A personal history of Royal Air Force Station Harwell

by Jim Jones

Editors note

Jim lived in Uffington, Oxfordshire, a short distance from RAF Harwell where he was an armourer during 1939-45 war. He wrote this history in the early 1980's but to the best of my knowledge it was not published before Jim died. At the time of editing in 2011 the photographs that Jim planned to include were not available, but equivalents and additional images have been added to Jim's text.

The beginning

The lifespan of Harwell as a Royal Air Force Station was less than a decade although RAF connections go a little beyond this.

In the early 1930's the area was largely green fields, with a farmhouse, a few cottages, and gallops associated with the local horseracing community, the latter still very much in evidence.
An official requisition of some of this level countryside was followed by its use as a temporary night landing ground for RAF aircraft. Such land once requisitioned by the services is hard to prize free from official control and in April 1935 it became impossible to do so when it was decided to build a permanent bomber station here.

"The Times" later recorded that 200 acres had been purchased for £11,650. Construction commenced in June 1935, and was still going on when advance parties from RAF Abingdon began to arrive in February 1937.

One of the earliest arrivals to the new station recalls that when he enquired at Didcot railway station as to the location of RAF Harwell no-one seemed to know, until a bus conductor suggested "That be that there drome at Ilsley". On his arrival he had to sleep in a cell in the guardroom because there was no other accommodation ready. A photograph which he took from the top of the water tower already shows Hangar 7 still under construction.
He also recalls a later incident when practically everyone was awakened in the early hours by a terrific din from the barrack square, a site now occupied by building 354. Barrack room windows were flung open and heads popped out to observe the spectacle of a police car chasing another car around the square trying to stop it. It later transpired that and airman had got drunk "borrowed" a car which he had driven straight through the main gate, singing at the top of his voice, with the police car in hot pursuit.
The practice of "borrowing" more often involved bicycles, removed from the local railway station, cinema or dance halls, later to be found abandoned in ditches or behind hedges around the airfield.

The first squadrons

April 1937 saw the arrival of No 226 Squadron with Hawker Audax, and later that month No 105 Squadron was reformed here also with Hawker Audax. They were initially equipped with the Army Co-operation version partly due to bomber shortage and partly because No 1 Bomber Group, under whose control Harwell operated, also had an Army Support function.

During June they were joined temporarily by four squadrons of Avro Ansons whuch were to take part in a fly-past at the Hendon Air Display.

On 14th June, Hawker Hinds of No 107 Squadron arrived from Old Sarum to complete Harwell's bomber complement.

It has been said that Harwell also had Hawker Harts. This may be true as many stations had a few Hart (T) trainers, although there also existed a Hind (T) dual cockpits and controls. They could have been either since these aircraft look very similar at a distance.

HARWELL SQUADRON BADGES PRE-WAR

The badges and identification markings of the three squadrons are reproduced below.

Motto translation	VALIANT IN BATTLE		WE SHALL BE THERE		FOR COUNTRY NOT SELF	
Unit identity	1939	MT	1939	BZ	1939	KP
Markings	1939-1945	GB	1939-1945	OM	1939-45	MQ

Unit identity markings were changed at the outbreak of the war.

The King's visit

Monday 9th May 1938 saw large crowds gathering on the Oxford-Newbury road near to the airfield. Word had got round that His Majesty King George VI would be visiting Harwell, as part of his tour of four different commands of the RAF: Northolt (Fighter), Harwell (Bomber), Upavon (Training) and Thorney Island (Coastal Command).

Just before 11.30 his scarlet and blue Airspeed Envoy G-AEXX flown by the Captain of the Kings Flight touched down on the airfield. (see photo)

He was accompanied by the Chief of Air Staff, Air Chief Marshal Sir Cyril Newall. As the King stepped from the aircraft, the Royal Salute was given and the Royal Standard unfurled.

He was met by the AOC in C Bomber Command, Air Chief Marshal Sir Edgar Ludlow-Hewitt, the AOC No 1 Bomber Group, Air Vice Marshal P.H.L Playfair, and the Station Commanding Officer, Wing Commander L.G. Maxton.

Apart from Harwell's Fairey Battles and Hawker Hinds, which were drawn up in immaculate lines for his inspection, there were the Bristol Blenheim, Handley Page Harrow, Armstrong Whitworth Whitley and the Vickers Wellesley, which had been flown in as a representative selection of aircraft of Bomber Command, more particularly the newer types.

The King spoke with all the pilots of the visiting aircraft and with Squadron Leader Tuttle, the C.O. of 105 Squadron, now Air Marshal Sir Geoffrey Tuttle. After a very comprehensive tour of all technical departments, airmens quarters, the cookhouse, NAAFI, NCO's and Officers married quarters, where he acknowledged the waiting crowd, he returned to his aircraft.

As the Envoy taxied out for take-off some 50 minutes after his arrival, a formation of nine Fairey Battles dipped in salute and the Envoy was off heading for Upavon.

The Harwell catapult

It was about this period that work began on the building of a catapult at Harwell. It is thought there was no connection between this and the type of aircraft which were based here. It was a suitable site, conveniently situated to the Royal Aircraft Establishment at Farnborough, whose project it was, because there was no room to site it there. Work continued on it for the next five or six years, and it was more or less forgotten by those stationed at Harwell, until it was "rediscovered" in 1945.

The catapult pit was excavated and restored in 2002 and the report published by AERE following the work is attached to this history.

All squadrons continued their realistic training, practising their intended wartime role, and Nos 105 and 226 Squadrons were earmarked for the Advance Airstrike Force in France, should the need arise.
A very exciting visitor arrived in the shape of the Martin Baker MB2 which made its first flight at Harwell, flown by Captain V.H. Baker on 3rd August 1938. Its civil registration G-AEZD was later changed to P9594 when it adopted the standard fighter camouflage pattern. It was a low wing monoplane with fixed trousered undercarriage, and was tested at Martlesham Heath later that year. It was respected as having excellent accessibility for servicing and repair, but was very unstable in flight giving a very uncomfortable ride. The report called for modifications to correct this. In May 1939 it was demonstrated at Heston with a new fin and rudder where it showed a top speed of 350 m.p.h. which for speed it came between the Hurricane and Spitfire. It was not ordered for production.

In August 1938 No 107 Squadron entered the modern era when they were equipped with Bristol Blenheims just in time for the Munich crisis, when many operational squadrons had been put onto a state of readiness.
There was a certain amount of relief when Neville Chamberlain flow back to Heston, following his meeting with Hitler in Munich when, hat and brolly in one hand, he waved his piece of paper with that historic cry “Peace in our time”.
Many servicemen perhaps accepted this at face value, but many others gave a sigh of relief, and only saw it as buying time. The RAF despite the many Expansion Plans was ill-equipped for war, and as it turned out the Prime Minister had gained a breathing space for a year, which enabled them to build up their offensive and defensive force to the point where they might stand some chance against their German counterpart.

Harwell’s state of alert was very high, The war plan was all but enacted, and halted by that last minute agreement.
This was fortunate for Harwell’s squadrons equipped as they were with Merlin I engined Battle I’s as no Merlin I spares were earmarked for the Advance Air Strike Force, and in October they exchanged for Battle II’s with No’s 35 and 207 Squadrons at Cottesmore. These non-mobilised units were not earmarked for the AASF.

It was during 1938 that an extension building programme commenced which included new buildings now known as 150, 154, 16, 168, 173, extensions to 142, 22 married quarters, three bulk petrol installations and some lesser buildings, most of which were not taken down until the outbreak of hostilities.

Winter 1938/39

As the winter weather came on the surface of the airfield became waterlogged, and although experiments were carried out using cinders and wire netting they were not a success. Only concrete or better weather could improve the situation.
Meanwhile No 107 Squadron's short-nosed Blenheims had been modified to long-nosed versions in Hangar 10, and they greeted the arrival of the French Premier M.Lebrun in May 1939 before moving out to Wattisham later that month.

May 20th saw Harwell in common with many other RAF Stations, open the gates to the public for the Empire Air Day Display. Apart from the actual flying display, which for the general public was no doubt the highlight of the day, there were static exhibits and the aircraft park where many different types of visiting aircraft were on view, no real novelty perhaps except for some of the inhabitants of Harwell village, who were quite used to seeing Eric Greenwood the well known pilot land in the local fields, and had often helped to manhandle the aircraft when he visited his parents who lived in the Harwell Brewery, opposite the White Hart.
Eric Greenwood, later as Chief Test Pilot of Gloster Aircraft Co., and Group Captain H. J. Wilson were the pilots flying Meteor IV's on 7th November 1945 which raised the World Air Speed Record to slightly more than 606 mile per hour, the service pilot taking the honours by just over three miles per hour.

But to return to 20th May, it is recorded that 1100 cars, 16 "charabancs" and 11,000 people visited the station that day. The following day normality returned and Harwell's squadrons continued to practice their intended war-time role.

Training at Harwell was to feature Bomber Command's intention to operate in formation by daylight. Typical of these training flights were No 149 Squadron's flight in formation over Paris on 14th July to celebrate the 150th anniversary of the fall of the Bastille, and the formation of 64 No 3 Group Wellingtons from Manston to Marseille and return on the 19th and 25th July.

Prewar training of aircrew was carried out on operational squadrons where pupils flew as substitutes or supernumaries; this under wartime conditions was obviously impractical.

The war begins

An abrupt change came over Harwell when on the morning of September 2nd 1939, No's 105 and 226 Squadrons, now forming No 72 Wing, flew to France, and to an ultimate brutal mauling. By the end of the day all families had been evacuated from the station.

If anyone was left in any doubt, the remaining staff of the station gathered in the Main Stores, Building 30, to listen to the Prime Minister's broadcast, which told them that as from 11 am on 3rd September a state of war existed between us and Germany.
Reactions were probably no different here than on other RAF Stations when the air raid siren was tested just afterwards and many airmen looked skywards wondering when the first air raid would come. Machine gun posts around the airfield perimeter were manned and a nearby 'Q' site was established. This was situated just south of the Stanmore-Peasemore road, where at night a dummy flame-path was laid out, with a flashing beacon on the Tumulus to the north of the road, which it was hoped would attract enemy bombs away from the airfield. At times the dummy flame-path might be moved to the wood to the west of the present Ilsley by-pass, while the beacon was at times located on Churn Hill.

Harwell was not to remain quiet for long. By September 17th Vickers Wellington Mk I's of No 75 Squadron and Avro Ansons of No 148 Squadron had arrived, and the station was out under No 6 Group control. It was to train crews for No 6 Bomber Group situated in East Anglia.
The first wartime loss from Harwell occurred on 18th September with Wellington L4256 when the navigator got lost. To add to the problem the wireless was not working. After vainly trying to establish their position, with just getting low and mountains below, the crew abandoned the aircraft, which crashed at Glyn Neath, Glamorgan.

November 17th saw the first of many service burials in the War Graves plot in Harwell Cemetery, that of Pilot Officer William Ronald Ross who was killed on 14th when his aircraft crashed between Folly Farm and Hagbourne Hill while on ferry duties.
(Originally the aircraft had been stated to be a Blenheim, in fact I had originally heard this in December 1939, but now suggestions are being made that it was a Spitfire. Where the aircraft was being ferried from and to have not been established.)

Wing Commander Griffiths, the CO of 99 Squadron, visited Harwell in January 1940 and related how 5 out of his formation of 12 Wellingtons were lost operating over the Schilling Roads on December 14th and another crashed on final approach to Newmarket.

On 18th December, 22 Wellingtons attacked warships at Wilhelmshaven. 10 were shot down and three more crashed on return to UK. It had been expected that the concentrated fire power of a tight formation would overwhelm or at least deter fighter attacks, but with firepower concentrated in the tail, German fighters had developed a beam attack. Because of this, and the fact that these aircraft were not fitted with self sealing fuel tanks, the policy was changed to night operations, which laid greater emphasis on the development of navigation skills.

SQUADRON BADGES AFTER 3rd SEPT 1939

75 SQUADRON BADGE
APPLIED ONLY AFTER
UNIT REFORMED LATE
APRIL 1940 AT RAF HARWELL

MOTTO	FOR EVER AND EVER BE STRONG			
TRANSLATION				
UNIT IDENTITY	1939	FO	1939	BS
MARKINGS	1940-45	AA (NEW ZEALAND SQDN)	1943-45	FS
	1944-45	JN (NEW ZEALAND SQDN)		

BOTH SQUADRONS WERE DISBANDED 4th APRIL 1940 ON THE FORMATION OF No 15 O.T.U. WHEN THE UNIT IDENTITY MARKINGS BECAME KK. LATER IN 1942 THE MARKINGS EO AND FH WERE ADDED, POSSIBLY TO IDENTIFY AIRCRAFT FROM HAMPSTEAD NORRIS AND MOUNT FARM WHICH WERE SATELLITE AIRFIELDS OF 15 O.T.U..

The training regime

It takes time to set up a realistic and efficient training schedule and it was January 1940 before the first pupils began their training: 24 pilots, 12 navigators and 36 Wireless Operator/Air Gunners, later reduced to 24 W/Op/AG's and 12 Air Gunners. The object was to take these airmen already qualified in their own trades, and train them to fly and operate in the Wellington as an efficient bomber unit.

Pilots had gained their wings on Tiger Moths, Avro Tutors or similar aircraft and had completed a twin engine conversion course, probably on Airspeed Oxfords, so their first task was to convert to flying Wellingtons. After learning cockpit drill and pre-flight checks etc, they took off, made a circuit of the airfield, and they did a landing, in RAF parlance "Circuit and bumps". Landings have often been described as a controlled crash: some of these were not too well controlled!
When they were proficient at this by day, they repeated the same procedure by night. Interspersed with this they 'flew' the Link trainer, a simulator on which they practised flying by instruments, and were given lectures on operational procedures and some first hand experience of other aircrew duties.

Meanwhile navigators practiced their skills, learned how to use the bomb sight, and were instructed on the various ways they could obtain assistance from the wireless operator. Wireless operators were instructed on the layout, operation and procedures for the use of the radio and electrical equipment, how to operate the direction finding loop, a boon to navigation which did not advertise the aircraft position to enemy wireless operators, how to diagnose and rectify faults and practice the Morse code. This phase occupied two weeks at the end of which the best 12 were selected as Wireless Operators while the others would therefore concentrate on gunnery.

In the second phase pilots continued as before, while navigators and wireless operators flew in Avro Ansons under the eye of experienced aircrew, while the W.Op/AG's not selected for wireless were taught how to strip and reassemble guns, how to clear stoppages, aircraft recognition and of course practiced live firing.

Phase three began when they were crewed up: 2 pilots, a navigator and 3 W.Op/AG's per crew under the direction of an experienced pilot, navigator and wireless operator.

Phase four they flew as a crew without supervision.

Although there were very few even makeshift aids to training (most of these were to come later) each crew by the end of the training would have carried out day and night cross-country flying exercises, air-to-air and air-to-ground firing of guns, and both practice and live bombing exercises. One aid from pre-war was the "camera obscura" which was located on top of the Station Armoury, building 33 at Harwell, where the top of the building with black and white chequered squares for easy identification from the air and was useful in assessing the crews' bombing ability.

A big freeze, and the Harwell Box

Barely had training got under way when towards the end of January 1940 heavy falls of snow made flying impossible. Hard frosts added to the misery, and were followed by sleet and drizzle which froze when it fell. Telephone wires and the smallest twigs on trees became encrusted with ice. As the build-up of ice increased these wires and branches sagged and eventually broke under the weight. Buildings cars and aircraft had huge icicles hanging from everywhere.

At first the instructors gave additional lectures to keep the pupils occupied, but when the weather refused to break they were sent on leave, while gangs of airmen wielding shovels vainly tried to clear the roads. This was in fact a blessing in disguise, since it gave the opportunity to set up many of the training aids, and to consider what else was necessary.

From this came the Harwell Box, which was fitted out with wireless sets, exactly as it would be in the aircraft. The photo below shows a Box in use.

A problem arose with this, because the powers-that-be ruled that there would be no live radio transmissions, they wanted signals to be piped round the boxes.
The junior instructors having recently left an operational squadron argued that this was useless in training the operators to tune the transmitter and receiver, and this was a vital part of their skills. Eventually the authorities agreed, but insisted that radiated power should be limited to two milliwatts. This was ideal because this made it more difficult to tune than most signals they would encounter under normal conditions.

Six Harwell boxes were eventually constructed, and to make it more realistic they were fitted with noise generators, an out-of-balance fan mounted on a loosely secured metal plate. The boxes had a rounded base so that they were somewhat unstable and were coupled together with elastic cards, so that movement could be imparted to them all simultaneously. These boxes were later copied by other training units and electrical and wireless schools, and used for faultfinding, exchanging 'X' signals (a Wireless Operators kind of shorthand), direction finding loop exercises and simulated cross-country exercises.

Navigators later had the Celestial Navigation Trainers, the three towers which stood to the west of building 47, which gave them practice at navigating by the stars.

Gunners would later get their own specialised trainer on the rifle range where building 220 now stands.
It was a gun turret with hydraulic supply, but with the machine guns replaced by a modified 12 bore shotgun. They had to use the conventional controls, handlebars which controlled the horizontal movement, twistgrips which controlled the vertical movement, and triggers which fired the cartridge against clay pigeons, which were released from traps in different locations around the range.
When you consider that the time of flight of the bakelite discs known as clay pigeons is not much more than five seconds, and the gunner had no idea where it would first appear, his reactions had to be good to make a kill.

15 OTU

The weather relented just in time for a visit on 12th February by King Haakon of Norway. He inspected all aspects of training and when he was due to leave a formation of three Ansons dipped in salute. While pulling out of the dive one Anson lost part of the engine cowling which fell harmlessly, and the aircraft landed safely.

The first Wellington Ia arrived in March from No 149 Squadron at Mildenhall, it had a less streamlined body than Mk I because of the rather bulbous gun turrets at the nose and tail. The turrets were heavier and with double the number of machine guns, ammunition and extra armour plating, its speed was much reduced.

On the 4th April Harwell was officially designated No 15 Operational Training Unit, which took control of the whole station. No longer did the Station Headquarters look after administration matters while the squadron looked after operational matters. The two squadrons were disbanded and now became A, B, C and D flights of No 15 O.T.U..

Later that month No 75 Squadron was reformed as 75 New Zealand Squadron of the RAF, with Wellingtons at Harwell and shortly after moved out to East Anglia for operational duties.

On the 17th April Wellington L4291 belly landed at West Ilsley, and on 26th L4236 landed heavily which caused the control column to lock back, it climbed, stalled and then crashed, while on 29th L4267 came down near Swindon.
I seem to recall the West Ilsley incident. The pilot and navigator lived out in the village, and they were in the habit of “beating up” the village on return from cross-country flights. This time something went wrong, and as they hit the ground the Wireless Operator was catapulted out of the window and survived the ordeal.

May 1940 brought much joy to RAF aircrew below the rank of Sergeant, because all aircrew were promoted to Sergeant. This was not exactly popular in the Sergeants Mess, then building 146, as it was unable to cope with the sudden influx. The problem was not exactly helped by the fact that it also included pupil aircrew on the O.T.U. courses, however this was solved by making the newly completed building 173 into the aircrew Sergeants Mess.

Additional Ansons and Wellingtons began to arrive, among them on 20th May 1940 was Mk I L4265 from 149 Squadron at Mildenhall. It had operated with that squadron against Bremsbutel's shipping on 4th September 1939, and was subsequently lost without trace on a training exercise March 18th 1942.

Action in Norway and France boosted operational training needs, it also brought the first of many operational diversions to Harwell when on 24th May a Whitley landed after a raid. It was flown by Pilot Officer Mahaddie, later to achieve fame as a Pathfinder

One of Harwell's Wellingtons was lost when it crashed into a field near Axminster on 13th May and Anson N5019 crashed near Builth Wells on 10th July with the loss of both crews.

The King's second visit

Nine days later, as part of a tour of Operational Training Units, King George VI revisited Harwell. He inspected all areas of training and stopped to talk to various individuals.
In Hangar 8 he was intrigued to find the author, a Corporal, instructing sergeants in the Signals Training Section. The Warrant Officer in charge explained that the instructor was a Corporal in his trade whereas the aircrew Sergeants were aircraftmen in that trade.

As he was about to depart, three Ansons which were already airborne were preparing to fly past in formation as a salute when two of them collided: the mainplane of one hit the tail of the leader. Two airmen, Clarke the Wireless Operator and Rattue, a fitter armourer, landed safely by parachute, but the pilot, Flight Lieutenant Hughes, who got out of the aircraft, had insufficient height for his parachute to become effective and was killed. The doomed Anson, N5186, crashed south west of the airfield near Johnsons Farm was burned out.
(Les Rattue returned to Harwell in 1982 and joined the Guinea Pig Club members on a visit to the Rutherford Appleton Laboratory, his first visit since the 40's.)

More training aids

The night of 18th/19th July 1940 saw the first operational flying by No 15 O.T.U. when three Wellingtons dropped leaflets in the Dunkirk-Boulogne area.

During that weekend the Signals Training Section moved from Hangar 8 to building 47, which brought in additional training aids.
The first, a Rediffusion trainer was largely for the Wireless Operator to gain valuable experience in using the direction finding loop, and since this was coupled to the compass, set to represent the aircraft heading, and the loop bearing altered as the exercise progressed, it also gave valuable navigational training. It was a rather simple type of simulator.
Each of the six cubicles were big enough for the whole crew and operated independently. Pilots and gunners were kept busy since aircraft silhouettes were projected onto a large screen, as were ground photographs. Noise generators were fitted, flack and tracer fire were simulated using lamps and rotating prisms and a near miss was simulated by electrically firing a small quantity of pyrotechnic powder from a Verey light cartridge just outside the observation window.
Crews were expected to report each event accurately at debriefing as they would after all operational flights later. These exercises were a great improvement over the "dry sessions" which previously had been used as they were more interactive.

Another training aid was the bombing teacher, so that bomb aimers and pilot could interact. Height and speed were already preset on this so it was fairly limited as an aid but the bomb aimer got some practice in using the bomb sight, and instructing the pilot to turn left or right who then responded by operating a rudder bar.

The last aid saved a lot of walking around the airfield since it was an almost complete Wellington fuselage, fitted with all equipment with which the wireless operator was concerned. One of the more important was the I.F.F. set (Identification, Friend or Foe). Since it was a piece of secret equipment it was important that it should be destroyed if an aircraft crashed or was forced to land in enemy territory. In a crash, an inertial switch operated to fire the detonator inside the IFF set and so destroy it. It could be destroyed by operating a push button switch on the set. The operator also had to switch off before landing in case a heavy landing should operate the inertial switch.

July 20th 1940, a party of soldiers from 272 Battery of the 120th Regiment the Royal Artillery based at Solihull were sent to dig slit trenches at strategic points around the airfield. Two buses went by mistake to Benson where they were given a meal before coming on to Harwell. Their work completed they went on to Hamble for a similar task, but had little rest that night because of the air raids at nearby Fawley which left oil tanks blazing furiously. It is thought that the trenches had been ordered in an attempt to foil what intelligence sources had indicated might be parachute drops in these areas.

The first attacks on Harwell

H.R.H. the Duke of Kent was the next Royal visitor to Harwell on 23rd July 1940 and he was given a conducted tour of the station. That night, as though triggered off by the royal visit, three more Wellingtons went nickelling (leaflet dropping) to Amiens, Cherbourg and Rouen.
Dieppe, Evreux, Beauvais and Caen were visited on July 27th/28th. Such activity was considered to be a gentle introduction to operations, and good for the morale of the recipients since it showed that the RAF was still active.

During the afternoon of 14th August 1940 twenty Armstrong Whitworth Whitleys arrived at Harwell from Driffield, using Harwell as the point of departure and return for the long haul to Milan and return. One suffered undercarriage collapse after the raid.

Luckily the remainder had returned to their home base before Harwell suffered its first bombing attack, which came at 6.05 pm on Friday August 16th when a single raider, believed to be a JU88, came in low over Rowstock, dropped four bombs, then turned and machine gunned the station.
Two 400 gallon petrol bowsers being filled from the underground storage tanks at building 6, and three Wellingtons parked to the east of hangars 7 and 8 were left burning.
The driver of the tractor very courageously tried to tow one of the burning bowsers away from the storage tanks. He was one of the two fatalities among seven injured in the attack.

Twenty-eight minutes after midnight, in the early hours of 17th August, a further six bombs were aimed at Harwell but no casualties or damage resulted.

Station defences were still very poor amounting to a few sandbagged emplacements around the perimeter and an unusual 3 ton Bedford lorry mounting twin Vickers machine guns mounted on a Scarff ring.

Although night raids had been forecast Harwell's next two raids took place in daylight.
At twenty-eight minutes past two on Monday 19th August a JU88 strafed and bombed the station destroying three Wellingtons. As the attack began a squad of airmen who had been drilling in an area to the west of building 47 burst in through the doors interrupting wireless operators lectures and no doubt upsetting the concentration of those using the bombing teacher. This was to happen quite often, and was a much better indication of imminent air attack than the Air Raid siren!

A week later on 26th a single raider dived through a hole in the cloud at about midday, releasing four bombs which fell in an area near the bomb dump where civilian workers were putting up new buildings.
Six were killed, and of the ten injured one died later. One of the injured suffered for some twenty years with a bomb splinter in his arm which had remained undetected by X-rays, until an enterprising surgeon carried out an exploratory operation and removed it.
That night the station hit back when six of Dishforth's Whitleys again used Harwell as their forward base for operations.

About September 1940 Hampstead Norris was officially designated a satellite of 15 OTU and it is difficult to write any history of Harwell without including it. Mount Farm also became a satellite at about this time. A large number of the aircraft were dispersed there and some ant-aircraft defences as large scale air attacks were forecast for the next moon period.

In fact it was some time prior to this that Group Captain J.H. Herring, the station commander, had paraded the whole station. He harangued us about our scruffiness, litter, sloppy salutes and the rest; and then almost as an afterthought he said “Oh, and just one more thing. We may be getting a little attention from the enemy. It may be a bit of a nuisance but if he appears get your heads down and try not to get in the way of those who have special jobs to do.”

It would have been about this time that a Wireless Operator instructor flying in the tail had a remarkable escape. The quickest way out of a Mk I Wellington tail gunners position was to push the seat back towards the nose of the aircraft, this exposed a square panel in the floor. If he stood on this the fabric would tear and allow him to fall out feet first. This is what happened to the instructor: only the fact that his elbows were sticking out stopped his abrupt exit.
The pilot reduced speed, lowered flaps and undercarriage to reduce the pressure on the lower part of his body, but it took some time and effort on the part of the crew working in the rather confined space to haul him back on board.

From the time of the evacuation of Dunkirk when every serviceable aircraft was made available to try and impede the German advance on Dunkirk, there had always been the risk of invasion, and that risk increased as barges were seen concentrating in the French channel ports. This led to some aircraft being out on immediate standby, even some Ansons with a 500lb bomb slung externally under each wing.

They were indeed difficult days, but despite this and the enemy interference, 15 OTU put in 1594 daylight and 665 night hours of flying training, with its force of 50 Wellingtons and 17 Ansons turning in a better pupil output than larger units in No 6 Group in a month.

Such amounts of flying were not achieved without mishap. Wellington L4264 stalled in a turn and crashed half a mile south of the airfield while approaching to land at Harwell. Another crashed into the sea five miles east of Lundy Island, and L4215, the first Wellington to come into service use, burst a tyre on take-off and veered into a heap of sand.

After one particular night flying session eight Wellingtons were observed on or near the airfield in various grotesque attitudes. Collapsed undercarriage due to heavy landing was common, bent wings, even landing with the undercarriage retracted. Such landings also occurred by day, even when the duty pilot observing an approach with undercarriage still retracted had fired a red Verey light, which should inform the pilot not to land.
Such a landing should never occur unintentionally, as apart form the normal undercarriage lights, which only turn green when wheels are down and locked, a klaxon horn sounds off behind the pilots head when the throttles are closed with undercarriage retracted. Fortunately, although the aircraft was usually severely damaged the crew got little more than a scare.

September 7th saw three more Wellingtons on nickel raids. Hampstead Norris did not escape the enemy attention for very long as on September 16th three bombs were dropped, but no damage resulted.

Barrage balloons were a familiar sight around towns and other potential targets. If any aircrew were worried about hitting the cables they could take some comfort from the experience of Wellington L4322 which returned safely after hitting one over Yeovil on 18th September 1940.

Hampstead Norris also had its share of mishaps. Wellington L4281 overshot the airfield, crashed and burned out on 24th September. Wellington L4259 stalled while flying downwind on 17th October, and L4220, the sixth Wellington to come into service use, overshot, hit a tree and crashed.
The two latter serial numbers were ex 99 Squadron B Flight and could well have taken part in the raid of December 14th 1939 referred to by Wing Commander Griffiths. Both appear in Griffiths' pre-war flying log book.

The morning of 13th November 1940 brought raids on airfields in East Anglia. An enemy aircraft carried out reconnaissance of those airfields and although Hurricanes of No 310 Squadron saw the machine they failed to catch it. It crept into the Buckingham area at 1.25 pm then flew into the Leicester, Hucknall, Nottingham and Watnall area and then headed south. Anti-aircraft guns at Nottingham opened fire and it was soon engaged by No 611 Squadron's Spitfires. Flight Lieutenant Leather fired all his ammunition at it. In the meantime another 15 aircraft had been sent to intercept it, but only Red Section of No 611 actually intercepted it.
The aircraft, a JU88 of LG1 (a German Operational Training Unit) continued flying south until it crashed at Roden Down, which lies between Blewbury and Aldworth. One airman, Hans Boosdof, was killed; the remainder were taken prisoner.
A photograph which appeared on the front page of the Oxford Mail showed airmen holding up machine guns and a bomb sight recovered from the wreckage. One of the airmen in that photograph, Rob Campbell, was a member of the firing party when the dead airman was buried with full military honours in unconsecrated ground in Harwell Cemetery, and later in 1963 as Chairman of the Parish Council signed the exhumation order when the remains were removed for reburial in a German War Graves cemetery at Cannock Chase.

Engine failure of Wellington L4326 from Hampstead Norris on 26th November resulted in two more graves in Harwell Cemetery. On March 26th 1941 Harwell-based Wellington R1243 was detailed to fly a cross-country exercise, in the course of which it was to drop and attack sea markers in Cardigan Bay. The aircraft was observed flying out to sea, where it ran into sea fog and crashed about a mile and a half offshore. Boats recovered two airmen, one of whom died later.

Clear moonlight nights in March brought two attacks on Harwell's 'Q' site which kept the area defences on the alert, which was heightened when at Hampstead Norris on April 4th a raider followed a Wellington which was coming in to land, attempting to bomb it as it did so.

The following night Anson N5078 was tracked by searchlights 12 miles north of Banbury. Flashing the letter of the day on the aircraft Identification Lights should have caused the searchlights to swing away or to be extinguished, but they remained on, so the alternative of firing the colours of the day with the Verey light pistol was attempted, but the pistol was discharged inside the aircraft which caused a fire. The crew had no alternative but to take to their parachutes.

Enemy aircraft had not finished with Harwell for at 1.17 am on 11th April 1941 while night flying was in progress, a raider dived and released two bombs. He then repeated the action and machine gunned the station. One bomb exploded at the south east corner of Hangar 8, another passed through the superstructure above the doors on the west side of the hangar, leaving the fin in the superstructure, while the body ended up at the northeast corner of hangar 9 under an aircraft starter trolley without exploding.
A third bomb exploded between hangar 9 and the water tower, bursting a water main, while the last hit the tarmac apron on the north side of hangars 9 and 10, bounced away to finish against the iron gates of the solid fuel compound, near where building 401 now stands, without exploding.
A crew engaged on night flying that night were walking in this area when they thought they saw a cat run between them, but later that day when they viewed the marks left by the bomb realised this could have been a very spiteful “cat”.
Come daylight and the areas where the unexploded bombs lay were cordoned off with white tapes, then to the consternation of those looking on an airman emerged from the accumulator charging room at the north-east corner of hangar 9. He naturally denied it, but he had probably slept for about six hours not more than six feet from that bomb.
Some five years late a very agitated member of Nuclear Physics Division reported that there was a bomb in the hangar roof, it was of course only the fin from the 1941 raid.

On 30th April 1941, 15 OTU was instructed to prepare 15 crews each month to fly a Wellington to the Middle East. This did not affect the basic training schedule, but it did call for some changes toward the end of the course, and because of the long flights involved the load this would put on the navigators.
The duty of preparing crews to ferry aircraft to the Middle East has previously been undertaken at Stradishall, one of No 3 Group’s bomber stations.
The first leg of the journey, to Gibraltar, was an average of 8 ¾ hours flying, the second to Malta was certainly not less, and the last to Egypt a little less. Hampstead Norris was chosen to be the point of departure because it had metallised runways, and the first three, T2825, T2840, and T 2873 left on the night of 9th May 1941.

Clearly unhappy about this new venture, enemy bombers dropped 10 high explosive bombs and 100 incendiary bombs on the night of May 12th. One bomb hit the flarepath, damage was caused to the southern training area, the wing and tail plane of a Wellington was burned, and a lorry ran into a bomb crater.

Meanwhile nickel raids continued to be a part of the training programme and Harwell mounted the 20th operation on May 6th/7th.

The attack on Hampstead Norris did not halt the ferrying operation for on 15th May a further three were despatched. One of these, T2572 flown by Sergeant McManus, had to force land on a beach at Sao Pedro du Muel, Portugal, where they set fire to the aircraft before giving themselves up to the Portugese authorities.
On 24th May 15 OTU's commitment to ferrying was increased to ten crews a fortnight, and a Ferry Training Flight was established to oversee these operations. This flight gave additional cross-country night flying training, collected aircraft from RAF Kemble, carried out all final inspection of the aircraft, and gave final briefing to crews before take-off for Gibraltar.

Figures given in the Station Diary for May 1941 found 15 OTU to be the busiest in No 6 Group. During 3040 flying hours, and despite 14 flying accidents, the output was 90 pilots, 40 Navigators and 80 Wireless Operator/Air Gunners; roughly a quarter of the entire Group output.
Bad weather inevitably raised losses on the ferry operations, as on June 19th when Z8722 made a forced landing off Aguilas, Spain, and rapidly sank. X3211 ditched in the river estuary at Viano do Castelo, Portugal, but two others penetrated the electrical storms to reach Gibraltar.

From documents in the Public Records Office the decision was made on 18th July to build runways at Harwell, two of 1100 and one of 1000 yards. A and B flights were moved to Mount Farm; C and D flights and the Ferry Training Flight were moved to Hampstead Norris. The Station Diary at Benson records that Mount Farm became a satellite of Harwell on July 23rd 1941.

Some doubts have been expressed regarding the date of runway construction a Harwell, mainly from memories. An aerial photograph taken from Anson N5186 flown by Group Captain J.H.Herring, the Station Commander, with Flight Sergeant Powell on 6th April 190, shows what at first sight appears to be the start at the eastern end of runway 22. Also shown are the earthworks of the Harwell catapult.
Comparison of this photograph with the Harwell site plan of 1945 seems to support this, but measurement of the angles shows slight but perhaps significant deviations. Also what appears in the photo to be the start of runway 22 shows up as a dark strip with no white areas which one would normally associate with concrete. Measurements on the 1945 site plan show two 1300 and one 2100 foot runways.

From the Public Records Office Wellington L4215, the first in Service use, burst a tyre on take-off, veered into a heap of sand and broke its back on 12th August 1940. Since I had carried out the daily inspections on this aircraft at Mildenhall, I made a nostalgic journey onto the airfield to see the damage. I am sure in my mind that runways were then under construction; why otherwise would there be heaps of sand on the airfield so near to take-off and landing areas?

Memories, when faced with hard fact, are often shown to be unreliable so where is the truth? What appears to be the start of runway 22 could well be the result of earlier experiments with wire netting and ashes, and ark irregular patches between there and the hangars could have been due to dumping of ashes. Discrepancies in the length of runways could have been alteration in the plans while work was in progress in 1941, or they may have been extended later. Later in this narrative we see that Transport Command delayed their move here in 1945, due to work on the runway intersection. Runway realignment then could account for discrepancies between the photograph and the site plan.

On October 14th 1941, a training Spitfire from the PRU at Benson, without radio, had been flying around at 30,000 feet for some time, it was getting short of fuel and the pilot, uncertain of his position, saw Harwell below. While on final approach he could see stakes in the airfield, but fuel position dictated an attempt at landing. At about 100 feet the engine cut and he was forced to land in fields where airmen were playing football. The aircraft stopped just short of the road, nosed over, and airmen tried to assist by pulling the tail up by the elevators. This was pulling the stick back impeding the pilot's escape from the cockpit. After getting them to stop, the pilot emerged unhurt but the aircraft was badly bent.

Despite being declared non-operational, records state that some flying was taking place at Harwell, although nickelling was temporarily halted. Undoubtedly runway construction work was going on during this period of 1941; whether it was the beginning or not is an open question.

The flarepath at Harwell attracted two enemy attacks on September 20th but only one bomb fell on the airfield.

On 11th October 1941 Pilot Officer Fenton flying Z5588 out of Hampstead Norris on a cross-country training flight was fired on by a JU88 about six miles east of Filey. The enemy broke off the attack after the rear gunner of the Wellington fired a couple of bursts from his four Browning guns.

Nickelling resumed on 14th October when operation 34 was carried out by six Wellingtons to Central France. R1275 and R1783 failed to return. 15 OTU flew 3367 hours during this month, and of the 26 Wellingtons despatched in the same month to the Middle East, two were lost.

Losses continued to mount when Wellington N2802 crashed near Uffington on 17th October, resulting in five airmen being buried in a communal grave in Harwell Cemetery, and yet another four followed when X9989 taking off from Hampstead Norris hit some trees and crashed at Aldworth on 25th.

During October, 29 of the 31 aircraft arrived safely in the Middle East, one making a direct flight across France to Malta.

On 23rd November 1941 Harwell regained operational status, with runways all but complete and the Lorentz Beam Approach system installed and lined up with the main runway 29. This would enable Harwell to maintain flying on a more regular basis.

Beam Approach was more often referred to as Blind Approach by RAF aircrews but John Putman, who worked on radio during the war, recently commented this expression was forbidden by the RAF top brass because of the possible consequences of using it blind. He went on to say that he was once flying in a Halifax during a snowstorm, they bounced ten feet on landing and the Australian pilot's language nearly melted the intercom.

November saw another 25 aircraft arrive in the Middle East after training in the newly formed Ferry Crew Training Flight. By the end of December 1941, No 15 OTU had despatched 218 Wellingtons to the Middle East, 162 MkIc and 56 MkII, many of whom had trained at this OTU.
Four had taken direct flights to Malta, the others had gone by the longer route. 25 had been lost in these operations, a very creditable performance by the nearly 90% who had completed the long and arduous journey so soon after completion of their training.

At the beginning of 1942 the point of departure for the Middle East had been changed to Portreath, Cornwall. A few night diversions of aircraft returning from operations were by now going to Hampstead Norris and on 11th January 1942 eleven Wellingtons of No 214 Squadron arrived after a raid on Brest, which put quite a strain on the satellite resources.

The 50th course completed their training during February 1942.

Birds have always represented a hazard to flying: starlings, pigeons and gulls being about the worst because of their habit of congregating in flocks on open areas, including airfields.
One such incident occurred about this time, to a Harwell Wellington. A Wireless Operator instructor, seeing that a bird strike was inevitable, put his hand up to protect himself. One passed through the co-pilots windscreen and after striking his hand the starling's remains ended up in the tail of the aircraft. Dents in the metal leading edge of the wing two or three inches deep were caused by other starlings. Many of the bones in the airman's hand were broken and he was unable to use it to any extent six months later.

When the first of the mass bombing raids were envisaged, Operational Training Units and Heavy Conversion Units were instructed to take part, and certainly on the first few of the so-called 1000 bomber raids they provided about a third of the force.

The first raid was to have been against Hamburg. Final briefings had been given, I had travelled to Hampstead Norris to do final Signals briefing/debriefing, and had personally checked that the aircraft taking part had a fully serviceable radio, when just before take-off time the operation was cancelled due to unforeseen weather conditions over the target area.

When the first operation was finally mounted on the night of 30th/31st May 1941, Cologne was the target. More than 1000 aircraft took part and about 900 bombed the target area releasing more than 1400 tons of high explosive and incendiary bombs. 44 aircraft were lost. 15 OTU provided 20 aircraft and lost two.
Two nights later there were no losses from the 21 from 15 OTU when the target was Essen and the neighbouring towns, but lost two more out of 19 when Bremen was attacked on 25th/26th June.
The unit was called upon several times in the next 15 months for similar raids, which included Berlin, known to aircrews as the big city.

It was about this time that Harwell temporarily hosted a few Westland Whirlwinds, a twin-engined aircraft with pencil like fuselage and a very conspicuous tailplane, high up on the tail fin. It was thought that they were here because their high landing speed required a large airfield. They would take off in the morning and return usually late afternoon. Exactly what they were engaged in is nit known but was believed to have been Army Co-operation.

On 13th July Wellington DV739 is reported to have crashed just after take-off a mile northwest of Downs House. I believe this should have been northeast, as about this time a Wellington which has two ATC cadets on board crashed near Oldfield Farm, with the loss of all on board. Eye witnesses stated that the aircraft developed engine trouble immediately after take-off. It narrowly missed hitting the roof of building 173 before crashing near the farm.

In the first half of 1942 330 Wellingtons had left Harwell and Hampstead Norris destined for the Middle East, supervised by No 1443 Ferry Crew Training Flight or previous ferrying organisations, with April seeing the departure of a record 81 aircraft.

August was rather a bad month for mid-air collisions. That on 21st involved Wellington T2557. It had almost completed a night cross-country flight when it rammed one of Chipping Norton's Oxford. Both fell in flames on the town.

Four nights later two Wellingtons collided over Odstone bombing range. The pilot of N2775 from Hampstead Norris regained control to make a single engine crash landing at Stanton Harcourt. The other, DV595 from Harwell, crashed near Uffington, resulting in another communal grave for six in Harwell Cemetery.

Editors note: In 1998 Jim Jones commissioned and erected a memorial to the crew of DV595 in a field near Uffington, close to the crash site.

Harwell nearly lost control of Hampstead Norris when in August 1942 plans were mooted for its replacement by Grove, but although 15 OTU did some flying from there such substitution never materialised.

Although some delivery flights were made from Harwell to Gibraltar, in September 25 Wellingtons left Harwell for Portreath. 19 reached Gibraltar but one of these made a forced landing in the sea off Sicily.

In October Hampstead Norris was reviewed with the intention of extending runways to 2600 and 1400 yards, but the site plan of 1945 indicates this was not carried out.

On November 8th Wellington W5565 flew from Harwell to Gibraltar in daylight taking only eight hours. It later took off to fly down the coast of West Africa to Bathurst (now Banjul, capital of The Gambia), but failed to arrive having been shot down by French fighters off Dakar.

Operations against Italy again brought aircraft to Harwell, using it as an advance base on 20th/21st November. Nine Wellingtons of No 420 and five of No 425 Squadrons left to bomb Turin. The following night they flew from here for mining operations. Later that month they repeated these operations.

December 12th 1942 saw the arrival of six Airspeed Oxfords on No 1516 Beam Approach Training Flight from Middleton St George. The intention was to move them to Harwell when No 1443 Ferry Crew Training Flight was disbanded, as a result of the expected run-down in Wellington production.

In the second half of 1942 a further 120 Wellingtons were despatched for the Middle East including MkVIII's, some capable of carrying torpedoes. Some of the ferrying pressures had been lifted from 15 OTU when in July No 21 OTU and No 1444 Ferry Training Flight based at Moreton-in-the-Marsh took part in the commitment.

Diversions of aircraft to Harwell from operations saw Lancaster W4330 of 460 Squadron land on 6th/7th January. On 18th eight Lancasters, 5 of No 97 Squadron, one of No 50 Squadron and two of No 1660 Heavy Conversion Unit were diverted following a raid on Berlin. One of them landed with a full bomb load because hydraulic failure had prevented them from opening the bomb doors.

Again on 23rd a Lancaster of No 50 Squadron was diverted after a raid on Dusseldorf. It had been intercepted by a Bf110 and had an injured mid-upper gunner.

Ferrying to the Middle East continued into 1943, 17 setting off in January, 20 in February and 40 in March. March also saw the Lysanders of the gunnery section at Hampstead Norris replaced by Martinets.

Flying accidents continued. The crew died when Wellington X3171 crashed in Northumberland mid-afternoon on March 1st, and two days later HF906, practising overshoot at Hampstead Norris, crashed into cottages at Common Barn, Hermitage. Two civilians and some livestock together with the crew died.

On 11th March Wellington X3874 was observed by schoolboys to roll over on its back about 600 feet over Didcot and spiral down. It crashed and burned out in Fleet meadow. It is said the pilot was practising single engine flying when he got into trouble.

During the night of April 3rd two Wellingtons collided in the Harwell circuit, but such accidents were unusual despite the concentrated flying activity and the large number of airfields in the vicinity.

The presence of so many airfields within a few minutes flying time of Harwell might have presented problems to pupil pilots, but in general did not. An exception to this occurred on 19th May when Wellington HZ437 of No 310 Ferry Training Flight, which emerged out of No 1443 Ferry Crew Training Flight, crashed two miles from Turweston. The aircraft approached the wrong runway and when close to landing the pilot realising his error attempted to overshoot. He had left it too late: with insufficient height and speed the aircraft spun into the ground.

G. A. Bennett who retired from Winfrith in 1982 recently recalled an incident at Harwell:

'On 6th July 1943 I was taking a Lancaster III on an exercise from Winthorpe (a Heavy Conversion Unit satellite in 5 Group) in a southerly direction when at 18,000 feet somewhere in the Berkshire/Hampshire area we had an engine fire in the starboard inner. I cut off the fuel to this engine. It seemed to go out but still quite a lot of smoke appeared to emanate therefrom. Unfortunately I was unable to feather the prop, which was turning over too fast for comfort, so I reduced our forward speed, and with the plane on its side, dropped it like a stone to low altitude. This is clear in my memory as I recall the odd crew member screaming with the pain in his ears. It was a pleasant clear day and we could see an unidentified airfield back to the north. I'm sure there were Wellington's all over the place in their tropical camouflage. I thought this was an opportunity to give those below a 'shaking' and I told the Control Tower that we were on fire (still plenty of smoke in evidence) and to clear the runway in use. After all they probably didn't see many Lancasters and they might think we were bumped-up, which we weren't. The landing on three engines was uneventful and I cut the port inner engine to make the taxiing easy – quite forgetting that I had cut off my remaining brake compressor. Consequently we bumped on and on downwind towards the Horse and Jockey. Hence the 'shaking' for RAF Harwell did not materialise.'

I suspect that it was with a sense of relief when the pilot and crew stepped out when the Lancaster finally stopped.

The above is typical of the yarns which can arise while following up a casual lead, which I hope will lead to others when this is published.

Unexpectedly deliveries of Wellington's continued from the factories, and so on 13th April 1943 No 1516 Beam Approach Training Flight was transferred from Hampstead Norris to Pershore.

Departures from Harwell to the Mediterranean area continued: 39 in April, 33 in May, and 7 in June. The last overseas ferry flight was made in October 1943, and No 310 Ferry Training Flight disbanded 17th December 1943. Operational involvement of Harwell in being used as a forward base for mining and nickelling continued right into 1944.

15 OTU, still mainly equipped with Wellington Mk Ic's, was periodically flying Air Sea Rescue searches, but in the closing weeks of 1943 was pre-equipped with Mk III and Mk X's.

The Station Diary at Benson records that a Mk X LN614 crashed at Cholsey with one survivor on March 1st 1944, two days before No 15 OTU closed.

The 101st course which had commenced training was posted to Westcott and the Wellingtons sent to Moreton-in-the-Marsh and Wellesbourne.

15 OTU had served Bomber Command well, 1200 crews had started training (7200 aircrew members) in just over four years. Now there were to be some changes.

Hampstead Norris ceased to be a satellite of Harwell on 1st March 1944 and became an Operational Refresher Training Unit under No 38 Group, with a complement of 33 Tiger Moths, 9 Whitleys, 20 Albermarles and a number of Horsa gliders. For company they had 8 Oxfords of No 1526 Beam Approach Flight.
The ORTU was designed to give refresher courses to glider pilots originally trained for the airborne assault on Sicily in preparation for the forthcoming invasion of Europe. The crews of the Whitleys and Albemarles, apart from their training role, were used as a retrieval unit, and a pool for Operational Squadrons. To the Whitley crews fell the task of retrieving gliders from seemingly impossible locations. It is all very well to land a Whitley in a small field, with their well-known short take-off and landing run, but to get out of the same field with a glider in tow can cause quite a sweat.

Harwell was taken over by No 38 Group on 1st April 1944, almost immediately followed by the arrival of Albermarles of Nos 295 and 570 Squadrons. No 38 Group had been formed to supply Resistance Groups and groups of the Special Air Service operating in enemy occupied territories, dropping and retrieving agents from these areas, and towing gliders into set-piece battles.
The arrival of the Albermarles at Harwell saw intense activity as they flew in a swarm of Horsa gliders.
The Albermarle was useful for glider towing as the castering action of the nose wheel offset the torque from the engines. Another feature of it was its dive flaps the size of barn doors: it was Armstrong Wghitworth's answer to the 'Stuka' (the Junkers 87 dive bomber).

The 'Stuka' approach involved throttling back at about 800 feet just short of the runway, pushing down full flap – all 80 degrees of it – and descending apparently vertically to about 200 fet then a gentle round out, reduce flap angle then stall the aircraft onto the end of the runway like a Tiger Moth. A terrifying prospect for any stranger up in the Perspex bomb aimers nose compartment.
It was an approach which suited the conditions at Hampstead Norris, where the slope of the ground and surrounding trees made landing, according to Ken Frere, an ex 38 Group pilot, like sliding a spoon into a pudding basin.

SQUADRON BADGES 38 GROUP PERIOD

Motto Translation	AID FROM THE SKIES		WE LAUNCH THE SPEARHEAD	
Unit identity	1943-45	8Z	1943-45	V8
Markings	1944-45	8E	1944-45	E7

By April 4th the squadrons had brought in sufficient gliders for Harwell to participate in an evening take-off of 30 combinations for release later over the airfield. The following night ten Albemarles flew nickel sorties over France, and April 10th another seven. This was followed by navigation training flights and more operations over France.

April 16th brought Operation "Posh" when two Albemarles of No 570 Squadron acted as pathfinders, practising their part in the forthcoming landings by dropping 20 troops and supplies at Winterbourne Stoke, while another three practised at Tarrant Rushton. Similar exercises followed in rapid succession, ever larger, more sophisticated and more demanding because glider training and parachute drops at night could never be easy.
It was also hard on the Albemarle pilot who had to fly the aircraft all the time because of its inherent instability. Even when flying solo, without a glider in tow, the automatic pilot refused to work as hard as a pilot to correct the inevitable variations in altitude, All the Albermarles at Hampstead Norris wore the Russian red star insignia on the fuselage – they had been sent back to the UK by the Russians despite their shortage of aircraft. Hampstead Norris did not achieve operational status despite the fact that four of the Albemarles later took part in the Normandy invasion.

Following the loss of the Martin Baker MB3 at Wing and the abandoning of MB4, the latest offering of Martin Baker, the MB5 came to Harwell for its first flight on 23rd May 1944. It was flown by L. Bryan Greensted. Its 2,340 h.p. Griffon engine driving two three-blade De Havilland contra-rotating propellers, carrying four 20mm cannon in the wings, gave it a top speed of 460 m.p.h. at 20,000 feet. Its superb handling qualities were the subject of enthusiastic reports from all the pilots lucky enough to fly it. It too suffered the same fate as the MB2 in not being ordered for production.

All operational station personnel were cut off from the outside world as the hour for the start of the invasion approached. During the evening of 5th June huge neat formations of Flying Fortresses went over high in the sky, followed by untidy clouds of RAF Bomber Command at a lower level. The latter were more accustomed to flying individually and did not attempt to emulate the American style.

Just before eleven o'clock three Albermarles from each of Harwell's two squadrons were drawn up on the runway. The first to leave at three minutes past eleven was flown by Squadron Leader C. Merrick and carried Air Vice Marshal Leslie Hollingshurst, the A.O.C. No 38 Group. The other five followed at 30 second intervals. Each carried ten paratroops of the 22nd Independent Parachute Company, which was to spearhead Operation 'Tongue'. Their task was to set up 'Rebecca' beacons to guide the main force in and to hold vital points. They were followed y 12 Albermarles bringing in part of the main paratroop force, then about an hour later 28 Albemarles towing Horsa gliders took off, one of which carried Major General Richard Gale, Commander of the 6th Airborne Division.

In all Harwell and other No 38 Group airfields provided 264 aircraft with 98 Horsa and Hamilcar gliders which lifted the 6th Airborne into battle. It is recorded that "Richard the First" was chalked on the side of the glider which carried the General from Harwell.

This photograph of ACM Sir Arthur Tedder and General F.A.M. Browning (courtesy of the Imperial War Museum) was printed in the AERE publication Harlequin, Winter 1964.

Crews of Harwell's two squadrons rested until the afternoon. Then they were briefed for operation 'Mallard', the towing of troop carrying gliders to Normandy. 38 Albermarle/Horsa combinations from Harwell took part in this operation.

Around this time it was not unusual to see scores of troops in tented accommodation around the area, including the Townsend area of Harwell village. 24 hours later they had disappeared.

The rest of June was devoted to supply drops and further training.
Albemarles were not the last word as glider tugs, and on 14th June Harwell received its first Stirling Mk IV, which was added to in the following weeks. Harwell's strengths on July 11th ws 64 Albermarles, 19 Stirlings and 80 Horsa gliders.

The first Special Operations Executive drop by Stirlings took place on July 27th and continued spasmodically until September.

The last enemy attack is believed to have taken place on August 30th/31st 1944. Harwell was I believe outside the normal range of "doodle bug" sites, and the bug was travelling from east to west, making it even more unlikely that it was launched from a site in France. It exploded about 4 a.m. near Downs House causing slight damage to greenhouses and the front entrance. I put the date as the end of May 1944 because Norman Longmate's book "The Doodlebugs" states that some were air-launched from German bombers on August 30th/31st aiming for Gloucester. There is no hard evidence for this date and it is a wild guess on my part.

By now the Allied armies were sweeping across Europe, but ahead lay a very formidable barrier: the River Rhine. Airborne attacks in support of the breaching of this natural barrier were planned on Eindhoven, Nijmagen and Arnhem, on 17th September. Harwell's squadrons were to be involved with Arnhem, and just after 11 a.m. Nos 295 and 570 squadrons with their gliders in tow took off to join the cavalcade, which was met at the Dutch coast by Spitfires and Typhoons. Dakotas filled with paratroops came from behind and under the glider trains to arrive first at the dropping zones, followed in by Harwell's squadrons to release their gliders. The unexpected Panzer regiment was already in evidence.
By mid-afternoon Harwell's Stirlings had returned and ground crews serviced the aircraft and made gliders ready for tomorrow. Morning mist delayed the take-off of 13 Stirlings towing gliders and another 32 with supplies for the troops on the ground.
Resupply of the Arnhem force became a vital daily task not helped by the early morning mists which delayed take-off, and the 88mm guns of the enemy had textbook targets as the Stirlings came in at about 500 feet at slow speed to drop supplies.
Delays in take-off did not help the provision of fighter cover, but Harwell's squadrons did not suffer to the same extent as others, when on 20th September the fighter cover failed to materialise.
Fighter wrecks on and around the battlefield were mute evidence of their attempts to protect the aircraft bringing supplies and support to the ground forces.
Arnhem was not however to be a success and the last supply drops were carried out on 23rd September. Anti-aircraft fire had brought down four of Harwell's Stirlings and two more had force landed. Barely had Harwell begun to repair the damage when they were ordered to Rivenhall in Essex on 7th October 1944.

October 12th saw Harwell revert to the role of being an Operational Training Unit, No 13 under No 12 Group, training Mosquito fighter-bomber crews for the Second Tactical Air Force. This OTU had previously been based at Bicester.
No 1526 Beam Approach Training Flight at Hampstead Norris was disbanded on 9th November 1944, but the Operational Refresher Training Unit continued operating there until 27th February 1945 when they were ordered to go to Matching in Essex.
1st March 1945 No 13 OTU was merged with No 60 from Hawarden as No 13 under the Unit Commander Group Captain G.J.C. Paul, who was based at Harwell, which had as satellites Finmere and Hampstead Norris. Each were commanded by a Wing Commander who in the case of the satellites was also the Chief Instructor, while Harwell also had a Wing Commander as a Chief Instructor and Chief Engineer, who provided services to the satellites.

On March 15th Mosquitos arrived at Hampstead Norris. Finsmere and Harwell shared the Mitchells. Also at Harwell were Bostons for training Free French crews, and a Spitfire XII fighter affiliation flight.
The Bostons did not remain long for on March 19th they departed, but not before an incident occurred which was related by the ex Group Captain, now Air Commodore, Paul when he returned to Harwell in March 1982, at the invitation of the Atomic Energy Authority Harwell.
A pilot had been taken to the dispersal area, where he started up the engines and taxied to the western end of the main runway. He opened the throttles and started to move down the runway, when part way along he put the throttles through the gate, giving emergency power, the sound of which alerted the OTU Commander who had just emerged from the headquarters building.
He made a quick dash to the airfield just in time to see the Boston, wheels still firmly on the ground, disappear through the hedge, across the Newbury-Oxford road, then a cloud of dust as it ran into the field, with Fire Tender and Ambulance in hot pursuit.
The pilot escaped serious injury, and investigation as to the cause of the incident revealed that the control column locking bar had been lost, and to safeguard the aircraft in high winds on dispersal the control column had been lashed fully forward with ropes, and despite the difficulties this must have caused when the pilot got into his seat, he had not removed them! He had also applied something like double the permitted boost to the engines!

At the end of April Harwell's strength was 60 Mitchells, 7 Spitfires and one Anson.

The remnants of O.R.T.U. remained at Hampstead Norris until April 18th 1945 when the last glider was towed away.

The last Mitchell course completed training on May 28th, and No 13 OTU began to contract. The Mosquitos at Hampstead Norris were transferred to Middleton-St-George and Harwell and its satellite reverted to No 38 Group.
Air Commodore Paul recalls that when he was at Harwell the Martin Baker MB5 R2496 was housed in hangar 9, and was there when he left. He had tried unsuccessfully several times for permission to fly it.
After the war it was demonstrated in a three day display which included some captured German machines and attracted enthusiastic comments from Air Correspondents. Later when being

demonstrated before Winston Churchill and Senior Air Staff, engine failure brought a perfect dead-stick landing. It was still known to be airworthy at the end of 1947 at Chalgrove.

A party from the School of Air Transport arrived on 27th July, but they returned to Netheravon because of work in progress at the runway intersection. This work completed, the School of Flight Efficiency arrived on August 21st. They were followed by the Transport Command Development Unit on September 1st 1945.

Barely had these units settled in when the news broke that Harwell was to be used for Atomic Energy Research under the Ministry of Supply. Hampstead Norris and Finsmere became accommodation centres for the Glider Pilot Regiment. Mount Farm, which had dropped out of the picture when 15 OTU closed down, is thought to have reverted to the role of satellite to Benson, and it was at some time used by American airmen using Lockheed Lightnings for photo-reconnaisance. All the Transport Command aircraft moved from Harwell to Brize Norton on 14th December and on New Year's Eve 1945 the RAF Ensign was lowered for the last time.

The Harwell Catapult was maintained until 1944-45 when some of the equipment was removed to Farnborough. An account of the catapult appeared in the Winter 1982/83 edition of Harlequin, the leisure magazine of Harwell and associated laboratories. Various individuals have pinpointed locations of local crashes in the vicinity of Harwell and the Odstone bombing range. These are shown as Appendices, but are not intended to show the complete picture.

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