The silent service

The Aeroplane

JOHN SPROULE recalls his involvement with the Hotspur glider, both in Britain and America

I was most interested to read Bill Gunston's piece about the General Aircraft Hotspur in *Aeroplane Monthly* for July. I had a very intimate brush with this glider while serving in the RAF during the war, and the article brought it all back!

I was one of the small band of pre-war civilian "glidists" combed from the various services, I think with the aid of the legendary Harold Perrin of the Royal Aero Club, to form the nucleus of gliding expertise in the RAF. I happened to be serving in the Fleet Air Arm at Worthy Down, happily flying Proctors and Blackburn Sharks, when I received the news that it would be a good thing if I agreed to volunteer to help to start a rather hush-hush enterprise in the RAF for which I was particularly qualified. So, issued with just sufficient petrol coupons to reach Ringway, I arrived to find parachute training in full swing and a bunch of my old peace-time gliding mates in a motley of uniforms ranging from the Pioneer Corps to the Brigade of Guards! The hush-hush job, I was told, was teaching the Army to fly troop-carrying gliders.

I was forthwith instructed to proceed south again, in company with some of the above ex-peace-time gliding people, to RAF Haddenham near Thame, where we were informed the place was to be called No 1 Glider Training School. The field, an ex-flying club "aerodrome", was rather on the small side, with two canvas Bessoneaux hangars surrounded by a sea of mud! The flying equipment consisted of six impressed Kirby Kite single-seater sporting gliders, six brand new Tiger Moths, and an ex-banner towing Avro 504K.

With this equipment, and under the leadership of Squadron Leader Tim Hervey MC, ex-CFI, London Gliding Club, we were charged with the task of establishing military gliding training in the RAF.

Thus began a long and running battle with 23 Group and RAF Training Command, who, while they knew nothing of gliders and the aeroplane towing thereof, viewed the ex-gliding club recruits like myself with the deepest misgivings, and attempted from time to time to lay down the law as to how to fly gliders. The training hierarchy had a deep-rooted suspicion that all we were really interested in was catching things called thermals and performing a compulsive and mysterious form of flight called "soaring". This—a black art they knew nought of—was a most un-

Heading picture *shows a quintet of Hotspurs being towed by Hectors.* **Below,** *G.A.L. Hotspur II BT596 is towed to take-off position.*

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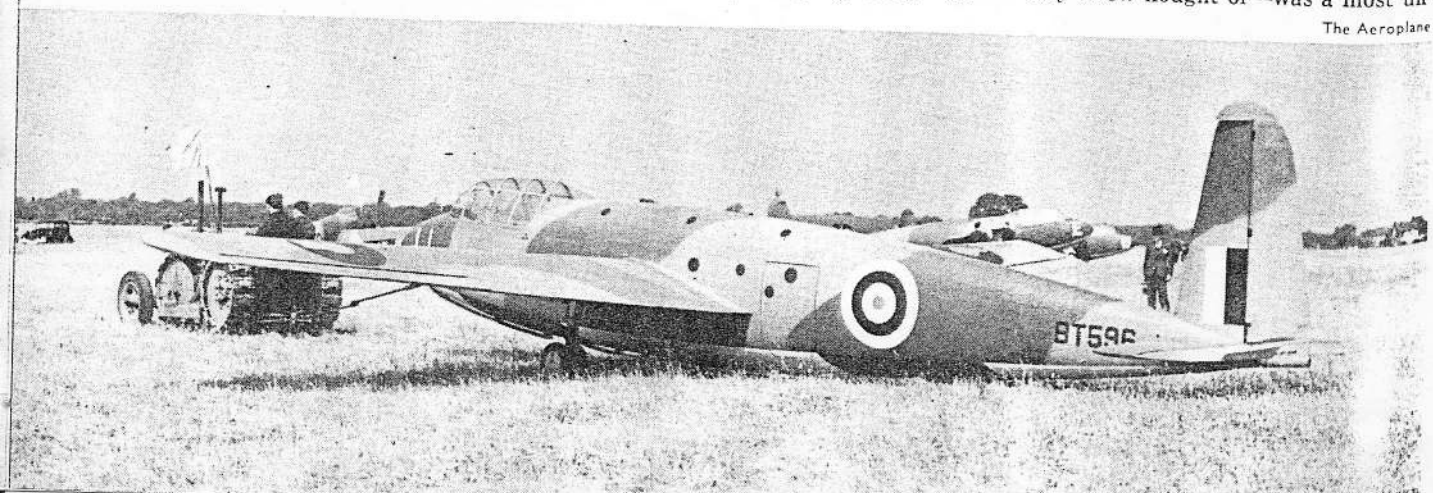
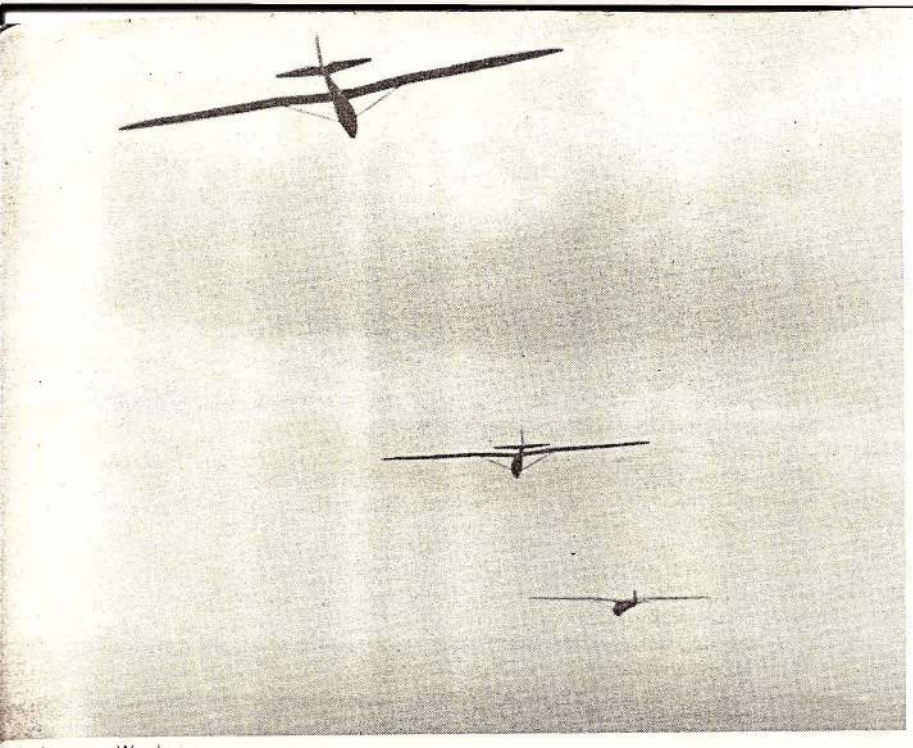
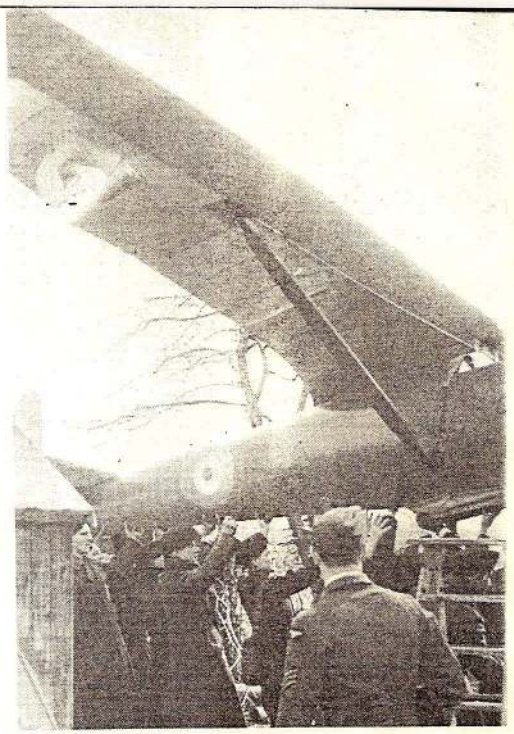




Lawrence Wright



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Above left, *three Kirby Kite single-seat sailplanes at Haddenham (Thame) in 1941.* **Above,** *the first prang in the history of British military gliding—on the roof of the Sergeants' Mess, Thame, 1941.*

RAF form of flying, and was moreover invented by the Germans and therefore very wicked indeed!

In due course a training syllabus was settled and we set about training our Army volunteers in the basics of flying in the Tiger Moths. After some ten hours solo in these they were sent solo in the Kirby Kite gliders towed by the same Tigers. The volunteers were a remarkable lot who had opted to fly gliders for a wide variety of reasons. These ranged from a hoped-for escape from peeling spuds to matrimonial difficulties—and extensive experience of flying the Bf109 in the Spanish War! One of our most apt pupils was a young Glaswegian who could only read and write with the greatest of difficulty, and who communicated in a dialect as indecipherable as a variant of Swahili. Later in the war this lad flew a Hamilcar to Arnhem with great gallantry—and he now manages a distillery!

In a remarkably short time all these splendid chaps became adept at flying the Kirby Kites, and one day a visiting Wing Commander from CFS, an instructor of vast experience, nearly had a seizure when, on asking to interview the first batch of pupils, he was told they were all thermalling under various clouds in the neighbourhood in the six Kirby Kites, and were unlikely to return to the airfield until the sun went down. A Tiger Moth had to be sent to round them all up and shoo them back to base to be cross-examined by the now semi-incandescent Wing Commander!

Eventually the first Hotspurs arrived at Thame, and with them a handful of Hawker Hectors as tugs. We were thus called upon to extend our activities to embrace this more advanced equipment, and in point of fact this turned out to be comparatively easy and simply a matter of scaling up the procedures we had evolved with the Tigers and Kirby Kites. The Hector was a most enjoyable beast to master —with two wings and an 800 h.p. Napier Dagger engine the climb was phenomenal—and as a towing aircraft it performed admirably. I was given the task of converting the now steady intake of new glider instructors to towing in the Hector. These chaps were mostly ex-Oxford experts of very gloomy mien to whom a posting to No 1 GTS was rather like being sent to the galleys. As the dual arrangements in the rear cockpit of the Hector were on the sparse side, operating out of the rather small Thame field was a little exciting at times, even with my experienced pupils.

First arrivals

The Hotspurs which arrived at No 1 GTS at first were of the Mk 1 long-wing variety, and to us old glider chaps it was clear that the machine had been designed by someone who had little knowledge or experience of gliders. The machine was clean and handled quite well in the air, but for some peculiar RAE reason the towing release was in the belly—and not in the obvious position in the nose. The other more fundamental fault was the positioning of the undercarriage. The brakeless wheels were situated quite far forward and not sufficiently far down to permit a three-point landing with attitude. They were also not sufficiently far back to permit the usual glider practice of pushing the stick forward after landing to rub the skid on the ground to act as a brake. So, in this important respect, the Hotspur was neither one thing nor another, and if an approach and landing were made a little too fast, the landing run was enormous and the machine could not be stopped *in extremis* except by ground looping.

Even with only two up in a Hotspur one had to cross the hedge at 50km, so of course crashes were inevitable. One day, as confidently predicted, a Hotspur overshot the Thame field and ran into the railway cutting which formed the western boundary. When I inspected the splintered wreck, which stopped the normal running of the trains for a number of hours, I was horrified to discover the tailplane main spar to have extremely slender spruce flanges. I should mention that I had had considerable experience of such matters in my peace-time job at Slingsby Sailplanes. The said spar flanges seemed to me to be weaker at the centre than those incorporated on single-seater sporting sailplanes, where towing speeds never exceeded 70 m.p.h. Here were weaker structural members of vital importance on a machine of eight-seat capacity which towed at 120 m.p.h!

Needless to say, I began to ullulate about this alarming fact to anyone who cared to listen, but to no avail, as there was a war on, and with Lancasters being lost in numbers every night, who would listen to a fairly junior driver-airframe about a petty-fogging thing like a glider with a weak tailplane! And had not the Hotspur been designed by proper aeroplane designers who should know all about stressing, etc. etc?

In due time the Hotspur IIs began to arrive with the span reduced by about 10ft each side. We were told that this was on account of the fact that someone had gone over the sums once again and had discovered to his horror that, with the long span, the loaded Hotspur had minimal safety factors and reducing the span was the only solution. It was indeed a pity that the same chap had not extended his checking activities to the tailplane, as sure enough, with the expanding tempo of usage as time went on, Hotspur tailplanes began to collapse, with a considerable number of fatalities. Eventually this was corrected by the addition of supporting struts from the fin to the tailplane, but in the meanwhile, for someone like me who had some inside information and experience, instructing on the Hotspur, with fast dive approaches in the syllabus, was rather an anxious business.

Continual trouble

In due course I was moved to No 2 GTS at Weston-on-the-Green, and here our activities were greatly expanded. The place fairly hummed with Hotspurs being towed off, making circuits and being retrieved. The Hotspur continued to give trouble in many minor ways, and at one time we had a serviceability rate of 30 per cent, i.e. much lower than the engine-equipped tugs, which seemed rather a daft state of affairs.

Among other things we had a spate of cockpit hoods flying off just after take-off. It must have been an alarming experience for the pupil soldiers on, perhaps, first solo, suddenly to find themselves goggleless in a 120 m.p.h. slipstream. We could always tell when this mishap had occurred by the wild undulations of the glider as the terrified pilot ducked behind the instrument panel to try to escape from the blast of wind. The hoods flew off, we discovered, because the wood screws holding the hinges only penetrated about $\frac{1}{8}$in due to the insertion of packing blocks to adjust the fit of the hood. Longer screws fixed the trouble.

Another source of much Hotspur unserviceability was the tail skid. This was a most complex affair, with sharp edges which dug into the hard ground and ripped it out when the aircraft was being turned during the tractor retrieval process. Accordingly I designed an ash extension of the main skid with rounded contours for the turning manœuvre, and the problem was solved. We placed an order for 20 of these local modification skids with the village wheelwright at a cost of about £1 each, financed out of the local purchase fund. When the proper official mod arrived it was still highly complex, even more costly than ever and no better than the original skid.

I ended my time with Hotspurs at the Navy Yard in Philadelphia, a most unlikely place for a British training glider and indeed for myself. I had been approached in mid-1942 to act as CFI at a proposed Royal Canadian Air Force GTS opening up in Canada, and in consequence some 20 Hotspurs were shipped to Toronto, where I insisted that they be modified to suit the local environment.

As there was surplus of woodworking capacity going spare at de Havilland's Toronto plant during a change over from Anson to Mosquito production, I was able to insert the 20 Hotspurs, with *carte blanche* to have them sorted out to my requirements. This was a splendid state of affairs, impossible in the RAF, and my first preoccupation was to design a modification to the centre of the tailplane spar to make good the inherent weakness. This consisted of a block of wood scarfed into the existing members to increase the cross section at the centre and to eliminate the very dangerous sharp changes of section.

In a short time all the machines were modified and, after some test flights using a Lysander as a tug, came the news that the whole Canadian GTS project was cancelled, and the Hotspurs were to be written off. There was no question of shipping them back to the UK, as room was needed in the transatlantic shipping for more important cargo.

It so happened that the news that 20 Hotspur gliders were going begging in Canada came to the notice of the US Navy Yard at Philadelphia, and in remarkably short time I was told to organize their transfer to the USA. I was to accompany them to show the USN how to fly them.

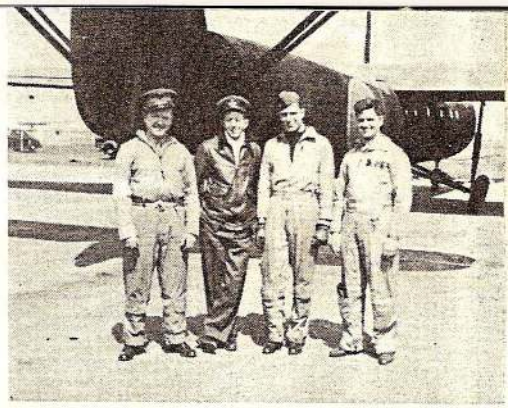
On loan to Project George

Consequently, I found myself on loan from the RCAF to the USN (with concomitant and startling increases in pay and allowances, I might add) for duty at the Navy Yard, Philadelphia, in an outfit called "Project George". Under the leadership of Cdr Ralph Barnaby, USN, they were investigating the problems involved in the automatic towing of large television-guided gliding bombs, and the Hotspurs were wanted as expendable airframes in this very interesting project. The chap who had sold the idea to the US Navy, and who was responsible for the design of the tug-following automatic pilot to be fitted to the glider, was a colourful character called Moulton B. Taylor, then serving in the USN. Mo Taylor has since achieved fame for the development of a successful roadable aeroplane and some small amphibians.

In Project George I made a number of good friends with whom I keep in touch to this day, and I was able to fly a variety of light aeroplanes converted to glider status by the removal of their engines and the moving of the seating arrangements forward. The Piper XLNP and the Taylorcraft

Hotspur Mk Is had 16ft greater wing span than the Mk II. Seating was in tandem, and exit was via a removable roof, not by doors.

via the author



via the Author

Left, *Cdr Barnaby is third from the left in this group in front of the Bristol XLRQ glider at Philadelphia in 1943.* **Above,** *l to r, Lt Reilly USN, the author and Capt Figley USMC in front of the Horsa at Philadelphia.* **Below,** *the Bristol XLRQ glider afloat. The wing roots acted as sponsons.*

XLNT conversions came into this category. But hidden away in the recesses of the Navy Yard was a simply enormous wooden glider in the course of construction, which I was told was to be filled with explosive and towed in the general direction of Tokyo—to be guided on to its target by radio and the television camera which was to be mounted in the nose. It was designated LRN-1, but was commonly known as the "Glomb". Hence the activity with the smaller gliders and the need for the Hotspurs in the development work.

Soon boxes began to arrive from Canada, some of the Hotspurs were rigged and I checked out various USN and Marine pilots, using a variety of tugs including a PBYM Catalina amphibian. When the Hotspur programme was well under way, I was informed that my stay was to be extended to cover the arrival and test of an Airspeed Horsa, which was due to be delivered from the UK to give Project George some experience in the operation of large gliders before they undertook the test of the monster glider nearing completion.

Accordingly, when a number of very large crates arrived enclosing the expected Horsa, I was forthwith instructed to assemble it and show everyone how to fly it. I pointed out to Cdr Barnaby that I had only flown a Horsa on two occasions totalling some 45min, and could hardly be called an expert. He replied, "As you have actually seen one and you have 45min more time on it than we have —you are the expert".

So, with three US Navy mechanics and a crane driver we broke open the cases and started to put the Horsa kit together. I remember the machine was beautifully packed and everything was intact and complete, except, needless to say, for the publications and rigging instructions, which no doubt were baffling some unsuspecting chap in Cairo. So we simply rigged the machine from first principles, and when the crates were empty and all available bolts were in the obvious holes, the Horsa was ready to fly!

I will never forget sitting in the Horsa we had built by the light of nature, so to speak, with Cdr Barnaby bravely sitting beside me busily wisecracking and chewing gum, waiting for the Catalina to tighten up the tow rope for the first flight. We left the runway in fine style. The Horsa handled perfectly behind the PBY and we did a tour of the city and neighbouring Wilmington to an admiring multitude, before casting off and sitting down gently in the US Navy section of what is now Philadelphia's civil airport.

There was great eagerness among the US Navy sailors to fly in the plywood monster from England, and I made several more full-load flights with various US Navy pilots until everyone was satisfied that I had taught all that was necessary for them to know about the "bird".

Looking at the photographs of the enterprise now, the Horsa looked—and was—a large flying machine to be tinkering with when I had so little background on it—but I had had considerable experience on the Hotspur, and I am sure if you could fly the rather hot Hotspur instructing Army pupils as I had done—without breaking it—you could fly anything that could be aero-towed. And what better compliment can one pay to any training flying machine? In spite of its great shortcomings in detail, the Hotspur, never designed for the training of glider pilots, was a most successful and fortuitous adaptation which did an excellent job and made the great glider Armadas of World War Two possible.