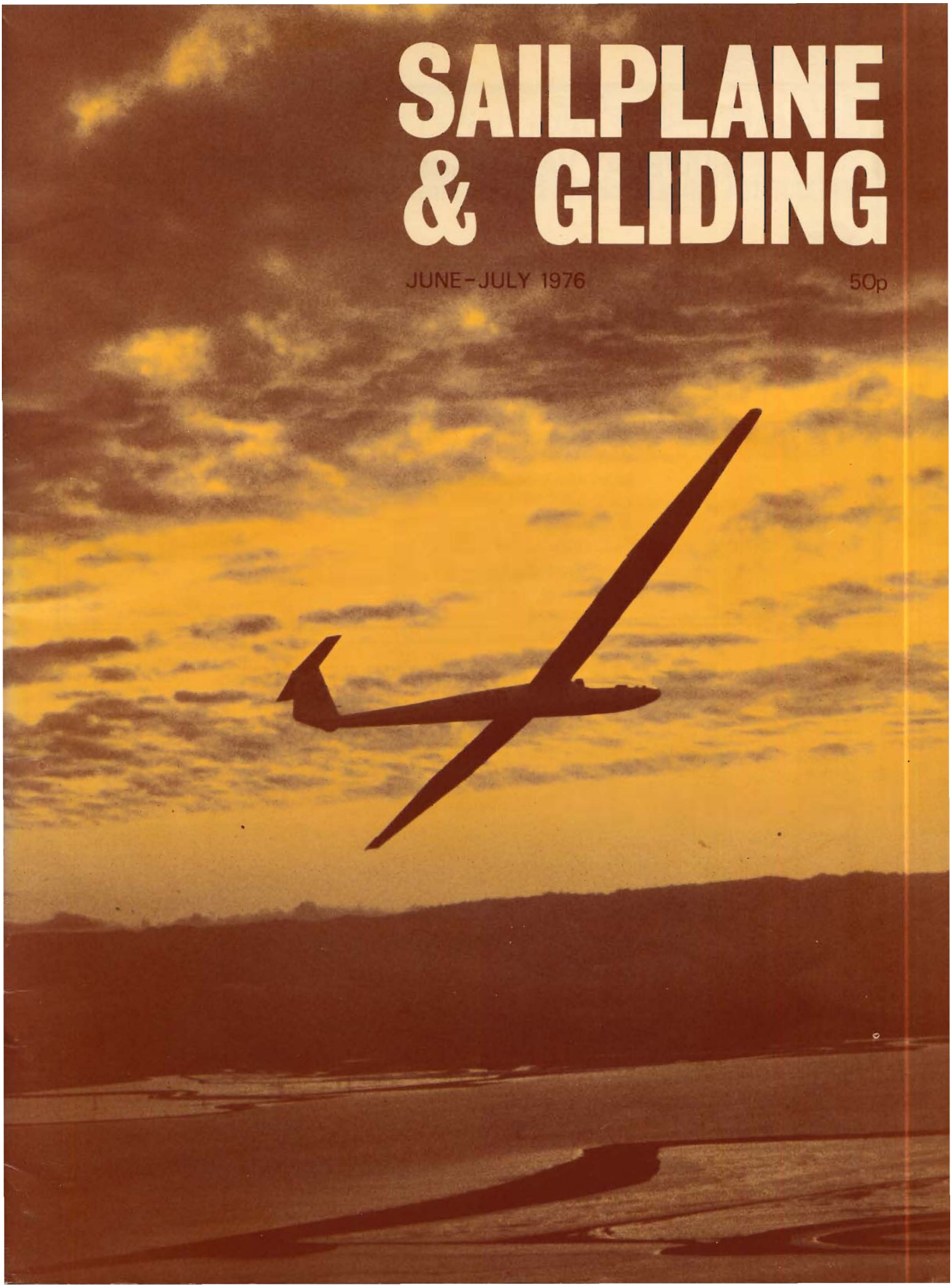
SAILPLANE & GLIDING

JUNE–JULY 1976

50p



Wave Soaring at Sleap

IAN PAUL

Sleap airfield is situated in flat country some 15 miles north of the northern edge of the high ground of the Long Mynd and Stiperstones and 12 miles east of the Welsh border mountains. It is thus well placed for wave soaring in winds between south and west-north-west. Launching is by aerotow and gliders are usually towed to a convenient wave slot upwind of the airfield. Cloudbase during good wave conditions tends to be 2000ft to 6000ft asl with the cloud depth to the wave crest 4000ft to 5000ft above the base. Cloud cover varies from ⅛ to virtually ⅞ and sometimes there is only one small hole or thin patch of cloud through which to descend. Under these conditions recovery onto the airfield is usually by a modified VHF direction finder let down as the hole is rarely in a position from which a safe return to the field can be made from cloudbase. The wind strength on the ground during wave weather is usually between 10 and 30kts and winds at flying levels are 25 to 70kts.

Wave clouds seen between September and March

Heights normally achieved vary between 6000ft and 14000ft with much higher being achieved on the best days. Wave clouds are to be seen between September and March on about 30% of days and our records show that over a 3½ year period there has been a 41% chance of soarable wave conditions during any given winter weekend.

The three highest flights from Sleap by the Shropshire Soaring Group have been 16000ft, 24000ft and 26700ft on different days over a two year period. The following account is about the latter flight in a Std Cirrus on Sunday, October 5, 1975.

The wind on the ground was about 260°, 20kts and there was ⅞ cloud cover over the airfield, reducing to ⅝ some miles to the west and north-west. From the ground the cloud looked like strato cumulus but the gaps to the west were at right angles to the wind.

I was launched at 13.00hrs and released the tow at 2800ft asl over Rednal disused airfield some six miles to the west of Sleap. Vic Carr (Kestrel 19) had earlier released in this spot and reported that the wave was working. He was at this time at about 6000ft working northwards.

After a short search I found 2—3kts of lift which quickly increased to 6kts and I climbed up past cloudbase at 6000ft. The cloud gap in which I was climbing was in the form of a very narrow V with the open end towards the north whilst I was almost at the southern closed end. At 8000ft the lift reduced so I set off northwards towards Ellesmere flying along the eastern edge of the V. As the V opened I was presented with the magnificent sight of an almost vertical wall of cloud from 6000ft to 9000ft curving gently intowind until it terminated at Birkenhead some 35 miles to the north. In the face of this wall at various levels were set the leading edges of lenticular clouds looking like inverted plates sticking out of the cement of the wall.

At 8500ft near Ellesmere I could see that with the exception of a thin high lenticular cloud (*thl*) to the north-west of Wrexham there was no other cloud above the layer past which I was climbing. This *thl* therefore became my objective and as the variometers were now showing only 1 to 2kts, I decided to transfer to the next wave upwind of the southern end, about two miles south-east of Chirk. The transfer at 90kts cost me 2700ft and I arrived under the upwind edge of the very black cloud at 5800ft. Lift was contacted immediately and the audio variometer started to whistle happily to the tune of 6 to 8kts. As the wind was about 40kts I could hold the same position over the ground and climbed steadily to 13000ft with the glider's nose making a vertical groove in the eastern edge of Amber 25 airway. My pulse was now doing 120 per minute so it was time to go on oxygen. A call to Vic confirmed that he was also planning to sample the *thl* and was executing similar moves to my own.

From well above the top of the cloud layer one could now see that the wave slots were confined to the area immediately downwind of the high ground on the Welsh border. To the east and particularly to the west over Wales, the cloud layer was virtually unbroken. My narrow wave slot curved a little to the west over the top of Wrexham to a position under and about two thirds of the way back from the leading edge of the *thl*. Increasing speed to 65kts, I set off northwards still climbing and was pleased to find that 15500ft was soon passed so that it was possible to fly with a clear conscience over the top of Amber 25 to directly attack the *thl*.

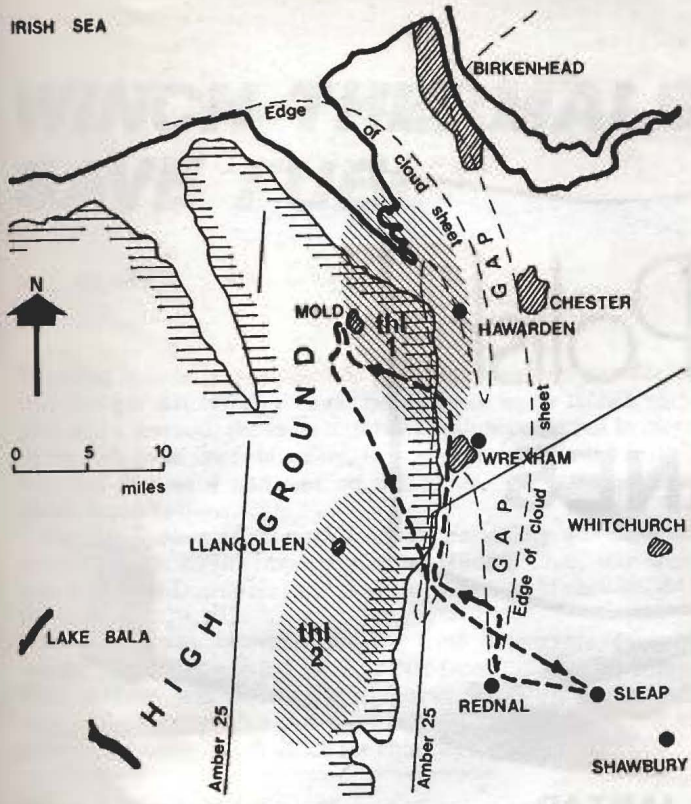
From the width and vertical curvature of the *thl* it could be inferred that the upper wave system had a wave length of 25—35 miles, so that under these conditions this may be the primary wave off the Snowdon range. Certainly there was no other wave cloud upwind of this one, even right down to the lower cloud sheet. As the wave length of the lower system through which I had climbed was the more usual 6—7 miles, it looked as if the transfer to the upper system might be difficult.

Mentally pocketed a Diamond as the climb increased

I decided to follow my present wave keeping as high as possible until I was under the southern edge of the *thl* and then to work north-west towards its leading edge. At 17000ft I made my move and flying at 65—70kts crept out under the *thl:* the rate of climb fell from 1½kts to zero and stayed there for a long time then slowly came to ¼kt, then ½ and eventually up to 3kts as I moved out under the upwind edge. Now pointing west and flying at 60kts, I noted that the base of the *thl* was at 19000ft. The climb increased to 5—6kts and I mentally pocketed a Diamond as the Std Cirrus climbed smoothly through 22000ft (I had earlier decided that a 19000ft gain would give a good safe margin). Behind me the crest of the lenticular fell below the horizon at 23000ft; so the *thl* was not so *thin* after all, it was 4000ft thick but just looked thin because of its great horizontal extent.

The oxygen gauge showed 50% remaining which was a satisfactory level. A call came over the radio from Vic at 20000ft "Oxygen failure—diving"; a pity because the Kestrel would undoubtedly have gone higher than the Std Cirrus in the same wave. This later turned out to be due to wet oxygen freezing in the pressure reducing valve.

The rate of climb had now fallen to about zero so I increased speed to 75kts and moved westwards finding 1½kts again. I



decided to see how far it would take me and maintaining my position over the cloud pattern now far below continued to climb gently. Down in Amber 25 incredibly small 707s were scuttling along. To the SSW about ten miles away a further *thl* was now forming at the same height. Above, the sun was shining out of a clear blue sky and this was keeping me reasonably warm although my feet were becoming cold.

The whole of Wales was covered by an unbroken cloud sheet, the top of which was at about 9000ft, with here and there a steep wave crest embedded in the top of the sheet. To the west the sun was shining on Caernarvon and Cardigan Bays whilst to the north the Irish sea was visible as far as the eye could see. In the extreme west a dark line just below the horizon was suggestive of the shadow of a cloud layer, possibly over the Irish coast.

At 26700ft I could squeeze no more out of my wave and pondered briefly on trying the now quite large *thl* to the SSW as it looked more impressive than my *thl* and might produce 30000ft or more. A check of the oxygen showed 30% remaining and as it would take an hour or more to descend, and also my feet were becoming rather painful, I decided to return to earth.

I opened the brakes and moved to a position near Chirk letting down through a hole to about 5000ft. The rate of sink was held to 6kts and I indulged in nose blowing every 2000ft to minimise unpleasant physiological effects.

On landing the whole aircraft was found to be dripping inside and out with condensation due to the low airframe temperature. On the ground the oxygen gauge showed 25% so perhaps there would have been time to try the second *thl*. I had spent two hours on oxygen, the whole flight lasting 3¾ hours.

The *thl* is seen regularly from Wrexham during wave conditions with the wind in the west. Most of these occurrences are inevitably mid-week when we do not fly, but just occasionally it happens at a weekend. It would seem reasonable to assume that 30000ft or more is available in the area and it was probably achievable on this occasion in a Kestrel.

On reflection it seems that we have until now misjudged the magnitude of this wave system. It is much higher and of much greater wave length than we normally encounter, so that a considerable mental re-adjustment is needed to appreciate the possibilities. Full exploration will need oxygen systems of up to five hours duration and improved thermal insulation for the feet and legs.

SLEAP'S SUCCESS FORMULA

Ian Paul is a member of Sleap, a small soaring group attached to the Shropshire Aero Club. The background to the club is interesting and their record impressive. JOHN JEFFERSON has amassed the Group's statistics and gives some of the details.

In the early 1970s Ian, a founder member of the Newcastle and Teesside GC, wanted to start a soaring club in his locality and thought the Sleap site, about eight miles north of Shrewsbury, would be favourable. It was a war-time airfield and the Shropshire Aero Club was allowed to fly from there and use some of the buildings. When the 400 acres of land was sold in 1971 the club made an agreement with the buyer to allow them to continue operating.

Ian contacted the committee in early 1972 for permission to form a soaring group and it was decided this would be acceptable if all gliders carried radios, were controlled by the tower for take-offs and landings and that there should be no training.

He cast around for some likely lads who would form a group not exceeding eight sailplanes and they were soon assembled. The qualification of the members was to be not less than a Bronze C. The next step was to get a tug and build a hangar.

What wasn't realised at the start was the excellence of the site which from autumn to late spring is frequently blessed with strong wave from the Welsh hills some 15 miles to the west. We have had many wave flights of over 5000ft and the site record is 26700ft.

We have now flown for three full seasons and the set-up has been one of success and promise. Today there are 17 members with a K-13, Sky, two K-6s, Dart 15, Std Cirrus, Std Libelle and Kestrel 19.

If you take the cross-country kilometres per launch as an indicator of success, then the extract calculated from the results of 96 clubs in the Feb issue of S&G (p32) shows:

Polish AFA	19.6	Shropshire	16.2	Norwich Soaring	14.1
Coventry	13.7	Hereford	4.6	Cambridge Univ	4

If you take the ratio of Silver C badges per season to total members as an indicator of success, the results for the 1974/75 season show:

Club	Members (A)	Silver Cs (B)	B/A
Shropshire	18	6	333
Enstone Eagles	45	5	111
Inkpen	110	10	91
South Wales	91	7	77

Note: B/A expressed as a whole number gives the chances per 1000 of a random member attaining a Silver C in that season.

We really welcome visitors and they should contact Ian Paul at Fairfields, Cross Lane, Oscroft, Tarvin, Chester. Tel Tarvin 40787. We could take one or two more syndicates and Ian will give information.

Our results show what can be done by small groups lucky enough to find a site and determined to fly.

Breakdown

Husband and wife driving past Newtownards airfield. Husband catches sight of an Ulster GC glider on tow:—

"Look—there's a glider being launched."

Wife: "Oh look—it's being towed by an aeroplane. It must have broken down."

R.R.R.