far aft position of the centre of gravity (due to the absence of the pilot). Thus, if the nose should lift with the glider into wind, there is a very good chance that the machine will blow over completely, since the rising wing will move into still faster moving air (wind gradient again) and will also increase its incidence; and, as explained above, the whole outfit is unstable to start with.

A glider parked as usual, with one wing tip on the ground and the other tip up in the air, is very prone to blow over (in the sense of roll) if the wind in any way blows on to the underside of the upper wing. Wind gradient is again largely responsible though the natural lateral stability of the aircraft (dihedral effect) will contribute its quota as well.

The damage done by control surfaces flapping across violently in a tail wind ("gybing" in sailing terminology) should also be mentioned here. This cause is the simple one that in tail winds the ordinary type of control surface is extremely unstable aerodynamically, so that, once started, it literally goes over with a bang.

The blowing off, or blowing open, of cockpit covers is another example of wind damage.

TRANSIT DAMAGE.—In this category the causes are very simple and obvious: for example, towing machines over rough ground or obstructions, failing to allow proper clearance for the wing tips, and so on.

HANGAR DAMAGE.—Here again the causes are obvious: trying to park aircraft too closely, shifting them about without keeping a proper look-out, treading on wing tips and the like.

How to Avoid Damage

PSYCHOLOGICAL.—That's not just a catchword to try and lure the tiring reader to plod on a bit further, but is a serious heading, since much ground damage is caused through a wrong attitude of mind.

The trouble is that to walk along holding a wing tip is rather boring and seems such a simple job, that it is all too easy for the tip-holder to let his (or her) mind wander away from the subject of glider towing to some entrancing matter such as the way he is going to catch that thermal off the winch next month and get his Silver C by flying to Cornwall! In this condition he is all set to trip over a sandbag and let go the wing, or else to steer the other wing-tip into the bar window.

The moral of that example, and of many others like it, is that whenever you are dealing with a glider in the air or on the ground remember what you are trying to do and always keep a good look out.

SUGGESTED REGULATIONS

The following Flying Regulations regarding Ground Handling are suggested for adoption by Gliding Clubs.

Responsibility

(1) The pilot is fully responsible for the glider from the time when he enters the cockpit until the next pilot enters the cockpit, or until the glider is properly parked.

(2) The tow-car driver is responsible for:

(a) Ensuring that the up-wind wing is held, and if towing into wind that an extra person is at the nose of the glider ready to hold it down, before starting.

(b) Starting with a reasonably straight pull, not in a sharp turn which may bend and damage the skid, or strain the landing wheel.

(c) Taking up slack slowly, as signalled, and towing at a walking pace.

(d) Turning widely, reducing speed if the held wing-tip is on the outside of the turn.

(e) Choosing the best route: towing for preference on grass if the glider has no wheel; towing near the boundary rather than across a busy landing area; not towing across cables or bungy.

(f) Avoiding steep descents where the glider may over-run the car, unless ample help is at hand to check the glider.

(g) Keeping watch at all times on aircraft movements, and if in doubt stopping immediately.

(h) When driving free on rough ground keeping the speed low.

It must be clearly understood that despite the tow-car driver's responsibility defined in Regulation 2, the pilot still has the overall responsibility as given by Regulation 1. Clearly these two Regulations do not cover all movements, nor do they deal with parking. In these cases, an authorised instructor, if present, or in his absence the senior member in the party, must assume responsibility.

In all circumstances care must be taken to prevent control surfaces flapping; cockpit covers must be firmly latched in place, and the general well-being of the glider considered.

Before you try to shift a machine, make sure that there are enough people present to do the job properly.

Lifting and Carrying, Turning and Trolleys

1. A glider may be lifted only at the following points:—

(a) under the main spar of the main plane,

(b) under the rear fuselage.

(c) under the nose.

A glider must never be lifted by any part of the tail-plane or by a strut.

2. A glider must not be turned on the ground unless the tail is raised and both wing-tips are clear of the ground.

3. A glider must never be turned into wind unless the cockpit is occupied or the nose held down.

4. When a glider is moved on a trolley, it should be placed so that the C.G. is over the trolley. Precautions must be taken against the glider jumping off the trolley. The glider must be lifted off the trolley, never slid off.

These Regulations are obvious, simple and straightforward. If they are not obeyed the probable reasons are lack of energy and ham-fistedness. It's very tempting to turn a glider by dragging a wing-tip without

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bothering to get someone to lift the tail; but it mustn't be done.

When turning a glider it is most important that the windward wing-tip is held, otherwise a blow-over may occur; this may involve having to change tips during the process—troublesome, but a "must". Also watch out for control surfaces slamming over as the machine is rotated and take steps to prevent this happening.

Parking

Where possible, park gliders in a sheltered area.

1. When parked in the open, a glider must be turned out of the wind, and the lower wing-tip securely picketed. Watch must be kept for changes of wind, and parked gliders re-positioned if necessary.

2. In strong or gusty winds the rudder and elevators of a glider parked in the open must be secured against flapping movement. Any means used must be such that it is impossible to fly the glider without first removing it.

3. When parking a glider in the hangar, but near to open doors where wind may enter, the same precautions must be taken as when parking in the open.

4. When parking a glider where aeroplanes are likely to taxi or run up engines, precautions must be taken against the glider being lifted by slipstream. Aeroplane pilots must take corresponding precautions.

5. If rain is likely and a glider cannot be moved to cover, the cockpit must be covered. If a glider has been in rain it must be sponged dry as soon as possible.

The ideal angle for parking is with the wind coming from a direction midway between the tail and the lower wing-tip (from the quarter, in nautical terms). It is vital that the windward wing-tip should be on the ground.

Picketing may be achieved by a webbing strap encompassing the wing tip and attached to a picket pin; or, more commonly, by a sandbag on the tip. If the wind is at all strong, put another sandbag against the rear end of the fuselage on the lee side; otherwise the machine may weather-cock round and so withdraw the wing tip from under its sandbag. Take the trouble to find a proper sandbag; don't use any old weight that's handy; concrete goes through fabric very easily.

Ground Transportation

The duties of the tow-car driver have already been described. The importance of holding the windward wing-tip must be emphasised. If, due to changes in course, the windward tip changes from, say, port to starboard, then arrangements must be made to change the held tip and that without leaving the wing unheld in the process. This is another case where it is often much less trouble to ignore the rule than to carry it out; but do remember that to hold a leeward wing tip may be more dangerous (from the blowing-over point of view) than not to hold at all.

Control-surface flapping must be prevented whilst the glider is being towed.

When towing in a very strong wind, it may be desirable for the pilot to sit in the cockpit, especially when towing into wind; but this should not be done unless it is essential, since it causes extra skid wear. When in the cockpit the pilot can prevent control-surface flapping by holding the controls; they should be kept in the neutral position.

The tow rope should be attached to the glider in a "positive" manner, so that if the glider is lifted by the wind the rope will not fall off (in this way the rope may save a blow-over). The length of the tow rope should be approximately 10 feet.

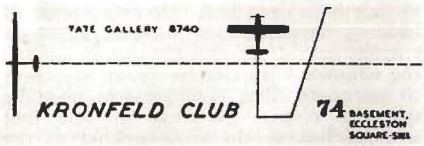
Hangarage

When packing gliders in the hangar a Director General of Operations is essential to plan the stowage economically and continually to watch out for possible "fouls". It must also be arranged that there are people to watch each wing-tip continuously, and, in many cases, the tail as well. Remember that besides hitting other aircraft, there are always roof girders, pillars, floors, walls, ceilings and door lintels which may remove bits of glider if given a chance.

SUMMARY

The Ground Handling of gliders may be safely accomplished provided that you:

(i) Remember the various ways in which damage may be done,
(ii) observe the Club's regulations,
(iii) keep your mind on the job,
(iv) take the trouble to do the job properly,
(v) mind where you are putting your big feet and refrain from taking short cuts by jumping over wing-tips, fuselages and so on.



Now that the Summer is here we would like to remind members that the Kronfeld Club is holding its annual Painting Competition and Exhibition in November and is also holding a photographic exhibition in Spring 1961, so we hope members of all clubs will use some of their spare time at weekends or on holiday, painting or photographing gliders or matters of gliding interest. Members of the Club are also reminded that they can play tennis in Eccleston Square.

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

May 25th The R.A.F. Wave Safari at Kirkbride, by Group Captain N. W. Kearon.
June 1st and 15th: see posters.
8th Colour film "Antarctic Crossing".
22nd Cornish Gliding Week Talk.
29th The 1960 World Champs. Talks by British Team Members.
July 6th B.P. Films.
13th The Gliders at Butzweiler by F. G. Irving.

THIS GLIDING

Elementary

What a lot of engagements there are in the Club lately! When one of the engaged members was asked whether he thought this had anything to do with the number of non-flying days during the winter, he replied: "Yes."—*Kent Gliding Club News Letter.*

Sedbergh Conversation Piece

The approach and landing is interesting.
"What's your speed and height?"
"25 knots—oh, about 50 feet."
"We're a long way behind the back boundary, aren't we?"
"Well, I can see the field."
"What are all those trees doing in it? Now what are you doing?"
"Saying my prayers!"—*Kent Gliding Club News Letter.*

NOISES OFF

As a consequence of a recent incident, the Technical Committee would like to remind pilots that it is most important to investigate any strange noises noticed during a flight, coming from the structure or control circuits of a glider.

For example, if a loud cracking sound is heard whilst performing aerobatics, a landing should be made without delay and the machine should be carefully inspected. It should not be flown again until either the damage has been located or it has been definitely ascertained that the structure is undamaged.

Whilst such a noise may well be due to some minor failure of an unstressed part, it could indicate something much more serious. Whilst gliders are really very strong, it is quite possible to overstress them. An excessive load applied momentarily may not be noticed by the pilot—but it will be noticed by the structure.

F.G.I.

BOOKS AND PUBLICATIONS

'Beauty of Gliding' by P. A. Wills	35/-
'Gliding' by A. D. Piggott	25/-
'The Soaring Pilot' by A. & L. Welch and F. G. Irving	18/-
'Come Gliding with Me' by A. Welch	9/6
'On Being a Bird' by P. A. Wills	5/-
'Further Outlook' by R. Scorer	15/-
'Cloud Reading for Pilots' by A. Welch	15/-
'Cloud Study' by F. H. Ludlam and R. S. Scorer	12/6
'Elementary Gliding' by P. H. Blanchard	5/-
'Flying Training in Gliders' by A. & L. Welch	5/-
'Maintenance Manual' by R. C. Stafford Allen	5/-
B.G.A. Operational Regulations	1/-
'Weather' by R. S. Scorer	9/6
Personal Pilots' Logbooks	2/- and 4/-

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Harmony at Terlet

Following Philip Wills' report that the Dutch Gliding Centre at Terlet operates happily on a site actually adjacent to an Air Force aerodrome, enquiries have come in from as far afield as NewZealand asking what operational procedures have been agreed. For here at last is actual evidence that gliding and power flying can live side by side, and with ordinary discipline there is plenty of air for everyone.

The following is an extract from a letter received by Mr. Wills from the Director at Terlet, MR. M. J. MANTING.

IT was good to see how even in New Zealand our gliding friends were interested in arrangements we had to make with the military authorities on behalf of the flight-safety in our area after jet-aircraft were to be stationed at our next-door airfield.

This former German aerodrome "Deelen" was used several years by light aircraft without disturbing us too much. But the jet-squadron starting their operations in 1957 obviously demanded strict regulations.

To start with, their airfield got the usual local control area with a radius of 5 nautical miles.

As you may gather from the little sketch I send you herewith, our local air-space fell quite into it. Fortunately their one and only runway ran in a N.E./S.W. direction and was situated along the far end of the aerodrome (seen from Terlet). Therefore the jets are permanently to use a westerly-circuit so as not to interfere with us.

The local control area was furthermore divided into two regions: the westerly area for military use only, the easterly part for gliding only.

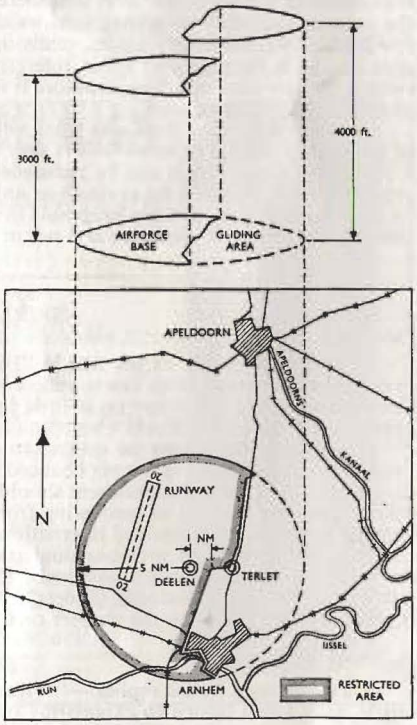
As far as possible, the boundary follows clearly visible geographical features. I must say that the system proved to be very successful. We even feel safer than before, because the usual stray jet-aircraft which came to have a look at our place more or less at random before, disappeared completely because of orders given and because of the proximity of Deelen control-tower.

In the odd case, that a jet should violate the regulations (mostly some foreign pilot who does not know), Deelen Tower is very keen indeed to trace the offender, apologising to us at the same time.

From our side we are very keen in convincing our glider-pilots to keep to the rules as strictly as possible.

In special circumstances (e.g. championship) where it would be a pity not to be allowed to set our course directly to the west, we ask Deelen Tower for a special permission, which will gladly be given if circumstances allow. Remember your task on a Saturday goal-flight to Rotterdam!

I quite agree with you that also in flight safety, mutual understanding can lead to adequate regulations by which both parties concerned may profit.



Correspondence

ON THE CHAIRMAN'S REPORT

Dear Sir,

The feeling that flying is a sport for the rich has not so far been advanced as a reason for lack of Government support for the sport, but, in any case, such a point of view would not be despicable or politically dishonest, and neither would it be equating wealth with worthlessness.

Mr. Wills's critic, whether he has to leave his armchair to visit a gliding club or whether he is already a member of one, would not deny that many club members are not wealthy. What he would point out, however, is that in order to make any progress at all in the sport one has to have money—at least a part share in an aircraft and a vast amount of spare time. We should all like to know how to make up for a lack of funds by sheer hard work and enthusiasm when, for the ordinary member, impossibly long flying lists and subsequent frustrations are, as Mrs. Welch points out, the general rule.

Mr. Wills refuses to face these facts, and it is regrettable that his statement, whilst paying lip service to the theme of gliding for all, contains not the slightest suggestion to remedy a state of affairs which he must know exists at all the larger clubs.

K. R. PAYNE.

Knebworth, Herts.

Mr. Wills replies:—

Mr. Payne appears not to have analysed the basic reasons for overcrowding and frustration at gliding clubs. It is that there are not enough of them; and this is because of the near impossibility of getting sites. Governmental support consists in the main of a few friendly Parliamentary asides, whilst all the time the policy of disposing of airfields goes on, with farming and other interests given overwhelming preference. The main remedy for this state of affairs therefore is to get a positive Governmental policy favouring gliding clubs in getting sites.

Granted that the fortunate being with cash will always have an advantage this side of the Iron Curtain, but spare time is very largely a function of enthusiasm.

If the Government can be persuaded to continue the Kemsley Flying Trust in an expanded form, this will do as much as anything to keep down the cost.

These are the two main proposals in my Report. Therefore I submit that my suggestions are for practical remedies, and not at all mere lip service.—P.A.W.

SPIRAL DIVES

Dear Sir,

Your contributor of the article "High-Speed Spiral Dives or Circular Fugoids?" in the February issue causes one to reflect whether the British Gliding Association Seeding Committee should not insist on a little light reading by some of the applicants before appointing them to the World Championship list.

After all, there may be others, so obviously trained by the solo method in the "bad old days", who have not yet chanced to discover for themselves the reason for spiral diving. Consider the embarrassment should one of their nominees, having failed to happen upon a passable method of recovering from, say, a common spin, distinguish himself by winding in before an assembled international gathering.

In the absence of previous dual training based upon well-established experience, the Seeding Committee might well insist that future applicants should read the B.G.A.'s publication, "Flying Training in Gliders", from cover to cover, and your recent contributor is referred in particular to the chapter on steep turns, considerations, paragraph six.

RALPH COURT.

Auckland. N.Z.

Dr. Brennig James replies:—"With reference to Ralph Court's comments on my article, may I first hasten to express my own disinclination to write myself off in a spin,

especially before an international audience! Death is annoying, but the thought of the embarrassment which I would inflict upon the B.G.A. is positively unbearable. In future I shall forget my heretical ideas and remember that the behaviour of sailplanes in the air is forever governed by the B.G.A.'s rulings as embodied in its publication, "Flying Training in Gliders."

WHO DISCOVERED THERMALS?

Sir,

With further reference as to who really discovered thermals, I have found that Sir Hiram Maxim in his book "Artificial and Natural Flight" (published 1908 by Whittaker & Co.) ante-dates Hankin by about five years. Unlike Hankin, who observes, hesitates and is afraid to say definitely that rising air is the basis of soaring flight, Sir Hiram States (p. 21) that "We may safely draw the following conclusions:

"First, that there is a constant interchange of air taking place, the cold air descending, spreading itself out over the surface of the earth, becoming warm, and ascending in other places.

"Second, that the centres of the two columns are generally separated from each other by a distance which may be from 500 feet to 20 miles.

"Third, that the centres of greatest action are not in spots but in lines which may be approximately straight, but sometimes abound in many sinuosities.

"Fourth, that this action is constantly taking place over both the sea and the land; that the soaring of birds, the phenomenon which has heretofore been so little understood, may be accounted for on the hypothesis that the bird seeks out an ascending column of air, and while sustaining itself at the same height in the air, without any muscular exertion, is in reality falling at a considerable velocity through the air that surrounds it."

Soaring flight is dealt a death blow by Sir Hiram as far as human efforts are concerned.

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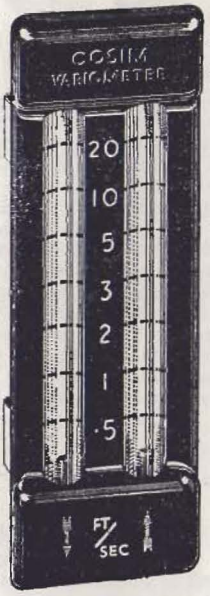
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He states: "We shall never be able to imitate the flight of the soaring birds. We cannot hope to make a sensitive apparatus that will work quick enough to take advantage of the rising currents of air . . ."

I expect he can be forgiven this pronouncement, since he writes in the days when the Wrights, Farman and Bleriot have conquered the air as far as straight flight is concerned, but a really sharp turn in an aeroplane has a radius of possibly half a mile and turns are probably just as tricky as take-offs and landings.

Hankin describes birds soaring in thermals—says there must be something like this and then a few pages later says maybe after all it is the colour of the underside of the wing.

Maxim states five years earlier that there are thermals and down-draughts—but unfortunately we will be unable to use them.

All honour to both.

BILL COVERDALE.

Waynesville, Ohio.

TWO WORLD CHAMPIONSHIPS

Dear Sir,

I agree with Mr. Schreder's views, expressed in the April issue of SAILPLANE & GLIDING.

May I remind you and your readers of the solution to the problem which I suggested in your journal some years ago (April 1956, p. 95)? This was that World Championships should be held alternately in different classes: one year Standard only, the next Open, etc. This would encourage development of *both* types, and would even permit, at some future date, the introduction of a *really small* class, as I then suggested, of 12 metres span.

Is this not a good way out of the difficulty? It should be easy enough to administer.

MARTIN SIMONS.

Newcastle-on-Tyne.

MAN-POWERED FLIGHT

Dear Sir,

I have always been interested in soaring and gliding and I was very interested in the article about man-powered flight, "The Hartman Ornithopter", by Don Campbell, which appeared in the issue for December 1959. I am afraid, however, that I cannot accept the possibility of man-powered flight with a glider of the construction indicated, as there are too many resistance-producing components. It seems unlikely that the lift coefficient can be increased to the required extent by such an expedient as wing slots.

The April 1959 issue of SAILPLANE & GLIDING gave, on page 99, a table which included the sinking speeds of nine different gliders, and all had a sinking speed of more than 0.5 m/sec. My own glider of 10.5 m. span, weight 225 kg., area 4.5 sq. m., has a sinking speed of just under 0.5 m/sec. at 25 m/sec. flying speed. The energy required to maintain level flight is a function of sinking speed × weight. Taking glider and pilot each at a weight of 75 kg., the energy required is $2 \times 75 \times 0.5$ or, allowing for mechanical efficiency, more than 75 m. kg./sec. (1 h.p.). As the maximum h.p. which a man can exert continuously is accepted generally as about one-eighth (0.125) h.p., there would appear to be a long way to go before man-powered flight becomes a practical proposition.

For level flight the work done is

$$W \times Vs = V \times r$$

where W = weight, V = flying speed, r = resistance, Vs = sinking speed,

$$\text{or } \frac{W}{r} = \frac{V}{V_S}$$

The work to be done can only be reduced therefore by making the resistance as small as possible; that is, to make the glider as small and clean as possible for the weight to be lifted at the slowest landing speed or stalling speed obtainable or desired.

NAME of BIRD	Weight Kg.	Span m	Area m^2	$\frac{W}{S}$	$\frac{W}{A}$	Chord c.m.	$\sqrt[3]{\frac{W}{S}}$	$\sqrt[2]{\frac{W}{S}}$	$\sqrt[2]{\frac{W}{A}}$	
TERN FF	0·1	0·73	0·04	0·143	2·5	5·5	0·635	0·435	7·9	
PIGEON	0·35	0·67	0·058	0·52	6·05	8·7	1·06	0·88	10·25	
SMALL CROW	0·48	0·75	0·096	0·64	5·0	12·8	1·05	0·92	7·2	
LARGE CROW	0·56	0·92	0·13	0·61	4·3	14·1	0·90	0·815	5·8	
KITE FF	1·05	1·55	0·35	0·68	3·0	22·6	0·65	0·66	2·95	
BUZZARD FF	1·12	1·37	0·325	0·82	3·45	23·8	0·75	0·77	3·26	
COCK PHEASANT	1·12	0·76	0·325	1·47	3·45	42·5	1·36	1·39	3·25	
RAVEN	1·23	1·31	0·35	0·94	3·5	26·6	0·82	0·85	3·18	
RED BR. GOOSE	1·34	1·17	0·36	1·15	3·7	30·7	0·93	1·00	3·20	
SHELDRAKE	1·34	1·07	0·36	1·25	3·72	33·5	1·03	1·08	3·2	
HERON	1·56	1·60	0·395	0·98	3·98	24·6	0·72	0·78	3·18	
GREEN CORMORANT	1·78	1·18	0·42	1·51	4·2	35·6	1·03	1·14	3·18	
HOUSE STORK	2·1	2·07	0·52	1·02	4·04	25·1	0·62	0·70	3·14	
B.B. GULL FF	2·24	1·98	0·465	1·13	4·8	23·6	0·66	0·76	3·22	
OSPREY	2·24	1·60	0·465	1·40	4·8	29·0	0·82	0·94	3·22	
EGYPT GOOSE	2·24	1·30	0·465	1·73	4·8	35	1·01	1·15	3·22	
GANNET	3·14	1·83	0·555	1·72	5·7	30·4	0·80	0·97	3·20	
CORMORANT	3·60	1·37	0·59	2·63	6·1	43·2	1·09	1·39	3·22	
SEA EAGLE FF	4·02	2·20	0·56	1·83	7·45	25·5	0·72	0·91	3·56	
GREAT N. DIVER	5·36	1·52	0·72	3·52	7·5	47·5	1·11	1·53	3·22	
GOLDEN EAGLE FF	7·15	2·75	0·835	2·58	8·6	30·4	0·70	0·97	3·22	
PELICAN	9·40	3·05	0·98	3·10	9·6	32·0	0·69	1·00	3·15	
W.ALBATROSS FF	10·50	3·05	0·65	3·45	16·1	21·3	0·72	1·06	5·0	
WHITE SWAN	10·60	2·45	1·02	4·4	10·4	41·5	0·90	1·34	3·18	
LARGE ALBATROSS FF	11·20	3·62	1·07	3·65	10·5	29·5	0·625	0·93	3·14	
CONDOR FF	16·10	4·30	1·25	3·75	12·9	29·1	0·59	0·93	3·20	
T.G.N. Glider No.1	200	10·35	4·6	19·5	43·5	44·5	0·575	1·37	3·1	
T.G.N. Glider No.2	450	13	6·6	34·5	68	51·0	0·59	1·63	3·2	

I enclose a table giving the dimensions of birds from 0.1 to 16 kg. and of my two gliders of 200 and 450 kg. respectively. It will be seen how closely the span and area of birds is related in the formulae

$$\text{(A)}\quad \text{Span} = \sqrt[3]{\frac{W}{k_s}} \qquad \text{and (B)}\quad \text{Area} = \sqrt[2]{\frac{W}{k_a}}$$

k_s is between 0.6 and 0.8 for soaring birds and increases to 1.3 for flapping birds. k_a is nearly constant for all birds over 1 kg., but for smaller birds is increased, due, I think, to the short time interval between each flap.

I hope this engineer's appreciation of the problems of man-powered flight is of interest to your readers and that it may start a discussion on the subject.

T. G. NYBORG.

Worcester.

OBITUARY



ROBERT G. PARKER

It is with deep regret that the Scottish Gliding Union have to intimate the death of their Chairman, Robert Parker, as the result of injuries sustained in a motor accident in February.

Robert was a founder member of Edinburgh Flying Club, and when he joined the S.G.U. in 1939, his labours and advice were a steadying influence on the formative years of the Club.

At the re-formation in 1946 he was elected Vice-President and Chairman. His business acumen and organising ability were always at the disposal of the Club and in the chair at Club Dinners his geniality created the happy spirit so much desired at such times.

His flying interests were absorbed with gliders and his own Auster plane, which he used unstintingly in the service of the club. Few, if any, S.G.U. members have not flown with Robert, at home or abroad. From several continental rallies he returned with trophies in the locker and a long list of new made friends.

For many years he concerned himself with clubroom catering organisation, and recently made great efforts towards the planning and purchase of permanent housing for pilots at Portmoak.

Robert will be missed, not only by his close friends of the S.G.U. but by the flying fraternity in general.

A.J.T.

SEBERT HUMPHRIES

Nobody in pre-war gliding could have overlooked Sebert Humphries—especially readers of our predecessor, The Sailplane & Glider, where there was no mistaking his colourful and sometimes biting style, in spite of his fondness for pseudonyms. Those who still have their old copies will find him writing most often over the signature "Die-Hard", but he had other pen-names such as "A Beginner" and, as his experience grew, "C-Pilot", "Twenty hours", "30 hours" and "40 hours".

Sebert Humphries spent the last year or so of the first world war flying kite-balloons (where he formed a friendship with the writer's brother), and, just after it was over, he managed to complete his balloonist's licence with a night flight, and also wangled an ascent in a "Blimp" airship. I first met him at the 1922 soaring contest at Itford on the South Downs. Here he found it necessary to show certain inept persons how to rig the marquees in which the gliders were housed; and before the end he had collected most of the newspaper correspondents, who evidently found him too entertaining to drop.

In the autumn of 1930 we both joined the first Surrey Gliding Club, which operated near Guildford. But for some reason he made no progress there; so at the beginning of 1931 he transferred to the London Gliding Club, and after that all went well. He obtained his C certificate at the end of 1931, and about a year later took a share with Henry Petre and Jack Dewsbery in the "Crested Wren", the first of a series Wrens designed by W. L. Manuel. In this, on 19th August, 1933, he made a notable flight of 5 hrs. 6 mins. from the London Club to Ivinghoe and back, and evidently, from his description, contacted wave lift at 1,000 ft. Apart from E. L. Mole, who held the British duration record with 6 hrs. 10 mins., no other British pilot had then flown for as long as this.

On 21st July, 1935, Humpnries became the fourth British Silver C pilot (No. 85 in the international list) with a 32-mile flight in the Crested Wren from Dunstable to North Weald, gaining 4,800 ft. on the way. Much to his disgust, the usual welcome on such an occasion was not forthcoming, for everybody there was in a flap, preparing to go off on manoeuvres next day, and the C.O., in a towering rage, came up and asked him what the —— he meant by

choosing that moment to land there. Humphries put on his sweetest smile and made his classic retort: "Ran out of petrol!"

Instruction camps run by clubs for both members and non-members are now a prominent feature in British gliding, but they had to have a beginning. The first such camp was held by the London Club at Dunstable in the first fortnight in August, 1935, with 65 pupils. Eric Collins, who was to have run the camp, unfortunately lost his life just before it began, so Sebert Humphries gallantly stepped into the breach, and achieved the almost superhuman task of keeping everybody happy during the necessarily long intervals between flights.

For lack of space we must skip now to the National Contests of 1938, held at Dunstable, in which he shared a Rhönbussard with the late L. C. Withall, finishing 10th among 25 entrants. His last cross-country flight was made at this meeting, for after it he turned up less and less frequently at the club after having put in an enormous amount of work for it, instructing, organizing, as a Committee member, and writing the Club News for THE SAILPLANE, over a period of many years.



Sebart Humphries in the London Club's Rhonbussard in 1938. On the right, the late Kit Nicholson.

Sebert Humphries died on 25th March, at the age of 62, at his home in Weybridge.

A.E.S.

UP and DOWN

Gliders in Sweden

Sweden had 187 registered gliders in 1959 compared with 81 in 1945.—*Aviation Week.*

German Statistics

There are 1,900 sailplanes, 750 sporting aeroplanes, and 15 free balloons in Germany, and 570 gliding sites (*Segelfluggelände*) in the Federal Republic—*Flug-Revue.*

Indian Schoolboy's Flight

Rashid Fardoon Irani, of Poona, aged 15, flew a glider solo on 21st February for 5 hrs. 13 mins. and gained 9,800 ft. altitude. He made his first solo flight at the age of nine. His father, Fardoon Irani, was a member of the London Gliding Club in 1939, and is now Gliding Adviser to the Indian Government.—*Times of India.*

First Indian Gold C

On 6th April Mr. Mahendra Singh Pujji, D.F.C., chief instructor of the Delhi Gliding Club, made a flight of 307 kilometres from Safdarjang airport, New Delhi, to Markandnagar village, near Kannauj. Mr. A. K. Mathur, in sending this news, enclosed a characteristic newspaper report which states that the glider landed in the evening "owing to some mechanical defect" and that Mr. Pujji, "the pilot and only occupant, escaped unhurt". Mr. Pujji now writes that he has since done his Gold C height and applied for the badge. He has also promised us an account of the distance flight.

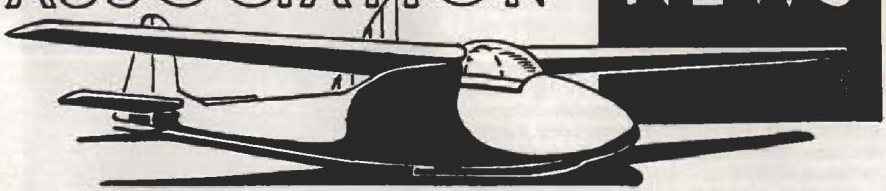
Mr. Mulhall's Companion

The photograph in our last issue (p. 81), showing Martin Mulhall at Elmira, included another pilot, unnamed. He was Dick Johnson, winner of last year's United States Championships and holder of the world's distance record.

Jean Bird Trophy Winner

On 28th April Mrs. Anne Burns was presented by Lord Brabazon with the Jean Lennox Bird Trophy for her flight of 282 miles from Lasham to Bellingham, Northumberland, on the first day of last year's National Gliding Championships.

CLUB AND ASSOCIATION NEWS



IN the first place I am sure you will all want me to say a big thank you to Colin Moore for his good work as Editor of this section over the past two years. Colin, who was a member of the Kent Gliding Club, has emigrated to Canada. We wish him the very best of luck and hope in the future we shall hear news of him via the Toronto Club.

The 1960 soaring season seems to have been well and truly launched judging by the reports from Clubs on the Easter Week-end.

We welcome in this issue for the first time contributions from the R.A.F. Home Counties Club and the Soaring Society of America. The latter hope in future to be able to send us regular news of international interest.

Thank you all for your good wishes on my taking over this section and I do hope that I shall be able to visit, at any rate, some of you in the course of time.

Press date for the August issue is first post 7th June. Copy should be typed double spaced and sent to me at 44 Belsize Square, London, N.W.3.

YVONNE BONHAM,
Club and Association News Editor.

AVRO

WITH Woodford, the Company's Aerodrome, our home site, being inside the Manchester control zone, we take every opportunity to take the Skylark away, in order to give the Skylark pilots a chance to gain Silver C legs. During the Easter holiday, the Skylark was based at Camphill, with cross-country flights being the main objective.

Sunday the 17th turned out to be the best day, and Martin Holbrook got away, saying he would try for Long Mynd and also that he had only 4d. with him!! After about four hours he telephoned to say he had reached Condover, just short of the Mynd and that he was being liberally fed by a very kind farmer—some folks have all the luck.

I take this opportunity to thank the Derby. and Lancs. Club for their hospitality and patience shown to the members of the trip.

At Woodford, the auto tow car has given us some very good launches, one to 2,300 ft., giving us a chance to do some early soaring. Ted Mercer, our ground engineer has been converting our old winch, which now sports a fine array of plumbing and valves for a new hydraulic clutch. Since the last edition, we have had four A. & B.'s and two conversions to the Swallow. Some rapid calculations are being made for a new trailer for the Swallow and we are hoping to participate in one of the National Gliding Week competitions this summer.

J.D.S.

BLACKPOOL and FYLDE

WINTER is over at last but none of us here in North-West Lancashire are likely to grumble at our rather large number of non-flying Sundays during December, January and February, considering the wonderful summer of 1959 which will undoubtedly go down in gliding history as the best ever.

The incredible summer had its minor

disadvantages so far as we were concerned here at breezy Blackpool. There are two very competitive flying clubs on our aerodrome which not only teach misguided people to fly aeroplanes, but also endeavour to provide for the long winter ahead by enticing the general public, with every means at their disposal, to take sight-seeing trips as far as Blackpool Tower. Judging by the endless stream of Rapides, Dragons, Austers, Chipmunks, Tigers, etc. on take-off, circuiting the Tower and on final approach during the hours of daylight throughout last year's fantastic summer, the coffers of the Clubs concerned must surely be as bulging as ours are impoverished. In all this maddening traffic the airport also copes with a regular Isle of Man service During the worst periods we merely chew our fingers and bleat in sheer frustration, our eyes frequently turning in an east-north-east direction towards our new but only partly developed hill site at Nickey Fell, which is clearly visible from Blackpool.

We are pleased to record a further group of first solos, as follows:—Barbara Freshwater (our fourth female "B"), The Earl of Bective, Tony Russell, Eric Gille t, Robin Muir, Richard Waring, and Geoff. Walker. We hope to see Pat Chesney, Brian Watson, Barbara Standring and Helen Torrence soloing very shortly. Ron Parker is now solo again after an absence of several years in the Forces.

We should like to record our appreciation of the excellent work carried out by our own B.G.A. Inspector, Alec Lunn and his capable assistant, Jim Savage in connection with the renewal of the C's. of A. of our aircraft and also the carrying out of various mods. Incidentally, many members spent practically every Sunday during mid-winter toiling very diligently in mist, rain and mud carting stones and deepening drainage ditches on our hill site. It would be most remiss if their spartan efforts were not recorded in these pages. Likewise also, our most generous Vice-Presidents, Farmer Stan Anderton (for the loan of tractors) and Jack Sumner his cousin (our Hon. Hill-Site Foreman). Our worthy President, Mr. Herbert J. Liver, has again come to our rescue and offered a substantial deposit on an additional sailplane so urgently needed as a further incentive to members who now require something more soarable than our faithful Sedbergh, Kirby Cadet and Eon "Baby". J.A.

BRISTOL

THE A.G.M. was held on 2nd April and the Treasurer's report showed a satisfactory state of affairs. He was duly re-elected. John Cochrane remains Chairman and the committee remains practically unchanged, despite a long nomination list. The cups were presented by Rex Young, who is a Vice-President and a founder member.

A major change to the management is the election of Tony Gaze as Vice-Chairman. Tony has also been invited to fly in the Australian team at the World Championships and we wish him every success.

Tony Pentelow has now taken up residence at Nympsfield and has been supervising C. of A. overhauls and winch rebuilds in readiness for the season, before getting down to the course instructing. The courses are very well booked again this year despite the increased number available elsewhere.

Paint spraying equipment has now been installed and overhauled aircraft are coming out of the workshop resplendent in new finishes. The T-21 has been given a 10 year overhaul and a second Tutor has been rolled out after one of the most extensive rebuilds yet attempted by club members. Another

Alexander SCHLEICHER

K.7

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Demonstration aircraft seen at London Gliding Club, Dunstable

APPLY:

P. A. HEARNE & PARTNERS

ambitious project is under way now; Deputy C.F.I. Doug. Jones is heading a syndicate building a Skylark IIIF to replace their Olympia, which itself Doug. rebuilt from a heap of wreckage. The Skylark is scheduled to fly mid 1961.

An analysis of our first year's operation of the Tiger Moth showed a very good utilisation with over 800 launches chalked up. The results have been extremely pleasing and the use of the Tiger contributed greatly to the big increase in flying hours and cross-country miles during the last year.

A.L.S.

CAMBRIDGE

THE most important event this spring was the arrival of the Club's own Tiger Moth, and the unusual amount of thermal soaring we have had during April was mainly due to this splendid device. Bryce Smith who has been appointed Chairman of the Aero-Towing Sub-committee, has organised a rota of tug-pilots which was put to the test over the Easter Holidays. Bryce's team performed most efficiently, not only towing sailplanes into thermals, but also retrieving them from odd aerodromes to which they strayed in their search for more thermals.

The Easter Holidays saw an unusual amount of thermal soaring at Cambridge. Each day the weather turned out much better than the forecast suggested. Although no one dared to declare any large triangles, flights of 4, 5 and even 6½ hrs. were logged, and the last soarers of the day landed as late as 7 o'clock. Paul Bethell-Fox, John Garrood and John Burton went on cross-country flights and each covered about 35 miles; John Burton reached his goal.

The best climbs this year have been by Ann Mari Neumann and John Garrood. Both reached 10,000 ft., and both will next time see that the barograph is switched on.

G.S.N.

CORNISH

A GREAT deal of hard work has already been done to prepare for National Gliding Week, but much more remains to be done. Sir Wavell Wakefield, M.P., has consented to open the week on 28th May and a flying display is planned to follow. Plymouth Aero Club are co-operating with us in this and the R.A.F. are sending a Hunter to provide a thunderous contrast to our more peaceful activities. Given the weather, we are looking forward to an interesting and we hope, successful week.

In connection with National Gliding Week, the Perranporth Chamber of Commerce are co-operating closely with us. One member of the Chamber, Mr. S. J. Burrell, has offered to pay the entrance fee and subscription for a youth to take up gliding with the Club and the Chamber have gone further and offered entrance fee, subscription and a year's flying charges, provided the Club will do the same. This the Committee accepted enthusiastically, so that there will now be three flying scholarships available. Details of qualifications and so on have not yet been finalised, but we feel that it will provide a valuable incentive to young people to take up gliding and incidentally be good publicity for us.

C's. of A. are going well. The T-21B and T-31 and Olympia have been revitalised by Fred Breeze, who is also doing a fine job on the Swallow kit. We hope to see the Swallow flying in the near future, probably within three or four weeks after Easter. We haven't seen much of Pip Phillips lately. He has a bad case of "traileritis" and is working against time to complete his trailer to house the Meise for the competitions.

A very pleasant surprise on 14th April was the re-appearance of Geoff. Cox on a flying visit from Canada.

The recent run of south to south-east winds largely confined flying to circuits for several weeks, but at last the pattern seems to have broken, and the week before Easter has provided two good soaring days. Thursday, 14th April found the T-31 sitting at 1,000 ft. over the cliffs, with Mike Sharpe in the Olympia trundling to and fro on the long beat at 1,500 ft. and upwards, sweating out his five hours.

C's. of A., the weather, and lack of a suitable away field to operate from, have prevented further investigation of Hooper's Wave (see last SAILPLANE & GLIDING) but negotiations are in hand to secure the occasional use of Davidstow airfield, which is conveniently near the wave area. If we can use Davidstow it will be invaluable, and we hope to learn a lot about the wave before the year is out.

P.V.P.

COVENTRY

AT the A.G.M. on 26th February our chairman, Dr. Gregg, looked back on our seventh year of operations with a certain

amount of disappointment. He felt that we had failed to make the most of the opportunities presented with the outstanding weather of 1959, and called for a maximum contribution of enthusiasm and hard work from all members in 1960.

Michael Hunt, the C.F.I., pointed out that our newly acquired Tiger Moth will help us in the all-important aim of keeping the aircraft in the air, and announced a series of lectures on all aspects of cross-country flying. He reported that the system of graded checks was working well, and did not feel unduly despondent about the future.

In at least one respect we can already report a changed outlook at Baginton, as from the clubhouse it is now difficult to believe that an airfield exists at all! At first glance, it appears that the builders of M.1 have gone a bit off course, but we are assured that when the tumuli and fire-breathing machinery have disappeared we shall have an airfield with full-length hard runways. Although the fact that we now operate from the left-over corners has affected us to some extent, we are still maintaining full scale operations.

During the first three months of the year we notched up 100 hrs. from 1,175 launches and first solos were made by Messrs. Doug. Sadler, Mills, Newall, Marriott, Hill and Shepardson. Soaring was of course not widespread during this period, and it was not until April that opportunities really presented themselves—to be seized with particular avidity by the owners of the several privately owned aircraft which are due to participate in the Soaring Week.

Doc. Gregg has arranged for Mr. Slingsby to make up his prescription for a man-sized tonic—one succulent Skylark III! His green Olympia remains operational at Baginton, having passed to a newly formed syndicate of six. The members of this group lost no time in putting their aircraft to good use, with Tony Glover gaining his Silver height on Easter Saturday and Reg Ludgate completing his distance on the following day with a flight of 48 miles to Harington, Berks. Howard Greenway used his Olympia on the same day to fly from Edgehill to Kidlington, landing for a chat with the Oxford crowd and then taking a winch launch to fly home again!

The Easter period, in fact, provided some quite useful soaring, with heights of up to 5,700 ft. being logged, whilst Sheila Hands gained her C. Further first solos were made by Messrs. Gordon, Hodiac, Varley, and Ron and Joy Willett.

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DERBY. and LANCS.

ON the 27th February, waves which had been out of phase with our slope all day, jumped into their correct positions late in the afternoon and those airborne at the time were elevated and ranged wide over the Peak District. Michael Kaye reached 11,300 ft. some thirty miles to the north, Ron Tune in his new Olympia reached 5,200 ft., Jose Newmark 5,100 ft. in the club Prefect, Paul Newmark 4,700 ft. in the club Olympia. At quarter to six it was getting rather dark, so we sent up a rocket parachute flare which Mick spotted and homed on while still some 12 miles away.

The A.G.M. was held on the 9th March. The Camphill Trophy for the greatest cross-country mileage from Camphill went to Bill Elrington; the Eustace Thomas Trophy for the longest distance to Stan Armstrong; the Eric Mensforth Trophy for the longest ever flight in a club aircraft to Walter Neumark; the Jubilee Cup for the greatest height to Bill Elrington; the Chairman's Prize for the greatest aggregate mileage in club aircraft to Angus Thompson and the Swale Tankard to Cyril James. Mick Kaye was congratulated for winning the gigantic B.G.A. Seager Trophy for his 230 mile two-seater flight. Angus did not qualify for an award for his 17,500 ft. climb as this was done at Lasham, albeit in the club's own Olympia.

Eric Taylor resigned from the Committee for which he has done so much for some 25 years and now becomes a Vice-President of the club.

Vic Wright opened the cross-country season by landing the Prefect on the Moors on the 8th April followed by Michael Kaye and Sir Geoffrey Haworth in the T-42 to Shrewsbury on the 16th April.

O.W.N.

DONCASTER

THE Club started flying on 31st January, 1960. In the 10 week-ends since then, we have had a total of 457 launches on the T-31 and the Cadet. The training programme is going well.

Progress is now hamstrung by the lack of a hangar. Once permission is obtained the hangar can be up in a week. But the objections which have been raised to putting a small hangar on an aerodrome and on the site of a former hangar, have been such as to cause many members not merely frustration but near apoplexy.

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Given a hangar and with no need to de-rig every night, we can increase the time available for flying and by this means get more money, pay off our crippling debts and buy another glider.

The Club continues to rely on the generous assistance of other Instructors, in particular Bernard Thomas from our nearest neighbour, the Derby. and Lancs. Club. By the time this is published we may be nearer to having our own C.F.I.

The summer thermals are beginning but we have yet to see what kind of thermals the Doncaster site will provide. In this connection the Club welcomes the setting up of smokeless zones in the town. Preparations for the summer season have been marked by putting a variometer in the Cadet.

We are hoping to install draught beer in the bar fairly soon. When the first pint is drawn, then it can truly be said that gliding has come to Doncaster. J.G.R.

DUMFRIES

OUR temporary use of the Dumfries aerodrome has now come to an end and as a result of this we are busy preparing our permanent site at Thornhill for the recommencement of flying.

We have now added a single seater Tutor to our "fleet" and after a repaint it took its place beside our T-31. This Tutor, bought by a syndicate and loaned to the club, was collected by five members who set out with the enthusiasm of a team about to collect a new Swallow.

On the way back however, they strayed from track at the top of Sutton Bank where they visited the Yorkshire Gliding Club. Their ridge was working well and three of the party who had never flown on a ridge before, soon put this to rights. We would like to thank the members of the "York-

shire" for their hospitality and trust that they will pay us a visit whenever in the area.

Looking back on our activities we have had a total of 24 flying days. During this period the two-seater flew 357 circuits for a total time of 20 hrs. 8 mins., and our single-seater 36 circuits for a total time of 2 hrs. 54 mins.

Two of our members gained their A and B certificates—Mr. George Binns our Secretary and Mr. Gordon Kingholm, who has now come back to earth with a vengeance. He is i/c hangar building.

Work is also under way on "the gathering together" of the necessary parts for our second winch and we hope to get off to a flying start when nature permits.

R.W.R.

KENT

At last, we seem to have left winter behind. C. of A.s were completed on all club aircraft during the winter months. Soaring started on Sunday, 21st February, when the C.F.I. Roy Hubble took the Olympia up for a test flight, found a thermal over the ridge and played with it for 40 minutes. No one else managed to find the elusive thermal afterwards.

More soaring was possible during the week-end of 19th-20th March when Richard Parkinson kept the Olympia aloft for half an hour and Mickey Gilbert and Philippa Buckley both had thermal flights in the Skylark. Glyn Richards celebrated putting the clocks forward on Sunday, 9th April by trying for five hours on a rather difficult day, but he only managed 4½ hrs.

We were lucky to have weather fit for flying on all four days over the Easter week-end, and several club members had soaring flights. On Good Friday the club Olympia and one winch were taken to a field near Stone Street. We had an interesting day there and hope possibly to make other expeditions later.

While this experiment was going on, Peter Wildbur arrived at Lympne in the Southdown Club's Olympia. We have been hoping for some time that a Southdown member would make a return visit, since one of our members flew to Firle last September. So we were very glad to see him and the Southdown Club have been warned to expect us at Firle again soon.

Easter Saturday was a day of strong winds and squalls, which made the thermals broken and difficult; but Sunday was a better day, though the Skylark was the only aircraft to stay up. Easter Monday was better still, and a number of members soared in the T-21, Prefect and Olympia.

We are building a cable retrieving winch which should be finished next month and hope to have radio communication between launch point and Tower soon.

The club match making department seems to have been busy lately. Roger Neame and Olga Greaves were married on 25th March, and soon after these notes appear the wedding of Denis Monckton and Shirley Fielder will take place; Nobby Clark is getting married at Whitsuntide. Eric Clegg and Margaret Gerke have also announced their engagement recently.

P.B.

LAKES

Hearty congratulations are happily extended to Ron Read, our C.F.I., and to Mrs. Read from all club members, and I am sure from the gliding fraternity as a whole, for the stork has favoured them with a visit, leaving behind a small bundle of joy in the way of baby daughter, Janet.

The wonderful possibilities for exciting flying in the general area in which our club is sited has been amply confirmed during the past weeks of March. We had a surprise visit from the Yorkshire Club's C.F.I. Chris Riddell on Sunday, 27th March. That day as on most days in March, the wind had much East in it and Chris, taking good advantage of the wave which had formed, came whistling in for tea after attaining a height of 9,000 ft. He had in fact viewed our activities for thirty minutes whilst remaining above our site at 5,000 ft.

Then again, more visitors on Sunday, 3rd April, this time from the R.A.F. team which had been spending a short time at Cross Fell, which is situated a little north of the Lakes Club. The purpose of their stay was to investigate the conditions of wave in the area. The story they had to tell us was indeed intriguing. A story of hours of wave flight at heights in excess of 21,000 ft. in an Eagle; of a flight of more than five hours whilst roaming the Lake District at will at never less than 13,000 ft. and up to 17,000 ft.

Such is the promise for our future. The presence of the recently acquired Olympia brings such a promise nearer.

Although our Club has reluctantly cancelled the Nationals due to the small number of entries, we do, nevertheless, offer a hearty invitation to any gliding team

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D.H.M.

LONDON

THE soaring season has burst on us once again and as usual we have been amazed by the suddenness with which it arrived.

The Easter week-end produced 220 hrs. from over 500 launches. A Gold C attempt by John Jeffries in the Sky 133 miles to Bridport was the best flight of the holiday, the same pilot also did an out and return to Braintree 102 miles on the Monday.

The Task on Sunday was a 100 km. triangle, but this was only completed by Geoffrey Stephenson; on Monday, Roger Mann and Dan Smith completed an out and return task to Duxford.

The week before Easter was Elementary Soaring Week. John Cardiff completed his Silver C with a Goal flight to the East Coast in the Prefect. Tom Sheppard got his five hours in the Prefect and Tony Wilson his in a Tutor. Messrs. Jennings, Foyle, Hargreaves, Barlow, Marlow, Aust and Marriott, all qualified for their C's and we flew nearly 100 hours in the four days of the week.

G. Kerr completed his Silver C with a duration flight in the Olympia on a day with the wind gusting at over 50 knots at 1,000 ft.

Other C Certificates, John O'Rourke, who reached 3,000 ft. in the Tutor and also Brian Huggins.

The German K-7 arrived here on Easter Saturday after having been held up by the Customs, the steel tubes had to be searched for contraband perhaps! The aircraft seemed to perform very well, even though the pilots were flying without a variometer.

The Garage project at last has started to take shape and an erection of steelwork at the side of the hangar can be seen as proof of progress.

J.F.W.

MIDLAND

THE first three months of the year have produced consistently bad flying conditions at The Long Mynd and our records of hours flown for this period must have reached an all-time low. However, with the arrival of April things show signs of improvement and Saturday, 9th April was an excellent day and produced our first Silver C distance of the year, when Tim

Corbett flew to Lichfield, 45 miles, to complete his badge.

Last-minute preparations for our Easter Rally are being made in readiness for the wonderful weather which we anticipate and a report on the results will appear elsewhere in this issue. We are making sure of the Bar supplies this time, too. Last year, a really thirsty crowd drank twenty dozen bottles of beer by early evening on one particular day and we went dry. I challenge them to drink all we have this year!

We are still plagued with the Advisory Route over The Mynd, which stops all cloud-flying in the vicinity of the Club, but we have hopes, at last, of having it moved over to the west in the near future.

G.B.C.G.

NEWCASTLE

THE news from Newcastle is still more of work than of flying though we have had some thermal days and the Usworth distance record has been well and truly fractured by Doug. Collinson in the Skylark II during an unsuccessful attempt on his Gold C distance on 16th April. Doug. told me in his account of the flight that he was aiming for Cambridge. After being launched at mid-day he arrived within sight of Sutton Bank at 2 o'clock with 4,000 ft. in hand. He pressed on and was down to 1,500 ft. twice before being saved by last gasp thermals. He scraped over the river Ouse at Goole and finally ran out of lift near Gainsborough after being in the air 3 hrs. 45 mins. and covering 110 miles at an average speed of approximately 27 m.p.h.

The other distance aspirant, this time for his Silver C, was Frank Rodwell in the Swallow, who was launched at 12.30. He headed inland to try and get to the lift which was visible further west, but the sea breeze beat him to it and he only made 12 miles to Sherburn, near Durham.

Two of the three jobs which have been under way in the hangar are now finished and the Tutor and Olympia are now back in action. The former, thanks to the generosity of Mr. Brigham and the time put in by Mike Roland and Alan Pratt, is complete with spoilers after only one week-end in the hangar. The Olympia thanks to some patient work with sandpaper and spray-gun by Bob Fleuret, Norman Dean and Graham Garlick, is now resplendent in the club colours of signal red fuselage and yellow wings. The trailer is nearing completion, so it may be that some of the Olympia pilots may be having a crack at the new distance record in the near future.

As I mentioned in the last club news, we are now on a day to day basis at Usworth and as the sale of the buildings has been fixed for 26th April, we are hoping to get one of the huts for use as a club house at Carlton. In the meantime four working parties have been organised and have been at work repairing the ravages done to the access road by the winter weather. We are also hoping to hold a fortnight's combined work and flying camp at Carlton some time in July. The flying is intended to familiarise club pilots with hill soaring as nearly all the present members have only had flat site experience.

Our immediate future is still uncertain, to say the least of it, but the long term prospects look rather more rosy and when Carlton is a going concern they should be even better.

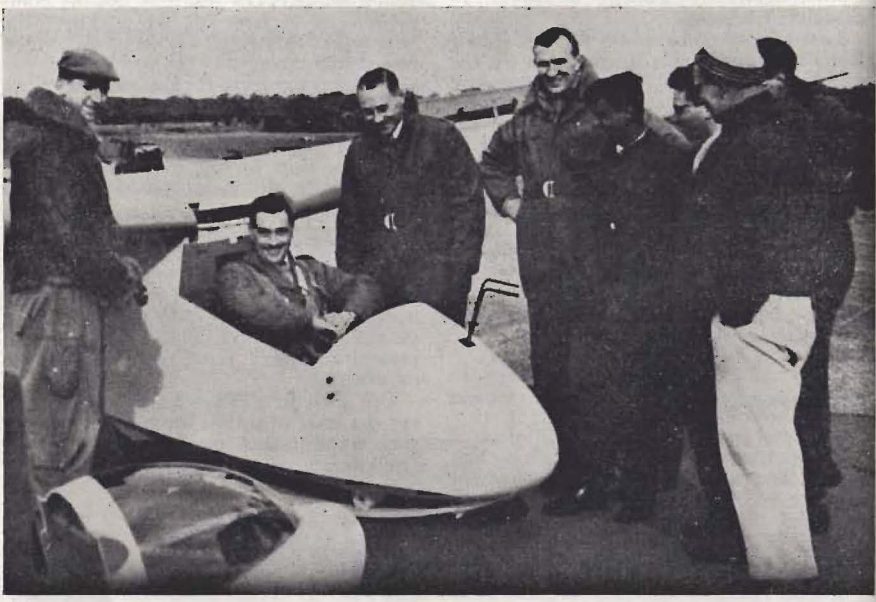
L.A.C.

NORTHAMPTON

OUR new site, at Podington Aerodrome, near Wellingborough, is already fulfilling the promise it made last Autumn of having good or even excellent soaring qualities and our season commenced, we felt, on the 21st of February when two people each soared 16 mins. in a Tutor, and W. Petch took it to cloudbase at 2,500 ft. in 29 mins. The wind was westerly, about 20 knots.

The Swallow, whose delivery we had been eagerly awaiting, arrived on Good Friday. Ken. Pearson, C.F.I., took it up and then checked five Tutor pilots in quick succession for conversion using the Chairman's Eagle. The rest of the day was passed doing circuits and comparing notes, and on Easter Saturday several members proved its soaring capabilities. All this excitement justified the forethought in the C.F.I.'s Department, which had earlier instituted a conversion course for likely candidates. On 20th March for instance, 78 training launches were recorded, 23 of them in the Eagle to prepare for conversion. The main training programme for this summer, apart from *ab initio* work, will concentrate on advanced flying, leading to cross countries.

Easter Saturday also saw the arrival of our first visiting pilot of the season, Stephen Hart, of the R.A.F.G.S.A. (Four Counties)



Arrival of the Northants Swallow at Podington on Good Friday. K. Pearson (C.F.I.) in the cockpit. Also present, from L. to R.: P. Jones, B. Sykes (Chairman), W. Mason, G. O'Donnell, L. Higgins and, nearest to camera, B. C. Hastings.

who dropped in from Spitalgate in an Olympia IIB, to complete his Silver C distance. We very much hope that he will be the first of a series of similar visitors, all of whom will be welcome.

Two new B Certificates have to be recorded, achieved by G. O'Donnell and P. Mendham, and several other trainees are approaching their first solos.

Work on the Club premises continues, and some of the more essential amenities, including a bar, are now installed. While we have not yet attained the standards laid down by Mrs. Welch in her recent article, we have no doubt that our wives will see that we do do so in due course!

B.C.H.

OXFORD

THE Seventh Annual General Meeting of the club returned the retiring committee to serve for a further year and the following officers were elected:—

Chairman—Professor G. C. Varley, Vice-Chairman—K. Harris, Hon. Secretary —L. A. Speechley, Hon. Treasurer—Miss S. J. Taylor, C.F.I.—J. Ellis, Ground Engineer—C. R. Hurst, Mechanical Equipment Officer—J. Wren. B. Baker, V. R. Collins, D. Evans and R. E. Everard also serve on the General Purposes Committee.

Reporting on the past year the Secretary noted that only once before had 4,000 launches been exceeded, but 1959 had produced twice the number of flying hours.

With the Olympia available to the post-solo pilot the average duration of their flights had also been doubled.

The Club started 1960 with an even more expensively stuffed hangar, a Skylark IIIB with "self-cancelling ailerons" being the latest addition. This will be operated by John Matheson, Mr. and Mrs. Malcom Laurie and John McKenzie.

Three trailers are "on the stocks" and our various mechanical devices are being groomed by Joe Wren and his industrious team in anticipation of an even better year.

Anita Schmidt achieved the first cross-country flight reaching Dunstable in the

White G.B. in 45 mins., whilst Chris Hurst holds the height for the year so far with 7,200 ft. in the Olympia.

A small group, arriving early to D.I. winches and cables, have reduced the number of cable breaks for our first 700 launches to 6 as against 47 for last year.

This excellent example should be noted by all who dislike tying knots in wire when it is soarable.

W.L.

PHOENIX (Germany)

ALTHOUGH we were unable to complete all four of our aircraft for the start of the season at the beginning of March, nearly 400 launches had been logged up to the week-end before Easter with the Ka-2 and one Grunau.

The wings of the other Grunau were found to be unserviceable and it was not until the end of March that we acquired another serviceable pair. At the time of writing J/T Roy Waters and his team of workers are labouring frantically to prepare the Weihe for Easter.

Congratulations to J/T Doug. Allan who gained his C certificate early in March in the Grunau. Doug's effort was the first of the season.

J/T Harry Howitt attempted his Silver C cross-country on 9th April in weather which appeared good around midday, but flattened out towards late afternoon. He got only 30 kms. away before the lift ran out. After a lot of confusion and many telephone calls to the British Military Police and the German police, the retrieve crew finally found the unfortunate pilot in a field near Krefeld.

We have at last found a replacement for the Opel Kapitan, retrieve car which had to be scrapped after it fell to bits, despite a valiant effort on the part of Doug. Allan to save it, at the end of last season. The new vehicle is a jeep and is proving ideal for the job of towing out cables. Another acquisition has been a 22 h.p. Wolseley motor car which we are contemplating converting for auto towing. This would take considerable work off the winches as well as giving valuable experience to the pilots.

The nylon covered cable, in use since early in March on the Roeder winch, has proved itself to be very hardwearing, although it is showing one or two scars after being caught up in the pay-on gear several times. The faulty piece of equipment has now been cured and the exceptionally durable cable should have an exceedingly long life.

The Easter week-end turned out to be highly successful. With three aircraft, Ka-2, Weihe and Grunau and two winches we logged 31 hrs. 27 mins., with 208 launches bringing the total for the year to 646 launches, which beats all previous records.

S.A.C. Dave Lewis, Staff Sergeant Jim Lee and Staff Sergeant Somerville soloed for their A's and B's, and S.A.C. Ron Clarkson and Warrant Officer Harris, got their C Certificates with flights of 44 mins. and 15 mins. respectively.

For the second time in the Club's short history, Silver C heights were reached without a barograph. This time it was J/T Doug. Allan in the Grunau with a climb to 4,500 ft. on a 1 hr. 4 min. flight on Easter Sunday and Flying Officer Clive Wallis in the Weihe, 1 hr. and 4,800 ft. on the same day. As usual the barograph, the only one we have, was in the other aircraft when it was most needed.

R.L.C.

R.A.F.G.S.A. EAST ANGLIAN (Duxford)

DESPITE absence of club reports in SAILPLANE & GLIDING for a year, the club has been thriving all winter. We have just finished five days of intensive flying over Easter. Jim Wingate took the Olympia away to Ipswich for his Silver C distance, while his retrieving crew went off to Dunstable. (He had started off in that direction.) Dave Stephens and Mike Holloway both got their Silver C height; that is subject to barograph calibration, as

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"MODEL AIRCRAFT"—Official Journal of the Society of Model Aeronautical Engineers. Features contest winning model designs, constructional articles, photographs and reports of international and national contests. 1/6 monthly from any newsagent. Send for specimen copy free from "Model Aircraft", 19-20 Noel Street, London, W.1.

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MISCELLANEOUS

GERMAN BOY (17) wishes to spend holidays with English gliding family during August. Payment arranged. Write:- Jürgen Reese, Büderich/Dusseldorf, Kaarsterweg, Germany.

HERE and THERE

National Gliding Week.—This will be held from 28th May to 6th June at the Cornish Gliding Club's site at Ferranporth only, as the two other Clubs which had hoped to take part have found themselves unable to do so.

Records Homologated

International single-seater gliding records recently confirmed by the F.A.I. are:—

L. Misiek (Poland), in a Jaskolka, 6th July 1959: goal-and-return, 533.6 km. (331.6 miles).

R. Schreder (U.S.A.), in Airmate HP-8, speed round triangular courses, August 1959: 100-km. triangle, 11th August, 107.04 km. (66.52 mi.) p.h.; 200-km. triangle, 6th August, 107.83 km. (67.10 mi.) p.h.; 300-km. triangle, 7th August, 96.84 km. (60.17 mi.) p.h.

they didn't have much margin to spare. Three pilots got their C's, and three went solo. Congratulations all round!

Membership has risen steadily over the winter months, there are now contingents from Henlow and Oakington, as well as Bassingbourne. We are hoping to fly at Bassingbourne on Wednesday afternoons as well as Duxford at week-ends. The club has acquired three winches, two of which work most of the time. This is mainly due to Pete Dawson, who has joined us from Germany and swaps engines from one winch to another. We owe him a great deal and also his wife Maureen, who has taken over the running of the clubhouse and is making it pay its way handsomely.

The club has a new Skylark III, due to arrive any day now, this supplements our fleet of Olympia, T-21, T-31 and Tutor. The Olympia must be one of the most beautiful in the country, thanks to "Dib" Dibley; he sprayed it for us, and we will miss him now that he has returned to Elliotts'. Nobby Clark is very busy building a new trailer, which looks most professional; he is also secretary of the Club. Max Bacon took over the C.F.I.'s chair six months ago, and Dave Stephens is still treasurer. D.V.D.

EAST YORKSHIRE (Driffield)

At the end of flying on Easter Monday we completed 975 launches and had 79 hrs. 43 mins. flying time to our credit since our formation in October 1959; an achievement of which we are quite proud.

Since our last report C certificates have been gained by Master Signaller Bailey, Sgt. Manley and Flt. Lt. Fletcher and A and B Certificates by Sgt. McWhirter, Lt. Col. Ropp, U.S.A.F., Mr. Poxon and Mrs. Frogley. Congratulations to all concerned. Actually, the Easter thermals helped considerably.

Equipmentwise, the T-31 is back in service and working overtime. We expect our Cadet in a week and the T-21 under construction at Slingsby should be with us late May/early June. This should be followed by a nice new Olympia, bringing our fleet of aircraft to five in number. The ever faithful Grunau is encouraging C hunters, and no doubt our new barograph will encourage even higher ambitions.

Finally, we wish good luck and good soaring to all clubs in the coming season.

R.T.B.

FENLAND (Marham)

Soaring activities at Marham have been restricted recently by a change in servicing policy and the Olympia was grounded until its servicing schedules had been approved by the powers-that-be. This was terribly frustrating as on Easter Saturday superb cross-country conditions existed at Marham, with abundant lift in cloud streets.

Peter Kevan and Ian Strachan took the Sedbergh on several soaring flights with pupils and considered that a possible Gold C day had been lost. Easter Monday saw several hours of local soaring, although we were just on the fringe of some really good conditions towards Cambridge. On this day, S.A.C. Kylo soloed after only twelve days with the club. Ian Strachan managed to take a week's leave to attend the Wave Soaring Project at Kirkbride and did four hours on the Eagle and Olympia there.

On the servicing side, we are still in dire straits, as our old spoilerless Grunau's glue joints are a trifle unnerving to behold, and the machine will have to be retired. Gordon Rondel, our technical expert, is also carrying out a strip inspection on the Gull (Steve's channel crossing one, no less!), this will take some time but Gordon thinks that the aircraft will be airworthy. We have hopes of a new Eon Baby to fill the gap in the club fleet, and when we have the Olympia and Chipmunk too, we should have some good soaring to report.

Our C.F.I., Barry Gould, was married on 2nd April, and we wish him and Mrs. Gould all happiness.

I.W.S.

HOME COUNTIES (Hornchurch)

At last the Club can report that it is operating regularly and that in spite of past difficulties we are firmly established. Some seven months ago a few enthusiasts rallied enough support to get a grant of £50, a loan of £150 and the R.A.F.G.S.A.'s approval to try and form an area club here at Hornchurch. Air Commodore Finlay kindly consented to become the President and Wing Commander Dennison, the Unit Commander, agreed to be our Chairman.

During the winter months a "Wild" type Winch was built and an ancient Fordson Tractor made ready for cable retrieving. The R.A.F.G.S.A. gave us a T-31 and later

a Cadet Mk. I, as well as much encouragement and useful advice. As always the hard work fell on a few really keen types but finally we started regular operations towards the end of February.

Our first month's total of launches only reached 84 with 4 hrs. 36 mins. airborne time. Nevertheless the potential of the site was demonstrated on 20th March when a new member, the C.F.I. and the T-31 reached 2,000 ft. In March also we produced our first A and B Certificate. So far this month we have achieved 180 launches, 10 hrs. 37 mins. and another A and B. We have a growing membership including people from several districts of London, one from Kent and another from Watton and we have already had several visitors from other clubs.

Although we have to share the airfield with 614 Gliding School, I think we can honestly say that we can both exist happily on the one site. This was amply demonstrated during Easter when four lines ran full blast the whole time.

I understand that all 17 of the A.T.C. cadets went solo successfully during their week's course, and that three gained their C certificates. On our side, Ken Hirst took the T-31 to 2,500 ft. and Ron Taylor had 20 mins. after 7 p.m. in a Prefect and 35 mins. in a T-21, during which he climbed to 2,900 ft. We flew a good many passenger trips and in all totalled 164 launches, 9 hrs. and 40 mins.

Finally, may I offer hospitality to anyone who would like to visit us—we operate every week-end. Also thanks to Bill Verling, the A.T.C. School C.F.I. and his fellow Instructors whose encouragement, goodwill and assistance has been invaluable.

R.J.T.

WESSEX (Andover)

THE up-to-date list of club officials is as follows:—

Chief Gliding Instructor—Squadron Leader Brownlow, Secretary—Squadron Leader Kendall, Treasurer—Wing Commander Kingwill, Secretary (address)—Officers Mess, R.A.F., Amport House, Nr. Andover, Hants.

We shall continue to operate at Andover airfield at week-ends. During the soaring season intending visitors should find no difficulty in making an overnight stop, as there are now two Motels and a Guest House situated at the edge of the airfield. Some club members have recently been away up North at Kirkbride on a wave safari and valuable experience has been gained.

J.D.

SCOTTISH

AFTER what must be the most frustrating winter for many a year, early signs of promise have been noted in recent weeks with a rapid increase in flying time and launches. As yet, little of note can be recorded, but a fine frenzy of activity is seen in the preparation of trailers and vehicles.

It is expected that further sorties to the south will be organised following the success of the Eagle Crew—W. Lawson and A. J. Thorburn—at the Mynd last Easter when their flight of 143 miles (Mynd to Markam) was suitably enhanced by the award of the Siam Trophy for the best flight of 1959 from the Mynd.

A visit to our most Northern colleagues, the Aberdeen G.C., was made by a small party from the S.G.U. to sample their flying, but unfortunately a persistent "clamp" foiled this. But, as usual, the excellent hospitality of the hosts made the visit most enjoyable and a return visit will follow.

At the A.G.M. on the 10th April, our hard working member Andrew Thorburn was accorded a further honour by his election as Chairman and Vice-President of the Club. It was commented that the A.G.M. was probably the quietest for many years, despite the many items discussed. Much satisfaction was shown at our financial state and it was agreed that priority be given to the purchase and erection of suitable Club Rooms.

W.A.S.

SOUTHDOWN

AS the date gets closer to our away-camp this year more and more activity is concentrated in and around the hangar where the repair and painting of the Olympia trailer is taking place as well as the construction of a "special" to take either the Tutor or our second Olympia. The Nissen hut has now been converted to take the new winch and a flint pathway laid down to simplify ease of entry and exit. Whilst on ground topics, mention must be made of the many members who have very kindly contributed items of equipment to the Club

cottage ranging from a barometer to a television set generously given by Clem White.

Flying for March included one good day's ridge soaring in a north-easterly during which we totalled some thirteen hours soaring. Saturday 26th March saw the start of our cross-country season led, inadvertently (as they say), by Peter Staff and Dennis Dowling in the two-seater when cloud rapidly closed down over the take-off point forcing them to fly out over the valley to land near the farmhouse. We are now looking forward to seeing Dennis's cine film of the flight "filmed on location".

Easter weather conditions, after an unfavourable forecast, turned out to be of the type one dreams about and which usually only arrives on a Monday morning. The writer got away on Good Friday in a westerly wind and an early thermal and found conditions fairly easy including, surprisingly, the damp area of Romney Marsh. Landing was made at Lympne airport, temporary home of the Kent Club, where he was made very welcome by Kent members. (My thanks to our C.F.I. and members who came out through the heavy holiday traffic to retrieve me.) Dick Vanson made a good attempt at a westerly cross-country the following day in a fairly strong north-easterly wind. He reached 4,000 ft. on the way, but was forced down near Ditchling. On the same day Jim Lee completed his C with a satisfying 17 min. flight in thermals in the Tutor; Mike Meek, also in the Tutor, climbed in strong lift in front of a rain squall and later in the day converted to the Olympia. Jim Tucker re-soloed on the Tutor and on Sunday completed his C. Geoff Creffield kept up the good work by converting to the Olympia on the Monday. Altogether a promising start to the soaring season.

One of our new members, Geoff. Tilley, set up something of a club ground record over Easter by walking from Handcross Hill to Firle. Mention must also be made of another of our keen members, Clem, who regularly cycles the 60 odd miles from Kingston to the club at the week-ends.

Correction: In the last "Club News" I incorrectly described Les Allard as our new President. This should have read "our new Chairman". My apologies to Sq. Ldr. Furlong who, of course, remains our club President.

P.W.

SURREY

THE best flight so far this season has been a circular tour lasting 6 hrs. by Rocky Stone. This flight was to have been an out-and-return to Leicester, but conditions necessitated a change of plan half way so Rocky visited Abingdon and Brize Norton before landing at Hartley Witney on the way back. Total distance—80 miles.

Our assembly line of trailers has been working at top capacity. Hugh Hilditch has completed two so far and a third should be completed in a week or so.

The second generation of pilots is coming along well. Jill and James Adair have produced a daughter. Congratulations.

News of the Easter Rally at Lasham may be found elsewhere in this issue. C.J.W.

U.S.A.

THE Annual U.S. National Soaring Championships will be held at Odessa, Texas, this year, from 2nd-11th August. Odessa is well known for producing world soaring records, the present open single-place distance and all open single-place and multi-place speed records having been set there.

Entries will be restricted to pilots with Silver C's and Gold C distance legs in order to hold the number of sailplanes to a manageable level. There will be but one class, open, since participation in other classes in recent Nationals did not warrant making provision for them. Gyro instruments may not be carried in competing sailplanes but, with cloud bases at 8,000 to 10,000 ft., this is no particular handicap.

Distance tasks along fixed, broken courses will be tried for the first time, supplementing free distance and speed tasks, to put more emphasis on distance type soaring and less on speed. We look forward to Philip Wills' participation in this contest.

A week long wave soaring expedition at Bishop, California, is in process as this is being written. Normally there are no sailplanes or towplanes based at this famous wave soaring site where most world soaring altitude records have been established.

This expedition was organised by the Southern California Soaring Association, and so far has attracted five privately owned sailplanes and two club machines. Two Diamond C altitudes have been obtained, one by John Ryan of Scottsdale, Arizona, in a Pratt-Read to complete his

Diamond C badge, U.S. number 16, and the other by Dr. Harner Selvidge in his 1-26. The tug is an AT-6 Harvard.

The U.S. team for the World Soaring Championships is scheduled to fly U.S. equipment for the first time in many years. Dick Johnson, current and five times U.S. Champion and world distance record holder, has just finished and flown his original design *Adastra* in which he expects to compete in the open class. Dick Schreder holder of all single-place world soaring speed records, will fly his new HP-9 in the open class, and Paul Bikle will have a Schweizer 1-23H-15 in the Standard Class.

L.M.L.

YORKSHIRE

THE late Winter at Sutton Bank has given us some very pleasant wave flying and our first Silver C of the season. David Hill climbed to 7,900 ft. to get his elusive Silver height in the Club Swallow. He flew over the local area in wave lift before he landed back home. David Carrow who was visiting the site, rose to 8,800 ft. in the same wave, but landed at Ampleforth.

The Helm wind project has been successful this year. Chris Riddell and Jock White borrowed the standby winch and took it up to the Hartside Range. They arrived there with the Skylark I, on the 26th March, only to find a classic Helm bar and cap. This fascinated them so much that photos were taken extensively. Next day no helm was seen but after rigging and lunch it came back. Chris caught it from a winch launch to 800 ft. and rose to 9,300 ft. Severe turbulence was met with and as he had no oxygen, he went no higher, but flew on to the Lakes Gliding Club, where he was entertained royally to tea.

Over Easter, Ritchie Pick, Joe Wedderburn, with Stuart Morrison, went to the Mynd Rally and they took the Swift. This is the private Swallow that has been developed into something very interesting. First impressions are very favourable and on Easter Sunday Stuart Morrison took the Swift 100 miles from the Mynd to land just short of his goal at Lasham. Joe Wedderburn and Ritchie Pick also flew cross-countries in inferior conditions.

J.C.R.

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