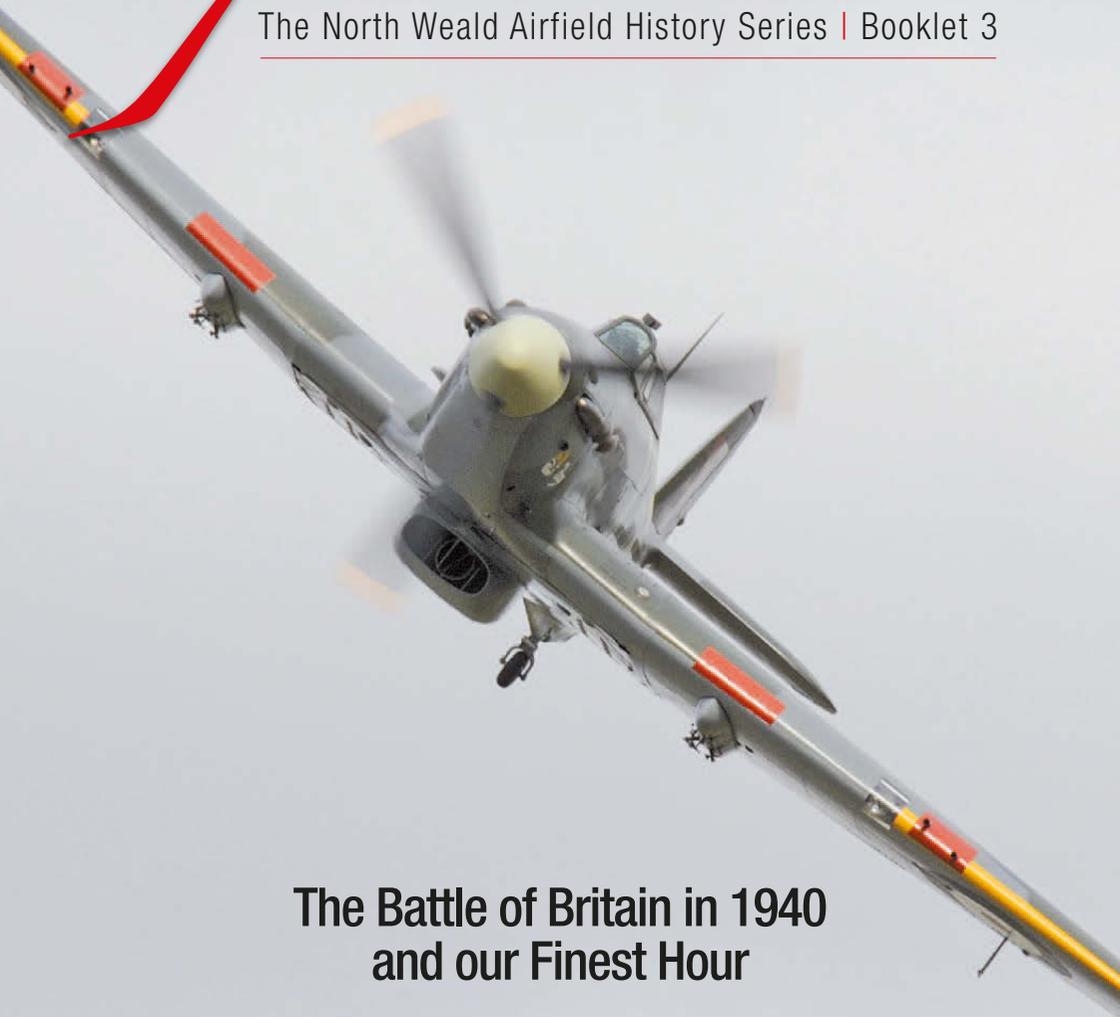


The *Spirit* of
North Weald

The North Weald Airfield History Series | Booklet 3



**The Battle of Britain in 1940
and our Finest Hour**

Hawker Hurricane V6692, GN-O, of 249 Squadron was flown by P/O Richard 'George' Barclay on a Squadron sweep on 7 November 1940. It has the Sky spinner of B Flight. One of his combat reports is also featured below.



Into action!

North Weald was in the front line of the aerial battles in 1940...

RAF North Weald was a front line fighter station in Sector E of 11 Group guarding London and the south east. At the start of the year 56 and 151 Squadrons were operating from the Airfield and equipped with Hawker Hurricanes. Stapleford Tawney was used as a satellite base.

North Weald squadrons had their first combats in the Battle for France and over the beaches of Dunkirk in May and June 1940. Both 56 and 151 Squadrons sent detachments to France, which suffered heavy losses. These continued when the Battle of Britain got underway in July and August (21 pilots died from May to mid-August).

On Saturday 24 August, the *Luftwaffe* launched a heavy raid against North Weald. Dornier and Heinkel bombers dropped some 200 bombs in a line across the village and onto the Airfield, which caused severe damage. Nine young soldiers of C Company, 7th (Home Defence) Battalion, the Essex Regiment, were killed when their shelter received a direct hit in what is now Hampden Close, and many other service personnel were wounded.

The fighting was so severe that 56 Squadron lost eleven aircraft over the course of five days, while 151 was reduced to ten serviceable Hurricanes. These losses meant that the squadrons were withdrawn to recuperate in early September. They were replaced by 249 and 46 Squadrons flying Hurricanes and 25 Squadron, which was equipped with Bristol Blenheim IF nightfighters.

When 249 Squadron relieved 56 on 1 September, they also took over their Hurricanes and ground crews (see Page 4). These were newer aircraft with a later type of radio. They continued to fly them in 56 Squadron's code markings (US) for up to three weeks before they could be repainted in 249 Squadron's markings (GN).

North Weald Airfield Museum

COMBAT REPORT.

Sector Serial No. (A) _____
 Serial No. of Order detailing Flight or Squadron to Patrol (B) _____
 Date (C) 27-9-40
 Flight, Squadron (D) Flight: A Sqn.: 249
 Number of Enemy Aircraft (E) About 20
 Type of Enemy Aircraft (F) ME-109
 Time Attack was delivered (G) About 12:50
 Place Attack was delivered (H) Nr. Ashford.
 Height of Enemy (I) 15000 ft.
 Enemy Casualties (K) 1 ME 109 destroyed.
 Our Casualties Aircraft (L) }
 Personnel (M) } none

GENERAL REPORT (N) P/O RGA BARCLAY.
 I was flying as Red 1 when I saw a daylight raid on near by. One 109^s passed about 4000 ft on my port side - there was no definite attack in squadron formation. I closed a 109 which dived very steeply. I had four automatics fixed without to catch the 109. I lost the 109 in haze and owing to its camouflage against the ground, that it suddenly climbed almost vertically out of the haze. I closed to about 150 yards and fired about five bursts. I burst vertically up at the top. I almost vertically down at the E/A - 2 bursts from the beam. The E/A plumed glycol. Signature RGA Barclay P/O
 The cockpit roof on the 109 was blown off. The pilot bailed out successfully. The E/A crashed on a farm near S.W. of Ashford. (Confirmed by Sgt Palmer)

R.A.F. Form 155.
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North Weald Airfield Museum



North Weald Airfield Museum



North Weald Airfield Museum



RAF Squadrons operating from North Weald during 1940

56 Squadron (28 February - 10 May 1940 [from Martlesham Heath], 12 - 31 May 1940 [from Gravesend], 4 June - 1 September 1940. Also temporarily based at Rochford where it was filmed)

151 Squadron (4 August 1936 - 13 May 1940, 20 May - 29 August 1940)

111 Squadron (30 May - 4 June 1940)

249 Squadron (1 September 1940 - 21 May 1941)

46 Squadron (8 November - 14 December 1940)

257 Squadron (8 October - 7 November 1940)

604 Squadron (September 1939 - January 1940)

25 Squadron (16 January - 19 June 1940, 1 September - 8 October 1940)

London itself. This gave the Airfield a well-needed respite and enabled the squadrons to recover and regroup. The Operations Room was also moved first to Marden Ash and finally Blake Hall near Ongar, where it remained.

On 29 October, just a few days before the Battle officially ended, North Weald was bombed once again, this time by Bf 109 fighter bombers. 249 Squadron had just become airborne and 257 Squadron was following when the enemy struck. One Hurricane was hit and crashed, killing the pilot – Sergeant A 'Tubby' Girdwood (see Issue 18).

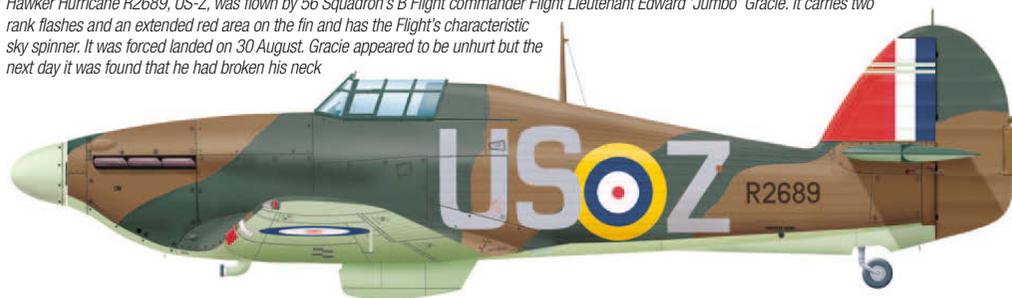
On 11 November 46 and 257 Squadrons intercepted a force of bombers and fighters from the Italian Air Force (known as the *Chianti Raiders*) off the east coast and six aircraft were shot down with three more bombers crashing back in Belgium. Another of the CR 42 fighters force landed on a beach and can be seen in the RAF Museum at Hendon.

While a huge amount of credit must go to the pilots who scrambled repeatedly against the unrelenting German raids, we must not forget the ground crews and administrative personnel, who kept the Airfield functioning under very difficult conditions, rearming and fuelling the aircraft several times a day and repairing them overnight – day after day.

The Station's Operations Record Book lists claims by squadrons flying out of North Weald, or on detachment, during the Battle of Britain as 108 enemy aircraft destroyed, 68 probably destroyed and 65 damaged. The squadrons lost 79 aircraft with a further 50 damaged. Hangar 1 still displays the scars from the bombs on its armoured doors.

In addition, 41 aircrew and 17 people on the ground were killed at North Weald and its satellite Stapleford Tawney. This four-month period represents about a quarter of the casualties suffered by the Airfield in the entire war. ■

Hawker Hurricane R2689, US-Z, was flown by 56 Squadron's B Flight commander Flight Lieutenant Edward 'Jumbo' Gracie. It carries two rank flashes and an extended red area on the fin and has the Flight's characteristic sky spinner. It was forced landed on 30 August. Gracie appeared to be unhurt but the next day it was found that he had broken his neck



Groundcrew view

Mike Hodges from 56 Squadron remembers the heady days of the summer battles in 1940...

Instrument Repairer

I passed out from Cranwell in February 1940 at the tender age of 16 and three months, and was posted to 56 Squadron at North Weald as an Instrument Repairer Group 2. I was attached to 'A' flight. After some wandering around in Suffolk and Kent we went back to base at North Weald. 'A' flight was moved to dispersal on the north side of the 'drome', in tents alongside large two-plane earth bays with an air raid shelter.

We had to ensure that the aircraft were ready from dawn onwards, even when the squadron was not at readiness. There was only one Instrument Repairer per flight, which meant that I was on duty until flight was stood down – usually after dusk. My job was to ensure that all the instruments were serviceable and all the oxygen bottles full on the six aircraft, which comprised the flight, plus any spare aircraft. All instruments which required changing, had to be done when the squadron was stood down or at night with shielded torches.

Early mornings

To save everyone getting up at about 4 am (from a small squad of, say mechanic, fitter, armourer, radio mechanic, plus me) it was soon decided that I should not get up every morning but that one of the others would do my inspection and get me out of bed if there were any snags. When I was up I was usually asked to sit in a cockpit while the engine warmed up, while the others attended to the other aircraft. They would return one to cockpit and two on tail while the magnetos were checked when on

full throttle. One day no-one came, so I locked my legs around the control column, opened the throttle slowly, and watched the tail, checked one mag back and then up for the next one, and both were OK.

Action and movement

Holland and France were invaded while the Squadron was at Martlesham Heath near Ipswich on 10 May 1940. From then on planes often came back having been in action, including on 30 May, when we lost two planes over Dunkirk with both pilots accounted for. There was a lot of movement of squadrons at this time. We went to Biggin Hill for a few days and then to North Weald where the ground staff stayed until 24 September. Pilots and planes moved about – ours went to Lincolnshire for a few days while we serviced 111 Squadron, which on 31 May claimed 13 German planes without loss.

On 27 June the King visited North Weald and inspected both 56 and 151 Squadrons. Planes were in action most days, except when it rained. Despite all this I was sent on leave from 19 to 26 July, and went up to Kidderminster where my mother had been evacuated to from Clacton.

Attacked!

In mid-August things hotted up. A typical day would start at 4.30 am when aircraft would be warmed up, and sometimes planes would go off to a coast drome and come back later on. One morning I had just got back into my bed when 257 Squadron arrived for the day. This was rather a busy day, with air raid alarms and our aircraft returning at dusk and requiring servicing. There were a lot of oxygen bottles for me to change.

On 16 August at lunchtime, the Squadron scrambled and were all airborne in three minutes. In a few minutes over 50 German planes appeared out of the clouds at 15,000 feet, and we saw the fighters attack. Bombs dropped mainly to the south of the 'drome', but some damage was done to the buildings. We were able to watch all of this

© IWM (CH 1189)



King George VI awarding medals during his visit in 1940

North Weald Airfield Museum



The Church Army tea wagon

North Weald Airfield Museum



from the door of the shelter, as we were on the north side. The aircraft returned at about 5.40 pm, having got some of the attacking aircraft.

More attacks

In September our pilots were sent to Boscombe Down, to a less busy sector, being replaced with pilots and planes from 249 Squadron. Their baptism came soon on 3 September. Scrambled at 11 am, they formed up at the west end of the drome. All 12 aircraft were eventually

airborne in just over nine minutes, as the bombers appeared overhead. Only a few buildings were not hit, and there were bomb craters all over the south side of the 'drome. This time we did retreat into the shelter! I was told to take the 48-hour pass that I had booked, and left the battered camp at 4.30 pm. When I returned the camp was operational although still battered. Aircraft could take off and land, oxygen bottles were all available, but I did not ask how.

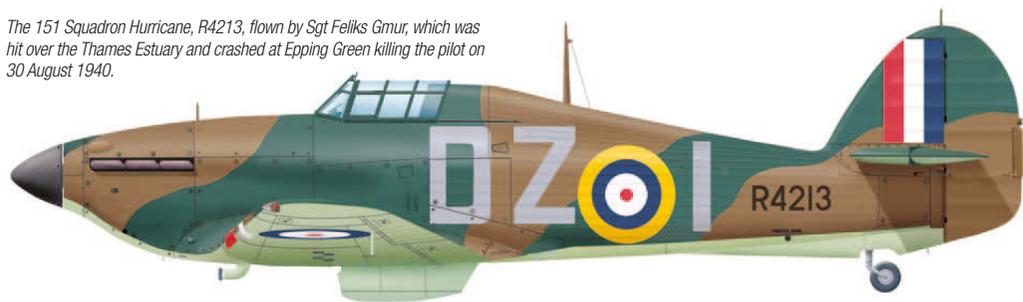
On 7 September waves of bombers came over in formation on their way out from the docks. When our planes returned we had lost five, with three pilots safe. The daylight raids eased off, but the tents gang spent most nights in the shelter as shrapnel from anti-aircraft guns were showering through the tents.

Battle of Britain

From 7 to 14 September most activity was at night. On the 15th (Battle of Britain Day) there was much activity and our aircraft (now being flown by 249 Squadron) were in action twice. They claimed ten bombers plus ten probable, with no aircraft lost from then until we rejoined our pilots at Boscombe Down. On the 24th my diary does not record any daylight activity, but the night raids on London continued. On the 17th I fitted an oil pressure gauge before going out to Epping to the cinema.

During all those summer months my diary shows that I got to Epping about twice a week, to dances and/or the cinema. We walked both ways. Trains did run from Epping to North Weald but both stations involved about as much walking as going direct. We used the train when coming back from London, but got lifts most of the way when going there. ■

The 151 Squadron Hurricane, R4213, flown by Sgt Feliks Gmur, which was hit over the Thames Estuary and crashed at Epping Green killing the pilot on 30 August 1940.



The 249 Squadron Hurricane, V6614, flown by Sergeant Michał Maciejowski during late 1940. He had several successful combats with the Squadron.



The Polish contribution in 1940

Polish pilots joined the North Weald squadrons in the desperate battles in the skies around London in August and September 80 years ago ...

Polish pilots played a major rôle in the Battle of Britain. As well as two Hurricane Squadrons based at Northolt, Polish pilots were posted to a number of other RAF squadrons. At North Weald, both 151 and 249 Squadrons had Polish pilots on their strength. Listed below are the pilots known to have seen action at the Airfield during the second half of 1940.

P/O Franciszek Czajkowski

Franciszek Czajkowski was born in Poland on 20 September 1916 and served in the Polish Air Force before the war. A graduate of the Fighter School at Dęblin, on the outbreak of war he served in 141 Squadron supporting Army Group *Pomerania* before escaping through Romania and France to England. He was commissioned in April 1940 and joined 151 Squadron at Martlesham Heath in early August.

On the 24th Czajkowski probably destroyed a Bf 109 and on 31 August he claimed another probable Bf 109 but was himself shot down over the Thames Estuary. He made a forced landing at Foulness, wounded in the right shoulder, and was admitted to Shoeburyness Hospital. His Hurricane, P3301, was written off.

He later served with 43 Squadron and died on 25 October 1942 from wounds received when the RAF hospital at the Palace Hotel in Torquay was struck by Fw 190 'hit and run' raiders. He was there convalescing following a flying accident.

Sergeant Feliks Gmur

Feliks Gmur was born on 6 November 1914. In September 1939 he was serving with 161 Fighter Flight which, together with 162 Fighter Flight, formed III/6 Fighter Squadron in support of the Łódź Army. He escaped through Romania to France, and then to Britain in early 1940, joining the RAF in February.

He was posted to 151 Squadron on 21 August and was killed on 30 August when his Hurricane R4213 came down at Jacks Hatch, Epping Green. He is buried in Epping Cemetery. The aircraft had only been with the Squadron for two days.

P/O Tadeusz Kawalecki

Tadeusz Kawalecki was born on 12 March 1915 at Stanisławów, Poland. In 1932 he entered Lwów University of Technology and three years later joined the Air Force Academy at Dęblin. He was commissioned in 1938 and then posted to 2 Air Regiment. In 1939 he was serving with 121 Squadron. He joined 151 Squadron at North Weald on 7 August 1940. His last flight with 151 was on 24 August. He remained with the Squadron, but made no further flights before being posted away to HQ No 1 AACU at Farnborough on 22 January 1941.

He then instructed at 15 EFTS Carlisle and 25 (Polish) EFTS Hucknall. He was later a staff officer with 84 Group and was captured in 1945 when the Auster he was in came down in enemy territory. He died in Canada in 1971.

Sergeant Michał 'Micky Mouse' Maciejowski

Michał Maciejowski was born on 23 June 1912 in Ostrów Wielkopolski, Poland. In 1931 he enrolled in the Department of Chemistry at Poznań University while carrying out flying training in the Polish Air Force Reserve. He was mobilized in August 1939 and posted to 3 Aviation Regiment in Poznań but did not fly operationally due to a shortage of aircraft.

After escaping to the UK, he was posted to 111 Squadron on 10 September 1940, then went on to 249 Squadron at North Weald on 11 October. He claimed a Bf 109 destroyed on the 29th, a Bf 109 destroyed and two more probably destroyed on 7 November, another probably destroyed on



The Polish Institute and Sikorski Museum – London

28 November and Bf 109s destroyed on 5 December, 10 January 1941 and 10 February. Because his name was difficult to pronounce he was known as 'Micky Mouse'.

He was posted to 317 (City of Wilno) Squadron when it was formed in February 1941. Later, when serving with 316 (City of Warsaw) Squadron, he was over Montreuil in France on 9 August 1943 flying Spitfire IX BS302 when he collided with F/O LA Kondraki in BS457. Kondraki was killed, Maciejowski baled out and was captured, becoming a POW at *Stalag Luft III* until his liberation on 1 June 1945. He later emigrated to Canada and died in 1988.

P/O Mieczysław Rozwadowski

Mieczysław Rozwadowski was born on 30 May 1915 and was serving in the Polish Air Force before the war. In September 1939 he was in action with their 111 Squadron, sharing in the destruction of an Hs 126 observation aircraft. When Poland fell, he escaped through Romania with other Polish pilots, and made his way directly to England, where he received his RAF commission on 24 January 1940.

He served with 151 Squadron and was listed as missing on 18 August over Dover in combat with a Bf 109. The Squadron had been in action over Kent. His body was never recovered. He was flying Hurricane V7419.

Sergeant Jerzy Solak

Jerzy Solak was born on 22 August 1910 near Kraków,

Poland. In 1928 he commenced a Civil Engineering degree at Lwów University and graduated in 1933. He enrolled in the Reserve Officers School of Aviation in Dęblin and graduated there as a pilot in 1934. He was then posted to 6 Air Regiment. He took part in air race meetings in Poland, Switzerland and England. After the German invasion he escaped through Romania to France, and then came on to England in February 1940.

He joined 151 Squadron at Stapleford on 28 August 1940 and moved across to 249 Squadron at North Weald on 27 September, serving with it until 22 February 1941. He then joined the newly-formed Polish 317 (City of Wilno) Squadron, still flying Hurricanes, and was commissioned.

After serving on further operations with 164 and 609 Squadrons, in 1943 he was posted to 41 Squadron and claimed an Fw 190 on 6 April 1943 flying MB800, a Spitfire Mark XII. He was later attached to the USAAF's 48th Fighter Group as a liaison officer, and was shot down over France in August 1944. He was captured but was able to escape. He later went to the USA, and died in 2002.

P/O Franciszek Surma

Franciszek Surma was born on 1 July 1916 in Galcowice, Poland. He qualified as a pilot on 15 June 1939 and was posted to 121 Fighter Squadron of 2 Air Regiment in Kraków.

He flew many sorties against the German invasion before escaping to Romania on 18 September. He made his way via Lebanon and France to England and was commissioned in the RAF on 24 January 1940.

He first joined 151 Squadron on 17 August and claimed a Heinkel He 111 destroyed on 30 August. He went to 607 Squadron at Tangmere in September and then returned to North Weald in October when he joined 257 Squadron.

On 8 November 1941 he was serving with 308 Squadron. This was bounced by Bf 109s near Dunkirk while providing bomber cover, and he was shot down in Spitfire Vb AB930, ZF-J. His body was not found. ■

Our pilots at war

Two young men go into battle with different outcomes...



Geoffrey Page, 56 Squadron

Geoffrey Page served as a young Pilot Officer with B Flight of 56 Squadron during the Battle of Britain.

In early July the Squadron intercepted a shipping strike by Stuka dive bombers over the English Channel. Page describes what happened next: "Grimly savouring the situation, I watched the flashing light emanating from the rear gunner's weapon ahead, while streaks of tracer warned me that the machine behind me was not being idle with its fire power. Closing the gap steadily, I waited until the range closed to about a hundred yards. Then, like a man yelling at the top of his voice to release pent-up feelings, I pressed the firing button and kept it depressed even after the Stuka had become a flaming inferno in front of my eyes. Almost regretfully I pulled away and watched the burning funeral pyre lose speed before plunging into the quenching sea that awaited ...

Twenty minutes later, physically and mentally exhausted, I landed and taxied to the dispersal pen, a different person. I had taken off from the same airfield an innocent and returned a bloodied fighter pilot, or was it a murderer

'56 Squadron at Readiness' is reproduced here by kind permission of Australian artist Barry Spicer. It shows Geoffrey Page's Hurricane US-X.

hiding behind the shield of official approval?"

He was himself shot down and parachuted into the English Channel on 12 August 1940 when his Hurricane was hit by defensive fire from a Dornier bomber and caught fire, burning him badly. He also suffered bullet wounds in his legs. The Margate lifeboat brought him ashore from a rescue steamer.

He then spent many months of reconstruction and rehabilitation at the Queen Victoria Burns Unit in East Grinstead where the New Zealand plastic surgeon Sir Archibald McIndoe pioneered many techniques.

He was to endure fifteen operations to his hands and face, and vowed that he would shoot down a German aircraft for each one. Amazingly he was eventually passed fit for operational flying and became a Wing Leader in 1944. He achieved his aim of destroying fifteen aircraft, although some of the victories were shared, but also broke his back in a crash. After the war he became Chairman of the Guinea Pig Club, set up to help give support RAF personnel who had suffered from burns.

Tom Neil, 249 Squadron

Tom 'Ginger' Neil joined the Royal Air Force Volunteer Reserve in October 1938 at the age of 18, and was subsequently called up at the outbreak of war. After completing his flight training, he was posted to A Flight of 249 Squadron, which was then based at Church Fenton in Yorkshire, as a Pilot Officer.

At the beginning of September 1940, when the Battle of Britain was at its height, the Squadron replaced a sadly depleted 56 Squadron at North Weald, taking over their Hurricanes equipped with improved radios. In the following weeks Tom destroyed six Messerschmitt Bf 109s, two Heinkel 111s, a Messerschmitt Bf 110, a Junkers Ju 87 Stuka, a Junkers Ju 88 and a Dornier Do 217.

For example, on 27 September he was "wallowing in the slipstream of an 88, I fired a long burst from slightly underneath, manhandling my aircraft violently as it strove to rise above the level of the tail and into full view of the rear gunner, and had the satisfaction of seeing a succession of vivid strikes on the rudder and starboard wing. Some inner voice shrieked at me to break away and look to my rear but, carried away with the fervour of battle, I remained in place and was about to fire again when there was a minor explosion on the right-hand side of the 88 and a shower of debris which produced a thin blade of flame and a

developing stream of smoke. As if mortally wounded by whatever had occurred, the aircraft immediately began to fall away to its right and, utterly intrigued, I watched it slowly drop its nose and drift over onto its side and beyond as though totally uncontrolled. The sight was almost unnerving. What on earth had happened?

Soldiers pose with Messerschmitt Bf 109E-4 (W.Nr. 5587) 'Yellow 10' of 6./JG 51 'Mölders', which crash-landed at East Langdon in Kent, 24 August 1940. The pilot, Oberfeldwebel Beeck, was captured unhurt. © IWM (HU 67704)



The fuselage of a Heinkel He 111 bomber, being transported by road to a scrap yard, October 1940. © IWM (HU 72439)

Had I done that? I found myself following it, then spiralling down in pursuit, but not for long! Suddenly there were aircraft all round me – friends, as it happened – triggering a violent and aggressive response from me, with the result that I lost sight of my former target and was obliged to look anew for the bomber formation."

During September 1940 he flew on 47 sorties over the course of 53 hours, and a total of 141 combat missions during the Battle of Britain. He was awarded the DFC and Bar, which he received from His Majesty King George VI during an investiture ceremony at Duxford in January 1941. On 7 November 1940 after a successful morning sortie when he shot down a Stuka and two Bf 109s, he had a near miss in the afternoon. The North Weald Station Commander Victor Beamish collided with his Hurricane while on patrol over Kent. Beamish made a forced-landing near Leeds Castle in GN-B, V7507, after losing his propeller, while Neil had to bale out, hurting his leg in the process. He later served in Malta and died in July 2018 aged 97. ■

Targeting the Sector Airfields

On Saturday 24 August the Luftwaffe began its systematic attacks on RAF Sector aerodromes. At around 1500 in the afternoon a large raid was detected inbound, and Hurricanes from 151 Squadron scrambled to intercept.

Climbing for height, the pilots were confronted with layer upon layer of Dornier and Heinkel bombers and their escorts. The Squadron went in to attack, and was joined by others RAF fighters. Some bombers jettisoned their loads, but the remainder pressed on to North Weald.

The resources of 11 Group were already fully stretched and a request was sent to 12 Group for help. But these reinforcing squadrons lost time joining up in Wing formation and arrived too late to prevent the bombing.

The defending Hurricanes had done their best, but the air raid reached its intended target. Over 200 bombs were dropped, running across the village and into the Airfield itself.

The Officers Mess, Married Quarters, and other buildings were badly damaged.

Nine teenage soldiers of the Essex Regiment, who had just arrived at RAF North Weald, died when their air raid shelter received a direct hit.

(There is now a memorial plaque commemorating this event in Hampden Close.)

At least ten other service personnel were seriously injured. In the village, the Post Office, a cottage opposite the Kings Head and the Woolpack Pub were destroyed and a woman killed.

The raids continue

The following Saturday (31 August) another large formation, estimated by The Observer Corps to be 200+ Heinkel and Dornier bombers, was seen approaching the Thames Estuary. This split into smaller formations and North Weald became a target for a second time, and suffered more damage.

On Tuesday 3 September the Airfield was hit again, but not seriously. The next morning at 0930, a raid of 50+ bombers was plotted flying up the Thames; its likely targets were the Sector airfields. Hurricanes from 249 Squadron at North Weald, which were caught in the middle of

refuelling after a sortie, scrambled to meet the threat along with others from 17 Squadron at Debden, and Hornchurch's Spitfires of 603 Squadron. Despite their efforts to break up the raid, North Weald was badly hit once more.

North Weald Airfield Museum

Clearing up the damage at Hangar 1



North Weald Airfield Museum

Blast from the bombs caused widespread damage



WAAFs under fire

One of the WAAF Operations Room plotters, Aircraftwoman Cooper recalls the scene: "After the bombing, we heard machine guns firing off and thought that they had got the ammunition dump. The decontamination centre proved to be far from bomb-proof. The MT Yard was ablaze. The Ops block had been hit, but not much damage had been done. There was a Delayed Action bomb outside the telephone exchange. In fact, except the Officers' Mess, which survived both raids, there was hardly any building that hadn't been damaged.

They got some of the hangars, but all our aircraft were up, except a few which were being serviced. I and two other plotters climbed into a civilian lorry and went off to Emergency Ops. All the service transport in the yard had been blown up. On the way, we thought there was another attack coming, but it was our aircraft returning. We ran Ops from Emergency Ops, and worked all that day and through the next night. We had to cook for ourselves and the airmen."

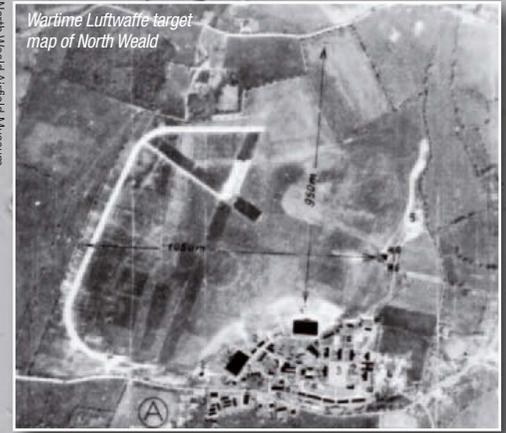
North Weald Airfield Museum

Burnt-out motor transport



North Weald Airfield Museum

Wartime Luftwaffe target map of North Weald



The Sector Operations Room was then relocated to the safety of Blake Hall nearby for the rest of the war.

Once again 12 Group was asked for assistance, and sent the Czech Hurricanes of 310 Squadron, which claimed four Bf 110s of I/ZG2 destroyed. One of these, 3M+HL, collided with a colleague while being pursued and was shot down over Epping. The other Bf 110 involved in this incident, 3M+EK, crashed at Harlow.

Most of the bombs had fallen on the southern and western sides of the Airfield and, although cratered, it was still operational, continuing to play its part in the fighting which raged overhead. But the Airfield itself had also become a field of battle. Five more were dead and 39 injured.

Onto the offensive

The damage was repaired, and after the defensive role played by its fighter squadrons during the Battle of Britain, North Weald was able to go on to the offensive. The countless sweeps by the squadrons of the North Weald Wing all contributed to the eventual liberation of occupied Europe, with American, Norwegian, Czech and Polish volunteers all flying from the Airfield. ■

Target: North Weald

The four Luftwaffe raids in 1940 caused serious damage both to the Airfield and the local area

On the receiving end of the bombs

Two pilots recall how they were caught on the ground during a scramble for the October raid...

Sergeant Jerzy Solak, was a Polish pilot who arrived in Britain during 1940 and first became operational with 151 Squadron at Stapleford Tawney on 28 August. At the end of September he joined 249 Squadron at North Weald. Here is his recollection of the air raid of 29 October:

“Our squadron taxied to the take-off point, waiting for the signal. The neighbouring squadron did the same, positioning itself for take-off on our left side, exactly at the right angle. Suddenly, my plane shuddered. With the corner of my eye I saw bomb explosions at the other end of the airfield, one of them tossing a portion of the officer's mess into the air! Then a red flare was up – the signal for take-off. We quickly started the engines and immediately applied full throttle, all at the same time.

“Explosions on the ground! We're airborne... I can see the falling bombs, still in the air... I curl in the cockpit... Explosions on both sides... to my right, a very close one. The Hurricane on the right vanishes in the cloud of smoke and dirt, mine is tossed up, the commander is still flying too. I can hear the rattling of debris hitting the wings and fuselage.

“Above me, I see a Messerschmitt, and a Hurricane on its tail. But four other Germans are diving on the Hurricane. I pull back on the stick and fire a long burst in front of their noses. My Hurricane stalls, but the Messerschmitts break their formation. When I regained control, I found myself close to a German, escaping eastward. There were swamps beneath us, the visibility was getting worse. I was slowly gaining on him at full throttle, positioning myself under his tail. Totally composed, almost relaxed, I fired a long, well-aimed burst. The German pulled into vertical, then tumbled downwards trailing a long, thick band of smoke, and disappeared into the fog over the swamps.

“I turned back to the airfield. Near the dispersal area an overturned Hurricane was burning. The guard booth at the airfield gate, which had been rebuilt maybe four times already, had vanished, a big crater in its place.”

Sergeant George 'Titch' Palliser joined 249 Squadron on



Titch Palliser stands on the wing of his Hurricane as it is rearmed

14 September 1940. He describes his own experience of the same raid:

“As the aircraft were preparing to take off, there was a mighty roar of engines, the clatter of machine guns and the vicious crack of bombs exploding. Together with some of the others on stand-by, we ran like hell for our aircraft to join the action.

“The aircraft had been started by our ground staff, who had not run for shelter. I saw a clear run and went full throttle to get airborne as quickly as possible – the next second there was a mighty “crack” from the direction of Tubby Girdwood of 257 Squadron who was about a hundred yards on my starboard side, also about to be airborne.

“At that instant I was airborne and felt a hell of a vibration which shook the aircraft – I thought that I was in trouble – and keeping in full throttle and staying low I executed a half turn of the airfield and landed. I managed to taxi back to the dispersal, noticing a Hurricane was on fire a few hundred yards from the perimeter track – my immediate thought was ‘My God, Tubby Girdwood.’

“By this time many were running to the burning aircraft and I joined them, only to be prevented from being too close as ammunition was exploding from the heat of the flames. We stood and watched so helplessly and witnessed the terrible sight of a friend burn to death – this was a shocking experience, considering we were talking and joking only fifteen minutes earlier with Tubby and other Sergeant Pilots before the scramble.

“In regard to my aircraft, it was found that a part of the blade of the propeller had been sliced off by the fragments of the same bomb which had burst under Tubby Girdwood.

“The damage to the airfield and buildings, and the loss of life and injuries to personnel was serious indeed; however, our pilots that had managed to become airborne were in a good position to chase and attack the 109's. At least four were shot down and a number damaged.” ■

Profile of the original experimental Hurricane, L1750, with two underwing 20mm Oerlikon cannon. It is finished in the June 1940 scheme with Sky undersides and no roundels. An earlier factory photo shows silver undersides with large L1570 codes and no squadron letters.



Dick Smith's hard-hitting Hurricanes

The first two cannon-armed prototypes were used experimentally by 151 Squadron at North Weald during the Battle of Britain in 1940

As early as 1939, the Air Ministry was looking at installing 20 mm cannon in fighter aircraft as a more powerful and devastating alternative to the standard armament of eight 0.303-inch Browning machine guns.

Hawkers fitted an experimental installation of two 20 mm Oerlikon cannon to a Hurricane Mark 1, L1750. These were contained in housings under each wing, but they reduced the speed by some 20 mph. Each round also had to be greased, which was not acceptable operationally.

During the Battle of Britain, the aircraft was allocated to 151 Squadron, then based at North Weald, but it was not popular because of its unreliable guns and slower speed.

A new commander for B Flight was posted in from Aston Down in early June – F/Lt R L 'Dick' Smith. His first few weeks were spent getting fully operational in the aftermath of the Dunkirk evacuation. Then, in early July, he noticed an unusual Hurricane in the Squadron's hangar, and asked about it.

“This aircraft was L1750, Squadron letters DZ-Z, and it had two cannons, which were cocked and fired by a tricky procedure, I think the system was called ‘Eureka’... We were short of aircraft, the idea of flying an Experimental system appealed to me, and I was now leading B Flight and often the Squadron, and having the leader with a slow aircraft helped the rest of the aircraft to keep up – so I flew ‘Z’ as a routine.”

The reliability of the guns improved with use, and he shot down a Dornier 17 on 13 August. His Hurricane was hit in

the armoured windscreen and he took a perspex splinter in his eye. Smith flew 80 operational missions with L1750 until it was again damaged by enemy fire, and was sent to Cardington for repair. It returned to the Squadron, then based at RAF Digby, in October and he flew it for the last time on 22 November 1940.

He also used another Mark 1 fitted experimentally with cannon on many sorties – V7360. This Hurricane had four drum-fed 20 mm Hispano cannon in the gun bays of the wings, and bore the Squadron letters DZ-C. It was the initial prototype of the layout used later in the Hurricane IIC.

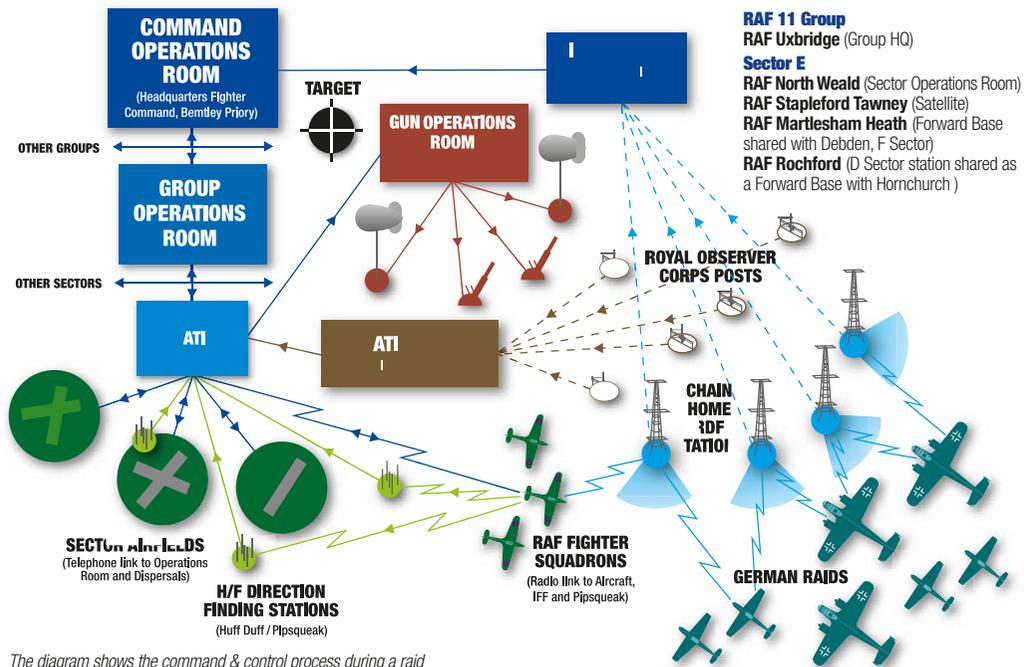
But V7360 did not have the more powerful Merlin XX of the developed aircraft, and was heavier and even slower than L1750. The guns were designed for mounting within rigid engine blocks, so the recoil in the more flexible wing structure twisted the installation and caused the shells to misfeed. Smith persisted with the aircraft, and on 31 August, scored a probable on a Messerschmitt 109 while flying it out of Stapleford Tawney, a satellite aerodrome of North Weald.

V7360 was then transferred to 46 Squadron at Stapleford and F/Lt Alexander Rabagliati shot down a Messerschmitt 109 on 5 September. It later returned to Hawkerc for further development to modify and strengthen the gun mountings.

Mark IICs eventually became the most numerous version of the Hurricane; 4,711 were built. Smith flew 133 sorties with the cannon prototypes and so 151 Squadron played a useful role in developing this fine ground-attack aircraft. ■

Profile of the second experimental Hurricane, V7360, with four 20mm Hispano cannon in the wings. It is finished in the August 1940 scheme with reapplied underwing roundels.





The diagram shows the command & control process during a raid

The right place at the right time

How Fighter Command countered the Luftwaffe raids during the Battle of Britain in 1940 with an unprecedented command and control system

The RAF had worked throughout the 1930s on creating an effective early warning system against air attack and ways of bringing fighter aircraft into contact with raiders. The whole force had been restructured, and the newly-created Fighter Command divided into Groups, which were further sub-divided into Sectors. Each Sector had two or three airfields, each equipped with Hurricanes or Spitfires. North Weald was the main station for Sector E, 11 Group.

Radio Direction Finding (RDF), later known as Radar, was the key to success. It resulted from research which demonstrated that objects such as aircraft could reflect radio waves, and so using transmissions to detect aircraft was indeed possible.

Robert Watson-Watt led the research, and a viable system was created at Bawdsey in Suffolk during the summer of 1936. By the time war came, a network of RDF stations was in place, operating on the 12-metre wavelength.

Located mainly along the south and east coasts at about 20 mile intervals, the tall Chain Home transmitter and receiver masts only covered out to sea, though cross-bearings could be taken from two stations for a more accurate position fix.

The higher the contact flew, the further it could be detected: at 13,000 feet the range was 80 miles and 50 miles at 5,000 feet. The maximum range in good conditions was around 120 miles. RDF was not effective above 20,000 feet and below 5,000 feet. For low level coverage a second RDF system, Chain Home Low, was derived from naval 1.5-metre wavelength equipment. Its range was roughly 50 miles.

Reports of sightings on the cathode ray tubes were sent to the Filter Room at Fighter Command Headquarters in Bentley Priory where they were assessed and passed on to the Operations Room. The raids were plotted on a



A Royal Observer Corps post is displayed at the IWM Duxford



1940 Sector Operations Room at Duxford

large, gridded map with colour-coded direction arrows and marker blocks displaying estimated numbers and height. The colour code was matched to a clock and changed every five minutes. It was therefore easy to see if a raid had been missed as it proceeded. RAF plots were differentiated by yellow flags with the squadron number on their markers.



The information was passed down to the Group and Sector Operations Rooms for plotting in a similar way. To cover the progress of raids inland, 1,400 Royal Observer Corps (ROC) posts were set up.

They were in telephone contact with their own

Operations Rooms to report any enemy aircraft in view. Sightings were forwarded to the local Fighter Command Sector Operations Room to keep the plot updated, and from there back up to the Group and Headquarters. North Weald's local ROC Operations Room was 4 Group HQ at Colchester.

The Sector Controllers (including North Weald) scrambled their fighters on orders from Group, directing them towards the enemy raids by radio, and bringing other squadrons to readiness status. The Controllers used a simple code to direct their aircraft: *Angels* referred to altitude in thousands of feet, *Vector* was an instruction to steer a particular course, *Buster* meant full throttle, *Pancake* was a recall to land and *Bogey* an unidentified aircraft plot, for example.

Bundesarchiv



RDF trace showing transmitted signal strength on left and 'blip' contact at 60 miles on the range scale

German Dornier 17 bombers form up for a raid

High frequency direction finding equipment (D/F) was used to monitor aircraft positions using their radio transmissions. This was known as *Huff-Duff*, and each Sector had three D/F stations, which fed position reports through a dedicated plotting table in the Sector Operations Room. The aircraft's clockwork D/F transmitter was called *Pipsqueak*, and used the second channel of the TR9D radio. North Weald's D/F stations were based on the Airfield, at Sudbury and Steeple (south east of Maldon). They were manufactured by Marconi.

Later, RAF aircraft carried an IFF (Identification Friend or Foe) transponder, codename *Parrot* – hence the aviation term *Squawk* – whose signal showed up as a stronger 'blip' on the trace of the RDF display.

There were teething troubles, like the confusion which led to the *Battle of Barking Creek*, where two of North Weald's 56 Squadron Hurricanes were accidentally shot down by 74 Squadron Spitfires from Hornchurch. But the system proved to be effective and robust as controllers and plotters gradually gained experience.

It also relied on a sophisticated and extensive telephone network. Even though the raids caused very heavy damage to RAF airfields, GPO engineers managed to keep the system operational.

Most of the Operations Rooms were above ground, and several were damaged during the bombing raids. North Weald's suffered a direct hit on 3 September. The controllers and plotters were relocated first to Ongar, and later to Blake Hall.

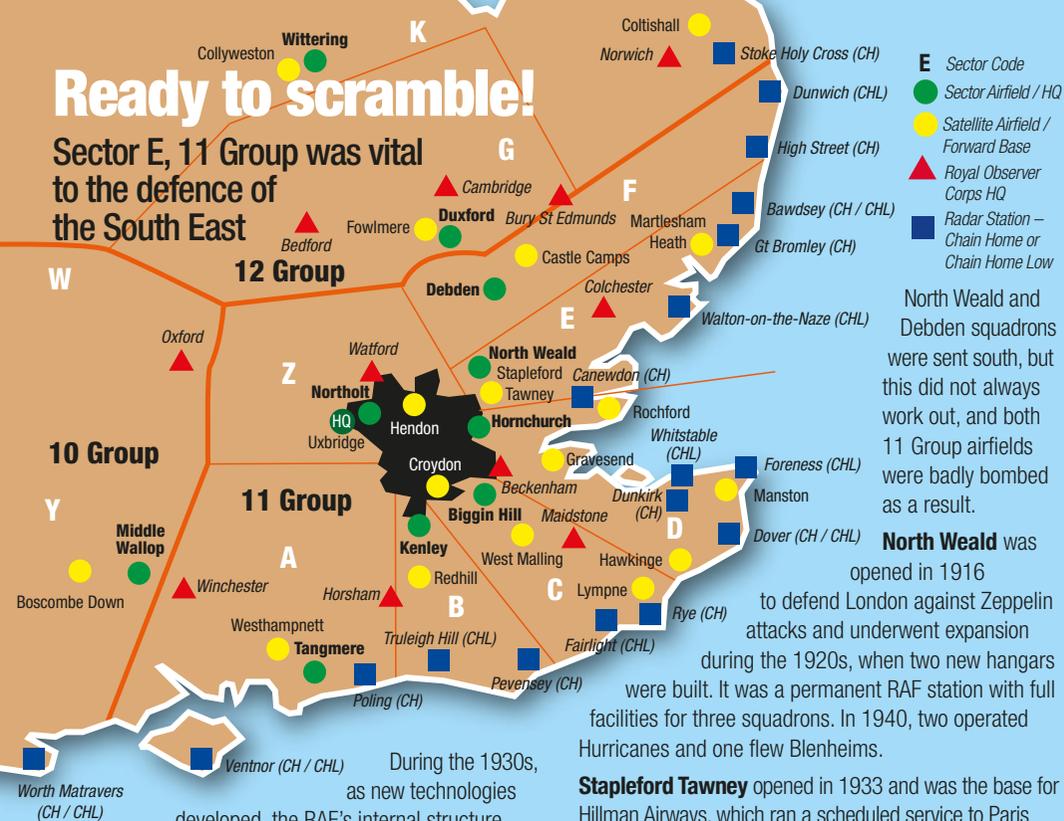
Many of the RDF and Operations Room staff were women of the WAAF, who showed great fortitude and bravery under fire.



Marker block with height and estimated number of aircraft and coloured track arrows. The second marker shows an RAF squadron denoted by a yellow 'flag'

Ready to scramble!

Sector E, 11 Group was vital to the defence of the South East



During the 1930s, as new technologies developed, the RAF's internal structure was reorganised. In place of the Fighting Areas and Bombing Areas, new commands were set up reflecting their functional task: Fighter Command, Bomber Command, Coastal Command etc. These were divided into Groups based on geographical areas. For Fighter Command, the South West and Wales were covered by 10 Group, the strategically vital South East by 11 Group, the industrial Midlands by 12 Group, and the North of England, Scotland and Northern Ireland by 13 Group.

Fighter Command Groups were also sub-divided into Sectors. There were seven in 11 Group. Sector E was responsible for covering north of the Thames estuary and Essex, and convoys routing up the east coast. But during the Dunkirk evacuation and Battle of Britain in 1940, fighters from the Sector fought all over the South East and English Channel as well.

RAF North Weald was the main Sector Station and HQ of Sector E. Its satellite airfield was Stapleford Tawney, and it shared Martlesham Heath near Ipswich with Debden (Sector F) and Rochford (now Southend Airport) with Hornchurch (Sector D) as forward bases.

Squadrons from 12 Group based at Duxford and Fowlmere (and Coltishall) were supposed to provide support when the

Stapleford Tawney opened in 1933 and was the base for Hillman Airways, which ran a scheduled service to Paris using Dragon Rapides. The airfield was incorporated into the RAF Volunteer Reserve training programme as No 21 Elementary and Reserve Flying Training School during 1938.

It was later requisitioned and made a satellite station for North Weald. Both 151 and 46 Squadrons flew from there during the Battle of Britain. One large hangar was built and a perimeter track laid out. The runways remained grass.

Martlesham Heath was another permanent RAF station to the east of Ipswich, which was opened in 1917. For many years it had been the RAF's Aeroplane and Armament Experimental Establishment, but this testing function was moved to Boscombe Down at the outbreak of war.

The airfield was used as a forward operating base by both the North Weald and Debden Sector squadrons. In May 1943 it was taken over by the USAAF, which operated the 356th Fighter Group from there until 1945.

Rochford, on the outskirts of Southend, was also used in 1916 as another of the landing grounds providing defence against Zeppelins. The grass airfield had basic facilities and was used as a forward base for fighters during the Battle of Britain. Although in Sector D, it was used by North Weald squadrons as well. ■

North Weald and Debden squadrons were sent south, but this did not always work out, and both 11 Group airfields were badly bombed as a result.

North Weald was opened in 1916 to defend London against Zeppelin attacks and underwent expansion during the 1920s, when two new hangars were built. It was a permanent RAF station with full facilities for three squadrons. In 1940, two operated Hurricanes and one flew Blenheims.

Recalling Blake Hall

The North Weald Sector Operations Room relocated there after being bombed at the Airfield...

Following the bomb damage to the North Weald Sector Operations Room during the raids of 1940, the facility was moved first to a butcher's shop and then a drill hall in Ongar and finally to Blake Hall in 1941. The Hall had been used as a hospital in World War 1, and was once again requisitioned, this time for use by the RAF. Building work was done to convert the ground floor into offices and the plotting room, and install telephones and teleprinters, which were connected to the Fighter Command network.

Joyce Morley was a WAAF officer serving with the North Weald Sector. She had initially been a supervisor with the Ground Control Interception radar station at Trimley Heath near Felixstowe, but was later transferred to Blake Hall as a controller.

"We went to the Sector Ops Room early in the morning when the teleprinter issued details for the sortie that day. Two Norwegian squadrons of Spitfires, under the command of a Dane were based at North Weald, 331 and 332 Squadrons: their work day after day was to act as top cover for our bombers attacking the rocket sites on the Pas de Calais.



"Our job (two WAAF officers) was to work out the courses for the Spitfires to rendezvous with the bombers en route, bearing in mind the changing wind speed and direction as they climbed. We were then taken to dispersal to compare our courses with those of the Wing Commander and hear his briefing. Then we stood on the end of the runway and watched the 24 Spitfires take off in threes — one on the runway and two either side on the grass, form up and then set off on course. It was a simply marvellous sight against a clear blue sky and something I shall never forget. After that back to the Ops Room to



watch the progress and very successful operations they proved to be and very necessary."

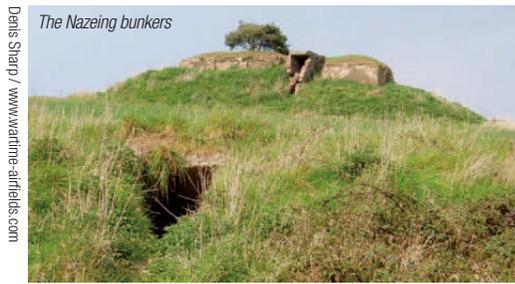
Another WAAF working at Blake Hall was Eve Lockington. She recalls the poor conditions of the huddled accommodation in the grounds: "The hut was very basic, warmed in winter by two black round coal stoves with two toilets and two cold-water washbasins in a room at the far end. In very hot weather dampness would seep up through the floor and I remember walking down the highly polished floor of the hut, leaving damp footprints behind.



"We also acquired electric rings which we ran off the light hangings. It was amazing that we did not fuse the light system nor set the hut on fire. On these makeshift stoves we cooked anything we could scrounge from the mess room. Opposite Blake Hall were fields in which cows grazed. These fields were a good place for mushrooms. Some of us used to get into the field and pick the mushrooms and then take them along to the Air Ministry Guards on the gate who seemed to know about such matters, and they would tell us if the fungi were edible."

Although the German raids had largely ceased, there were sometimes moments of minor drama: "On one occasion, a hot summer night when the windows behind the baffle wall of the Operations room, were open, a bat actually flew into the room whilst we were on duty. I can remember the officers on the observation desk taking swipes at it with their rulers."

Blake Hall was returned to its owners, the Capel Cures, after the War. For many years there was a small museum recalling its days as a Control Room. It is now a venue for weddings and receptions. ■



The Nazeing bunkers

Dennis Sharp / www.warbirds-airfields.com

Dennis Sharp / www.warbirds-airfields.com

Hide and seek

Diverting enemy attention from a target with realistic decoys...

Camouflage was important in the defence of North Weald from air attack. The runways had shapes painted on them to represent streams, ponds and hedges, and buildings coloured to break up their regular shapes as seen from the air.

To divert *Luftwaffe* bombing raids North Weald also had two decoy airfields nearby at Nazeing to the north-west and Blackmore to the east. The Nazeing site was used for operations both during the day (*K Site*) and night (*Q Site*), while Blackmore was a night time decoy only.

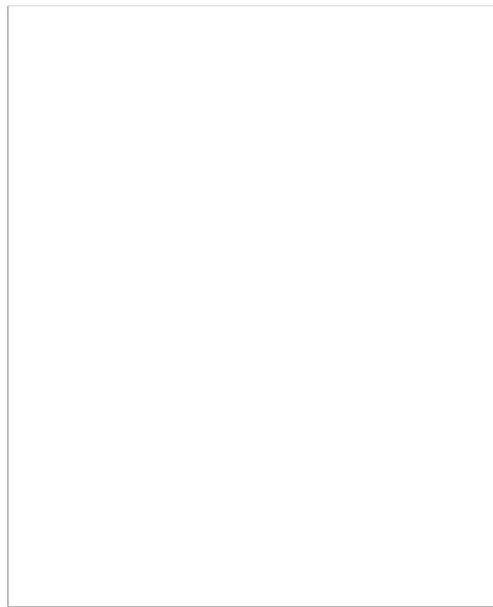
Nazeing, known as *42 Decoy Site*, had dummy plywood and canvas Hurricanes dispersed around the perimeter. These were made by a company called Green Brothers from Hailsham in Sussex, who normally made garden furniture, and cost £50 each.

One bunker (Type 3395/40 of brick and concrete covered in earth) housed the generator for the different lights, which were mounted on poles of varying lengths and also featured dummy moving headlights.

A subterranean bunker constructed from corrugated iron on a concrete base was used as a control room. These bunkers survive, along with an Allan-Williams Turret from the ground defences, which can be seen at the Imperial War Museum, Duxford. A separate barracks hut no longer exists. These were located away from the actual site to protect the crews from bombs aimed at the decoy lights.

The site was set up in March 1940 and was used until June 1941. By the end of December the *Luftwaffe* had realised it was a dummy aerodrome, but it was bombed several times. A fragment of a local schoolboy's diary has been found which records at least eight loads of bombs being dropped in the local area during October and November.

A Wellington bomber of 9 Squadron, P9231, from RAF Honington, which was short of fuel, mistook it for a real airfield



and landed on the fully-lit flare path. It had to be dismantled by a North Weald working party and taken away by road! Later a Percival Proctor flew in with the same result.

There was also a Royal Observer Corps position on the northern side of the site, which continued in use through the Cold War as an underground nuclear monitoring post.

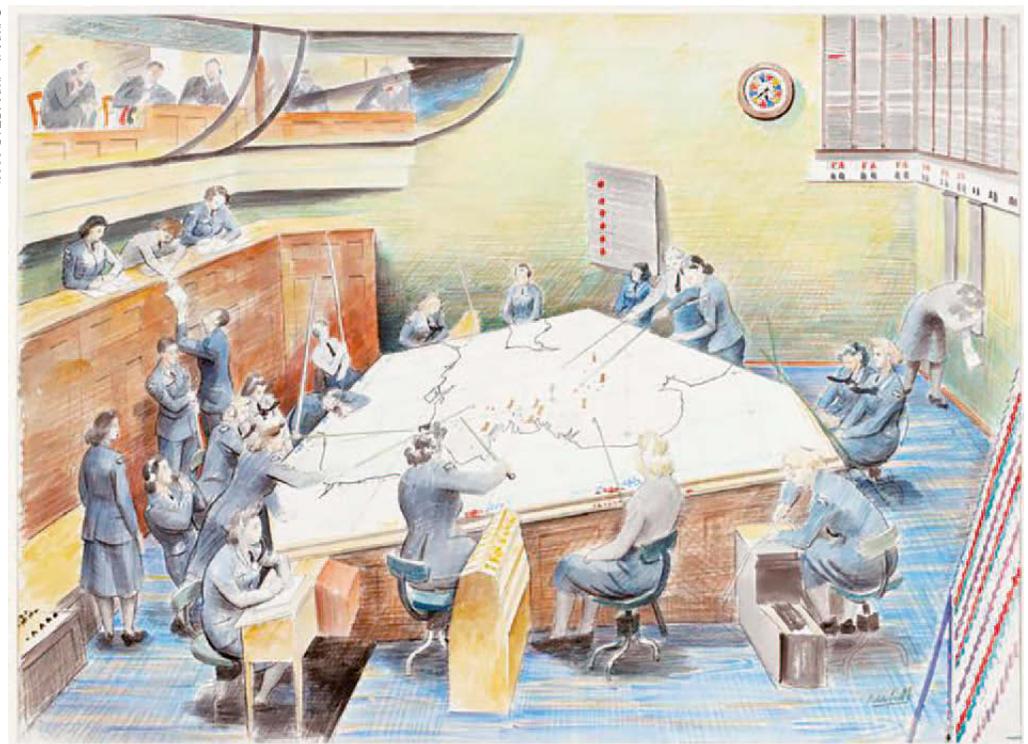
Blackmore had a similar lighting set-up to Nazeing and was later used by the USAAF as a decoy for its airfield at Chipping Ongar. It was operational until 1944, and later returned back to agricultural use.

These decoy sites stemmed from an idea by Colonel John Turner RE, who became head of Works & Buildings with the Air Ministry in 1931. He was also a pilot and understood the infrastructure and design of airfields. In 1939 he was put in charge of the deception and decoy schemes.

His department was based at the Shepperton Film Studios and made use of the technicians from Sound City Films, who were experts at creating illusions from canvas and wood. They also trained RAF personnel on decoy aircraft of various types, erecting, dismantling, and moving them as they would have to do on their sites. Over 230 decoy airfields were eventually created around the UK.

Other sites used lighting effects and a sophisticated range of different types of fire to simulate a raid in progress and lure bombers away from built-up areas, factories, marshalling yards and oil refineries. These were known as *Starfish* or *QF (Q-Fire)* sites, and 237 were placed near potential targets across the country, successfully diverting 730 raids. ■

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On the phone

The vital backbone of communications

Telecommunications played a vital role in the defence of the UK during World War 2. The network of coastal radar stations and inland Royal Observer Corps posts each had to be able to report sightings of enemy aircraft quickly and securely to filter and control rooms directing the air defences.

Many preparations were carried out, with over 500 emergency long distance circuits laid between towns using alternative routes, vulnerable sites by-passed, and old manual telephone exchanges were mothballed and held in reserve. Public trunk lines were earmarked for the Services, and these were switched over on the outbreak of war. As well as the telephones provided for raid reporting, a national Defence Teleprinter Network was also inaugurated in March 1939.

With the collapse of France in June 1940 and Britain now in the front line, additional aerodromes, anti-aircraft batteries, searchlight sites and Ground Control Interception radar stations were set up, many in the countryside. These all needed linking with the telephone network by engineers, who were part of the newly-formed Defence Telecommunications

A watercolour illustration of the RAF Uxbridge Control Room was painted by Roland Pitchforth in 1940. Telephones and teleprinters were vital to keep the command & control system functioning during massed air raids.

Control Organisation and working in its regional branches.

Once the Battle of Britain started, the Post Office War Group was responsible for repairs to bomb damaged facilities and cables. Engineers often worked under fire or with unexploded bombs nearby, yet they were still able to open additional military communication channels as required. Over 400 Post Office employees died whilst carrying out their duties.

At North Weald, the raids caused severe damage and the Sector Control Room suffered a direct hit on 3 September 1940, with all but one of the lines to the Royal Observer Corps severed as well as the High Frequency Relay cables for the air/ground radio network. The Control Rooms had to be relocated, first to Ongar and then Blake Hall, which then needed its own connection to the Fighter Command telephone and teleprinter networks in turn.

The sound of the telephone bell at dispersal initiating a scramble is something that all Battle of Britain pilots remembered for the rest of their lives. A ceramic connector for the telephone to the dispersal hut which was adjacent to the Hangar 4A revetment can still be seen attached to the trunk of a tree by the stream. ■

R.A.F. Form 540		OPERATIONS RECORD BOOK		Page No. 3
21793, WL 2805/2552 600,000 17730-4HC 4 CO-51-5658		No. of pages used for day		
of (Unit or Formation) <i>Station Head Quarters, North Weald.</i>				
Place	Date	Time	Summary of Events	References to Appendices
	21/8/40	15.30	<i>Squadron leader KING arrived to take over command of 151 Squadron.</i>	
	24/8/40	15.40	<i>Eight A/C 151 Squadron left N.WEALD to intercept raid approaching aerodrome from East. Enemy consisting of thirty to fifty Do 215's accompanied by up to a hundred He 111's. Bombs were above clouds at 15000ft. in very close formation. Sections of three in lead column. Waves of Me 110 were stepped up above bombers which were circled by other Me 110's at same level; travelling at about 200 mph. Bombers broke clouds and bombed N.WEALD from about 15000ft. 150-200 bombs were dropped. Airman married quarters & officers married quarters suffered severely. Provosts badly damaged. Majority of bombs fell along main EPPING-ONGAR road. Damaging water supply and gas mains. A number of delayed action bombs exploded; some exploding on following day; remainder left with by Demolition Squad. Casualties 9 killed 10 wounded. The killed and majority of wounded were in a shelter which suffered a direct hit. 1 He 111 destroyed P/O ELLACOMB 1 Me 109 probably destroyed P/Lt SMITH 2 He 111 probably destroyed P/O SMITH & P/O BLAIR. 1 Do 215 damaged W/C BEAMISH 1 Do 215 damaged S/L KING 1 Me 109 probably destroyed P/O CZASKOWSKI (Polish) on casualty one a/c damaged.</i>	
	25/8/40	1500	<i>Lights rain.</i>	

The North Weald Operations Record Book for the day of the first air raid on 24 August 1940, recording the casualties on the ground and successes in the air

Making the ultimate sacrifice

The roll of Battle of Britain fatalities suffered at North Weald in 1940

Around one quarter of the total fatal military and civilian casualties which occurred at the Airfield during World War 2 were suffered during the Battle of Britain between July and October 1940, both in the constant aerial combats and as a result of the three air raids on 24 August, 3 September and 29 October. These included the teenagers of the Essex Regiment who were killed by a direct hit on their air raid shelter in what is now Hampden Close and Sgt Girdwood, whose Hurricane was destroyed by a bomb while taking off. Two Polish pilots from 151 Squadron died in the fighting, while 46 Squadron also suffered heavily having just reformed after their disastrous losses in the Norwegian Campaign.

The fatalities on the ground and in the air

July 12	F/O James Allen, No. 151 Sqn	July 29	F/Sgt Cecil Cooney, No. 56 Sqn
July 13	Sgt Joseph Whitfield, No. 56 Sqn	August 11	Sgt Ronald Baker, No. 56 Sqn
	Sgt James Cowsill, No. 56 Sqn	August 12	P/O Robert Beley, No. 151 Sqn
July 24	P/O Jack Hamar, No. 151 Sqn	August 15	P/O Mieczyslaw Rozwadowski, No. 151 Sqn
		August 17	P/O John Johnston, No. 151 Sqn
		August 18	F/O John Coghlan, No. 151 Sqn
		August 18	F/O John Ramsay, No. 151 Sqn
		August 24	Pte John Barnes, Essex Rgt
			Pte John Bates, Essex Rgt
			Pte Frederick Elliott, Essex Rgt
			Pte Stephen Held, Essex Rgt
			Pte Nathaniel Miles, Essex Rgt
			Pte Monty Pincus, Essex Rgt
			Pte Stephen Shuster, Essex Rgt
			Pte Douglas Wood, Essex Rgt
		August 26	F/O Robert Edwards, No. 1 (RCAF) Sqn
		August 30	Sgt Feliks Gmur, No. 151 Sqn
			S/Ldr Eric King, No. 151 Sqn



- August 31 F/Lt Percy Weaver, No. 56 Sqn
- September 2 P/O John Bailey, No. 46 Sqn
- September 3 John Diprase, Civilian
Sgt Gerald Edworthy, No. 46 Sqn
P/O Douglas Hogg, No. 25 Sqn
Arthur Sweeting, Civilian
Stanley Wright, Civilian
- September 7 P/O Robert Fleming, No. 249 Sqn
- September 9 S/Lt Jack Carpenter, No. 46 Sqn
- September 11 Sgt Stanley Andrew, No. 46 Sqn
Sgt William Peacock, No. 46 Sqn
- September 14 F/O Richard Plummer, No. 46 Sqn
- September 15 F/O Hugh Lambert, No. 25 Sqn
F/O Miles Miley, No. 25 Sqn
LAC John Wyatt, No. 25 Sqn
- September 18 Sgt George Jefferys, No. 46 Sqn
F/Lt Denis Parnall, No. 249 Sqn
- September 27 F/O Percival Burton, No. 249 Sqn
P/O James Meaker, No. 249 Sqn
- September 30 P/O John Crossman, No. 46 Sqn
- October 10 Sgt Edward Bayley, No. 249 Sqn
- October 15 P/O Peter Gunning, No. 46 Sqn
F/Sgt Eric Williams, No. 46 Sqn
- October 22 Sgt Robert Fraser, No. 257 Sqn
P/O Norman Heywood, No. 257 Sqn
Sgt Joseph Morrison, No. 46 Sqn
- October 26 P/O William Pattullo, No. 46 Sqn
- October 29 AC1 Harold Elliott, Station North Weald
Sgt Alexander Girdwood, No. 257 Sqn
AC1 Luis Harradine, Station North Weald
AC1 Thomas Saunders, No. 249 Sqn
AC2 Thomas Rothwell, No. 257 Sqn
George Tyrell, Civilian

Eyes right! Perspex splinters in the eye led to a pioneering discovery for treating cataracts...

A frequent injury suffered by aircrew was Perspex splinters entering the eyes from shattered canopies. Doctors found that Perspex lodged in the eye did not trigger inflammatory rejection, which occurred with other types of shrapnel splinters, so that more urgent injuries could be treated first.

This gave ophthalmic surgeon Sir Harold Ridley the idea that replacement lenses could be fashioned from Perspex. One of the pilots he treated during the Battle of Britain while working at Moorfields Eye Hospital was Squadron Leader Gordon 'Mouse' Cleaver of 601 Squadron.

Experimental versions were made from Perspex rod. The first lens was implanted in November 1949 at St Thomas' Hospital in London and helped to lay the groundwork for a practical treatment of cataracts.

Today, flexible silicon lenses are used and inserted through tiny incisions in the eye. The procedure is now one of the most cost-effective operations, with immediate benefits to the quality of life for the patient.

In developing countries airliners have been converted into mobile clinics, where surgeons operate on hundreds of patients at each site visited. A cataract can be removed and the replacement lens inserted in around 45 minutes under local anaesthetic. The procedure requires no stitches! ■



Remembering 1940

Special memorials can be seen at Capel-le-Ferne and the Victoria Embankment, London...

The Battle of Britain Memorial, Capel-le-Ferne

The Battle of Britain Memorial at Capel-le-Ferne in Kent is set on the clifftops overlooking the Channel and France. It consists of a central statue and black marble Memorial Wall listing all the pilots who took part. A replica Hurricane and Spitfire are set to the side next to the 'Wing' visitor centre which features extensive interactive displays about the Battle.

The Memorial was opened in July 1993 and was the brainchild of Wing Commander Geoffrey Page, who served with 56 Squadron at North Weald during the Battle, before being shot down and badly burned in August 1940.

The statue, created by Harry Grey, wears an Irvin jacket so his nationality and his rank are unknown. The Christopher Foxley-Norris Memorial Wall also lists neither rank nor decoration. The figure sits on a propeller boss surrounded

by the badges of all the Allied squadrons and other units.

A smaller statue of the 'Bob' the Squadron Dog by Marion Smith sits near the aircraft. There is also a separate brick memorial structure next to the entrance.

The Memorial is open throughout the year for access on foot. From 1 March to end September, the 'Wing' visitor centre and café are open from 10am – 5pm (last entry to the Experience/café purchase 4.30pm).

From 1 October to end February, 10am – 4pm (last entry to the Experience/café purchase 3.30pm). The Memorial's Postcode is CT18 7JJ.

More information about the Memorial is available on their website at www.battleofbritainmemorial.org



'Never in the field of human conflict was so much owed by so many to so few' WINSTON CHURCHILL



The Battle of Britain Monument, Victoria Embankment, London

The Battle of Britain Monument is a spectacular two-part structure which is on the Victoria Embankment (north bank of the River Thames) about 200 metres to the east of

Westminster Bridge in central London. It is accessible 24 hours-a-day and is floodlit at night.

The Monument consists of different tableaux, not just of the Battle of Britain, but also covering military and civilian life, such as the workers supporting the airmen, the Royal Observer Corps, ground crew, women working in munitions factories, ordinary people on the receiving end of the Blitz making cups of tea or civil defence digging out survivors.

The bronze centrepiece is 'Scramble', with airmen running towards their aircraft after being ordered to intercept an enemy raid. Around the outside of the Monument are Squadron crests and a list of all the airmen who flew combat missions during the Battle of Britain. These are organised by their country, and their individual biographies are available to view on the Monument's website.



A total of 2,938 airmen are officially recorded as having fought in the Battle and 544 lost their lives. To be classified as a Battle airman they had to have flown at least one authorised sortie with an accredited unit of RAF Fighter Command in the period 10 July to 31 October 1940. This was recognised later by the awarding of the Battle of Britain clasp to the 1939-45 Star.

The original idea came from the Battle of Britain Historical Society. The sculptures were created by Paul Day, and the Monument was unveiled in September 2005. Their website, which provides full background information, can be viewed at bbm.org.uk/the-monument

There is also a Battle of Britain Memorial Window that can be seen nearby in Westminster Abbey. ■

