

The

Spirit of North Weald

The North Weald Airfield History Series | Booklet 2



The silver biplane years
between the wars



North Weald Airfield

Epping Forest District Council
www.eppingforestdc.gov.uk



The longest serving squadron at North Weald

56 Squadron operated from the Airfield between 1927 and 1941

The Squadron was formed in June 1916 and was posted to France the following year flying SE5 fighters. By the end of the war, it had claimed 402 victories. Famous fighter aces such as James McCudden and Albert Ball served with the Squadron and both won the Victoria Cross.

In the 1920s and 30s it was equipped with a wide variety of aircraft including Gloster Grebes, Armstrong Whitworth Sisks, Bristol Bulldogs, Gloster Gauntlets and Gloster Gladiators, wearing the Squadron's red and white chequered insignia. Finally, the new monoplane Hawker Hurricane fighters arrived in 1938. No. 56 had moved to RAF North Weald in 1927.

On 6 September 1939, the Squadron suffered its first combat losses of World War 2. They were the victims of a friendly fire incident known as the *Battle of Barking Creek*. The Squadron's Hurricanes fought first in the Battle of France, and then as part of RAF 11 Group from North Weald during the Battle of Britain. On 1 September, after heavy losses, it moved to RAF Boscombe Down.

One of 56 Squadron's pilots was P/O Geoffrey Page, who was shot down and badly burned during the Battle in August. After several years and many operations he was able to return to operational flying, ending the war as a Wing Commander.

No. 56 was later re-equipped with Hawker Typhoons and Tempests. After the war it entered the jet age, flying Meteors, Hunters, Lightnings and Phantoms. Finally, it became the Operational Conversion Unit for Tornado F3 fighters until disbanded in 2008. The Air Warfare Centre's Intelligence, Surveillance, Target Acquisition and Reconnaissance Operational Evaluation Unit (ISTAR OEU) at Waddington was then renamed as 56(R) Squadron. So the number lives on.

The Squadron was formally awarded the Freedom of the District at a special council meeting on Tuesday 24 April 2018 at the Civic Offices, where the freedom scroll was signed by the EFD Chairman Dave Stallen and the Squadron's CO W/Cdr Matt Fleckney. The Squadron then paraded through North Weald on Sunday 10 June. ■

North Weald Airfield Museum



One of 56 Squadron's colours is now laid up in St Andrew's Church



The Freedom of the District Parade arrives at the Gate Guardian

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Bristol Bulldog IIA, K2226,
C Flight 56 Squadron, flown
by Sergeant Joe Lane

Memorable times

56 Squadron at North Weald...

Sergeant Pilot Joseph Lane, C Flight, 1934

"I was extremely happy in a fighter squadron and found the operational Bristol Bulldog a joy to fly. My Bulldog was K2226 and it was a Mark IIA which had all the modern refinements like a radio, wheel brakes, and a tail wheel instead of a tailskid.

56 Squadron covered Sector B of the Fighting Area. Fighter stations in the area were Duxford, North Weald, Hornchurch, Biggin Hill, Kenley and Tangmere. A good deal of my flying in the early days was in formation with the other aircraft of the Squadron.

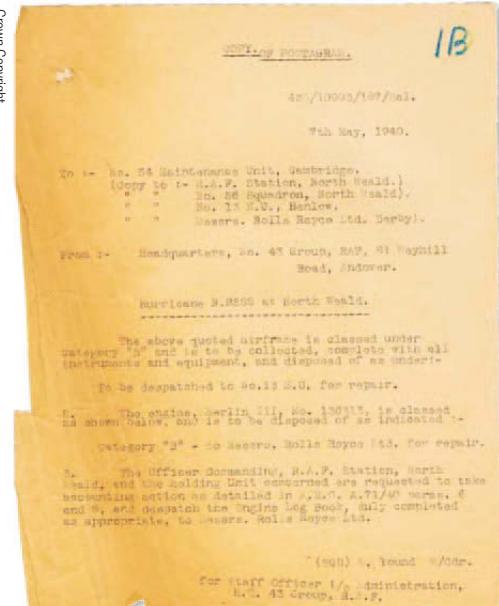
The first day of the week was usually devoted to a battle flight climb to 15 or 16 thousand feet which was done without using oxygen. On other occasions the Squadron would climb to over 20,000 feet when we would use oxygen. Exercises included Sector patrols some of which were carried out at dusk, attacking other aircraft using a camera gun or acting as a target for other pilots of the Squadron.

I was flying almost daily with the Squadron until mid-February 1935 when I was warned that I was to be posted on a Fleet Air Arm conversion course."

Aircraftman Michael Hodges, Instrument Repairer, A Flight, 1940

"A Flight was moved to dispersals on the north side of the aerodrome, 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 –



56 Squadron's Hawker Hurricane N2532 was sent to 13 MU at RAF Henlow in May 1940. This was done if the work was beyond the scope of the Squadron. Later aircraft were flown there for fast-track repairs of battle damage

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.

To save everyone getting up at about 4am (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.

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." ■

Two-seat Hawker Demon fighters were flown by 29 Squadron from 1934 until 1938.



Silver wings over North Weald

29 Squadron operated the classic biplane fighters from the Airfield

First formed at Gosport in November 1915 as a reserve squadron and equipped with the Royal Aircraft Factory BE2c, 29 Squadron was the fourth squadron to receive the Airco DH2 fighter. The unit was posted to France in March 1916, helping to regain Allied air superiority over the German Fokker Eindekkers in time for the Battle of the Somme.

These aircraft were soon outclassed by new German fighter types such as the *Albatros*, but the Squadron continued to operate DH2s until March 1917, when it was re-equipped with Nieuport 17s. It continued to operate various marks of Nieuports until April 1918. It then received the SE5a, operating the type until the end of World War 1.

Following the Armistice in November 1918, the Squadron served with the Army of Occupation in Germany, returning to England in August 1919, where it was disbanded at Spittlegate on 31 December.

The Squadron reformed at Duxford on 1 April 1923, and initially operated Sopwith Snipes. These were replaced with Gloster Grebes in January 1925, followed by Armstrong Whitworth Siskins three years later. In April 1928 the Squadron arrived at North Weald. It was then re-equipped with Bristol Bulldogs in June 1932.

In 1934 the Squadron converted onto Hawker Demons, which it flew until 1938. This included service in Egypt from October 1935 to 1936 during the Abyssinian crisis. It then returned to North Weald, finally leaving in November 1937. As part of the RAF's programme of modernisation and expansion in the late 1930s, 29 Squadron then received the twin-engined Bristol Blenheim 1F fighters in December 1938.

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A line up of 29 Squadron Siskins

At the start of World War 2 the Squadron used its Blenheims as day fighters on convoy patrols. Outclassed by *Luftwaffe* Messerschmitts, it took on a night fighter role from June 1940 and began to re-equip with more capable Beaufighters in November. It was fully operational with the new type by February 1941. The nightfighter ace 'Bob' Braham flew with the Squadron as well as Guy Gibson of Dambuster fame.

The Beaufighters were followed by several marks of the de Havilland Mosquito from May 1943, finishing with the Mosquito NF30. From the middle of 1944 the Squadron flew intruder missions over Europe from Hunsdon nearby.

After the war, it continued to operate as a night/all weather fighter unit. The Mosquitoes remained in service until replaced by Gloster Meteor NF11s in August 1951. In November 1957 it received all-weather Gloster Javelins.

In February 1963 the Squadron was posted to Cyprus, and in December 1965 went to Zambia for a nine-month detachment during the Rhodesian crisis.

From May 1967 the Squadron operated the English Electric Lightning F3 and was based at RAF Wattisham. In December 1974, it was re-equipped with the McDonnell Douglas F4 Phantom and transferred to RAF Coningsby. During the Falklands War, a detachment was based on Ascension Island, and then moved on to Port Stanley to provide air defence of the Falklands in August 1982.

In 1987, 29 Squadron received the Tornado F3 fighter; and was deployed to Saudi Arabia after the Iraqi invasion of Kuwait in August 1990, subsequently taking part in Operation Desert Storm. It continued to fly the Tornado until it was disbanded in 1998, following a Strategic Defence Review.

The Squadron was reformed in 2003 as the Eurofighter Typhoon operational conversion unit, and continues in this role at RAF Coningsby. ■

Captain Hucks made starting engines easy

An invention during World War 1 is still being used today instead of hand-swinging the propellers of vintage aeroplanes...

The Hucks Starter was an auxiliary power unit that enabled large piston engines to be started without the danger of swinging the propeller by hand, where sometimes two or more people were needed. Many of the earlier starter units were mounted on a Model T Ford chassis.

The power was transmitted to the aircraft via a power take-off shaft like those found on the drive trains of rear wheel drive vehicles or agricultural machinery. The shaft of the starter fitted into a special protruding hub incorporating a simple projecting claw clutch mechanism in the middle of the propeller assembly.

When engaged, the power of the truck's engine was transmitted to the aircraft engine until start up, whereupon the faster speed of the running engine disengaged the clutch. The starter then reversed back to clear the area to allow the aeroplane to taxi.

The starter was invented by Captain Bentfield Hucks in 1917, while he was Chief Test Pilot of the Aircraft Manufacturing Company (Airco). Originally named the Airco Aero Engine Starter, it was renamed the Hucks Starter in his honour after his death. Such starter units would have been used at North Weald, and were introduced into RAF service in 1920.

Hucks was a famous aviator prior to the First World War and

A Hucks Starter is operational at the Shuttleworth Collection, Old Warden, for starting larger aeroplanes such as the Avro 504K pictured here. Shuttleworth's Avro 504 is now configured as a nightfighter, like those flown by 75 Squadron at North Weald in 1918, powered by rotary engines.

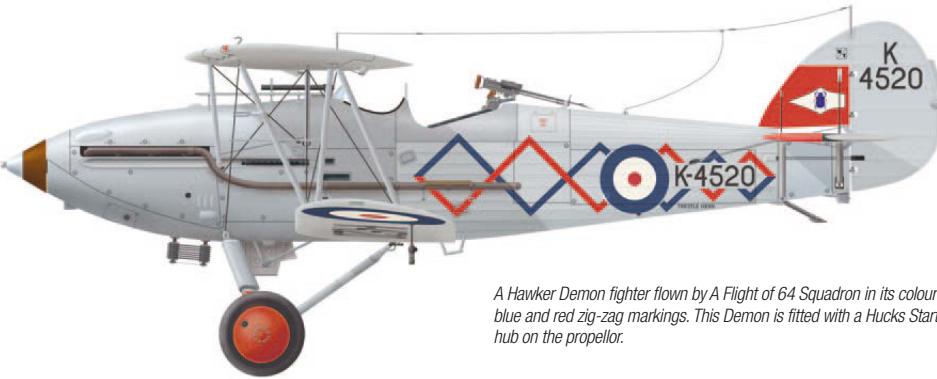
Signed postcard of Hucks in his Blériot before the war.



was the first Briton to perform a loop with his Blériot XI monoplane in 1913. He subsequently gave many exhibition flights all around the country, including the Essex County Show at Waltham Abbey in June 1914, for which he needed special permission from the War Office as it would be close to the Royal Gunpowder Factory. He learned to fly after being banned from driving for three years following a conviction for speeding.

He has local connections, being born at Bentfield End near Stansted in 1884. He died of pneumonia in 1918 as a result of the influenza epidemic just days before the Armistice. ■





A Hawker Demon fighter flown by A Flight of 64 Squadron in its colourful blue and red zig-zag markings. This Demon is fitted with a Hucks Starter hub on the propeller.

On detachment

64 Squadron spent a fortnight here on fighter affiliation...

No. 64 Squadron was formed at Sedgeford in Norfolk on 1 August 1916. It first used a variety of types for training including Henry Farmans, Royal Aircraft Factory FE2bs, Avro 504s and Sopwith Pups.

In June 1917, the Squadron re-equipped with the new Airco DH5 fighter. Unfortunately, this aircraft had poor performance above 10,000 feet and a weak armament of just a single machine gun. The Squadron therefore had to develop low-level flying and ground attack tactics to make best use of the type. It moved to France in October 1917.

When the Army launched a major offensive at Cambrai on 20 November 1917, spearheaded by 437 tanks in nine battalions, the Squadron flew many low-level ground-attack missions in support. The DH5s were subsequently replaced by more capable SE5As in March 1918, which flew both fighter and ground-attack operations for the rest of the war. It returned to Narborough, Norfolk, in February 1919 where it was disbanded.

On 1 March 1936, 64 Squadron reformed at Heliopolis in Egypt from two flights detached from 6 and 208 Squadrons in response to tensions in the Middle East caused by the Italian invasion of Abyssinia. These flights were already equipped with Hawker Demon two-seat fighters. The Squadron moved to Ismailia in North-East Egypt in April 1936 and returned to the UK in August, where it was based at Martlesham Heath as part of 11 Group.

The Squadron served on a two-week detachment at North Weald in July and August 1937 while 29 Squadron, also equipped with Demons, was in the Middle East. This was for fighter affiliation experience with other 11 Group squadrons.



Gloster Gauntlet K7822 of 17 Squadron bearing the camouflage scheme and Squadron codes UV-R which were applied following the Munich crisis in 1938. This aircraft was destroyed when it undershot during a night landing on 6 June 1939, touching down just outside the Airfield boundary at North Weald. The Gauntlet struck a hedge then ran into a ditch and turned over. The pilot, Sergeant Gordon Hughes RAFVR, died in Woolwich Hospital the following day.

17 Squadron

From BE2cs to the F-35...

No. 17 Squadron was formed on 1 February 1915 at Gosport in Hampshire, flying BE2cs. It was then sent to Egypt, where it served against the Turks and later in Salonika until the end of the war, also operating DH-2s and Bristol Scouts. It was disbanded in November 1919.

The Squadron was reformed at Hawkinge in April 1924, flying Sopwith Snipes. These were followed by Gloster Woodcocks and Gamecocks. In September 1928 Armstrong Whitworth Siskins were introduced with Bristol Bulldogs replacing them a year later. Its final biplane fighters were Gloster Gauntlets, which it received in August 1936.

The Squadron came to North Weald in May 1939 from Kenley to exchange its Gauntlets for Hawker Hurricanes. It stayed until September and the outbreak of war. It then operated first from its designated war station at Croydon, before moving to Debden and Martlesham Heath. The Squadron code was also changed from UV to YB.

It fought briefly in France and retired back to the UK via the Channel Islands. During the Battle of Britain it flew from Debden and Tangmere.

In January 1942 it began operations in Burma and was forced to retreat to India, where it upgraded to cannon-armed Hurricane IICs for ground attack missions. The Squadron then moved to Ceylon in August 1943.

There it re-equipped with Spitfire VIIIIs in 1944 and returned to Burma on escort and ground attack missions. The Spitfires were exchanged for Mark XVIIs in June 1945. It undertook occupation duties in Japan until 1948.

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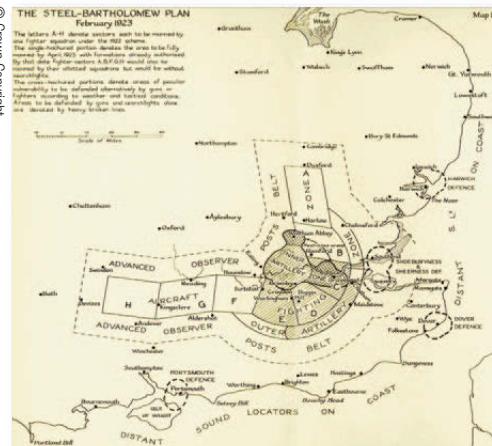
In February 1949, 691 Squadron was renumbered as 17 Squadron, flying anti-aircraft co-operation duties with a variety of aircraft until disbanded again in March 1951.

The Squadron reformed at RAF Wahn in West Germany on 1 June 1956. This time it operated English Electric Canberra PR7s, carrying out photo reconnaissance. It later moved to Wildenrath until 1969, when it was stood down once more.

On 1 September 1970 the Squadron was reformed at RAF Brüggen, flying the McDonnell Douglas Phantom FGR2 for ground attack. In 1975 the Phantoms were replaced by SEPECAT Jaguars in the tactical nuclear strike role.

Ten years later it converted to Tornado GR1s with the same mission profile. In the First Gulf War the Squadron operated from Bahrain, losing two aircraft in combat. On 31 March 1999 it was disbanded when Brüggen closed.

The Squadron stood up again on 1 September 2002 as No.17 (Reserve) Squadron to act as the Operational Evaluation Unit for the new Eurofighter Typhoon. When its development task was complete, it disbanded on 12 April 2013 and reformed the same day at Edwards AFB, California as the joint RAF/Royal Navy Test and Evaluation Squadron for the Lockheed Martin F-35B Lightning II. ■



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Planning for war

The stages which led to Fighter Command's Groups and Sectors for the defence of Britain...

Following World War 1 and the German raids on British cities, towns and ports, which caused widespread casualties and damage, Government planners began to look for ways to protect the country from future aerial attack, building on the experience from the previous London Air Defence Area.

There were many constraints, however. Government finances were in a sorry state following the war and military budgets were cut back to the bone. The *Ten Year Rule* was introduced, which stipulated that no war was foreseen for at least ten years and so no new equipment was needed for that time. Promising designs such as the Martinsyde Buzzard fighter were cancelled and the RAF had to soldier on with cheaper existing types such as the Sopwith Snipe.

But the RAF was seen as cost-effective in the colonial policing role, especially in the turbulent Middle East and North West Frontier of India. By 1922 eight flying squadrons and two armoured cars companies had replaced two Army divisions in Iraq, for example.

The Steele-Bartholomew Plan

The situation back in Europe was quite different. Germany had been forbidden to have an air force under the terms of the Versailles Treaty, and so the only serious potential enemy was seen as France.

The debate, therefore, was about how many squadrons were needed in this new political landscape. In 1922, Air Commodore J Steel and Colonel H Bartholomew's joint Air Ministry and War Office committee devised a defence scheme for the current twenty-three squadron force with a ratio of fourteen bomber and nine fighter squadrons.

The scheme required "the necessary warning of attack to allow defending fighters to reach fighting height before the arrival of the enemy, anti-aircraft guns for the protection of vital points; and the speedy collation and dissemination of information and intelligence regarding the movement of friendly and enemy aircraft."

The map top left shows how the scheme was visualised. There was a screen of observation posts followed by an Outer Artillery Zone to break up and give warning of raids. The Aircraft Fighting Zone was divided into eight squadron areas A-H, running parallel to the coast from Cambridgeshire to Wiltshire, and lit by searchlights for night fighting.

An Inner Artillery Zone defended London and the strategic ports of Dover and Portsmouth were also covered by guns. There were 264 anti-aircraft guns and 672 searchlights allocated to the plan and held in store.

The Fifty-two Squadron Scheme

The realisation that the 600-strong French strategic bomber force might be able "to drop in one day the same weight of bombs as dropped on London in the whole war," led to the



Hawker Demon fighter K4500 flown by the Commanding Officer of 604 (County of Middlesex) Squadron, Royal Auxiliary Air Force. This was based at Hendon with its war station at North Weald. As well as taking part in affiliation visits, the Squadron came here during the Munich Crisis in 1938 before being re-equipped with Blenheim IF fighters

reluctant decision that there needed to be a fifty-two squadron home defence air force.

The original proposal was for twenty-four day bomber squadrons plus fifteen of night bombers, and only thirteen fighter squadrons. It was recognised that fighters were more effective than anti-aircraft guns and in the end a seventeen squadron fighter establishment was agreed.

The Aircraft Fighting Area was now extended as far as Bristol and divided into ten zones, A-H and Y-Z. The four around London were manned by two squadrons of fighters and the others by one each.

The thirty-five mile gap between the coast and the Aircraft Fighting Zone was fixed by the time it took fighters to take off and climb to 14,000 feet to attack the incoming bombers. It was as part of this scheme that North Weald was upgraded and reopened as a two-squadron station for Zone B in 1927.

In 1928 the highest priority of the sixteen types in RAF service was the single-seat zone fighter, which was a compromise requiring a fast rate of climb to get to fighting height quickly, but also a low landing speed and heavy radio for night fighting. The introduction of the Armstrong Whitworth Siskin into squadron service, the first RAF fighter with a metal airframe, fulfilled this need.

Exercises were held regularly and showed that the fighters were able to intercept many bombing raids. In the 1931 exercises 83% of

daylight raids and 46% of night raids were met by fighters. Intelligence from the Coastguard, warships and government signals stations was collated by Air Defence Great Britain (ADGB) Headquarters at RAF Uxbridge and disseminated to all air defences and the civil defence force by a dedicated Post Office telephone link.

German rearmament

By 1932 forty-two fighter and bomber squadrons had been formed, with the remainder planned to stand up by 1938. German rearmament changed this timetable. The *Ten Year Rule* had also been withdrawn.

The Defence Requirements Sub-Committee was set up, which identified German air power as the most serious long-term threat and recommended a further increase of twenty-five squadrons to strengthen the defences of the South East and Midlands. This was rejected by the Chief of Air Staff Sir Edward Ellington, who wanted more bomber squadrons instead.

The argument was settled by the Chancellor of the Exchequer, Neville Chamberlain, who minimised the threats faced by the Army and Navy but stressed that Britain should have "an Air Force based in this country of a size and efficiency calculated to inspire respect in the mind of a possible enemy."

He cut the overall budget allocation suggested in the DRS report by 30%, with the naval allotment cut by 60%, the



Armstrong Whitworth Siskins equipped 29 Squadron, which was one of North Weald's two fighter squadrons

Army's share by 50%, but the RAF's increased by nearly 100%. This was known as Expansion Scheme A. It would expand the metropolitan RAF by thirty-three squadrons to seventy-five squadrons by 1940.

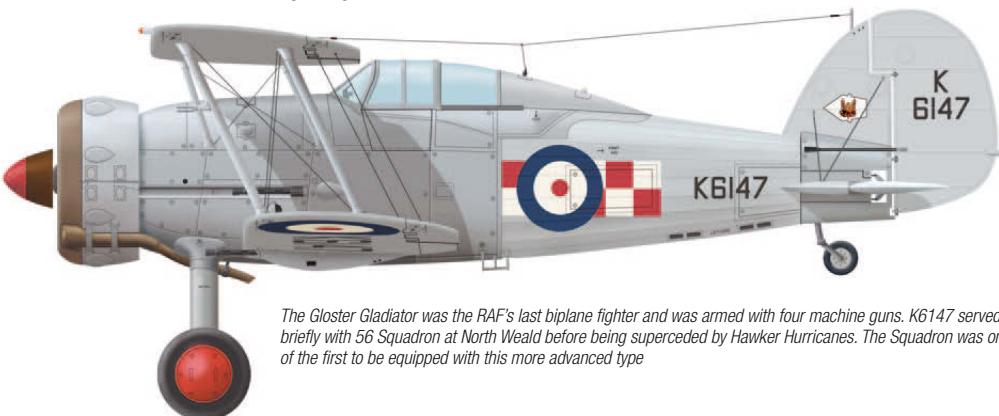
It also directed that air defences be upgraded to meet the German threat. Air Marshal Sir Robert Brooke-Popham was appointed to chair a joint Air Ministry and War Office committee to assess this.

The Brooke-Popham Plan

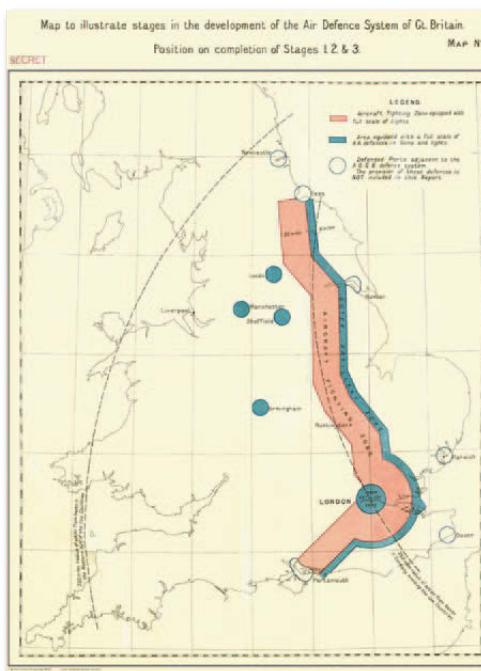
The Brooke-Popham Committee's report in 1935 suggested a continuous defended zone from Portsmouth, around London, up to the Tees. This consisted of an Outer Artillery Zone six miles deep with an Aircraft Fighting Zone twenty miles deep behind it. London was to have an Inner Artillery Zone twenty miles in diameter and other important towns and cities were also to have ground defences (*see map on right*). The Treasury's aim was to put this in place by 1940, mainly to try and keep down the overall costs of the scheme.

A separate scientific committee under Henry Tizard was also set up to look at the potential for 'electrical' methods of early warning. This quickly led to the ground-breaking research on 'radio detection' (radar) by Robert Watson-Watt. The first demonstration of the concept was performed near Daventry in February 1935.

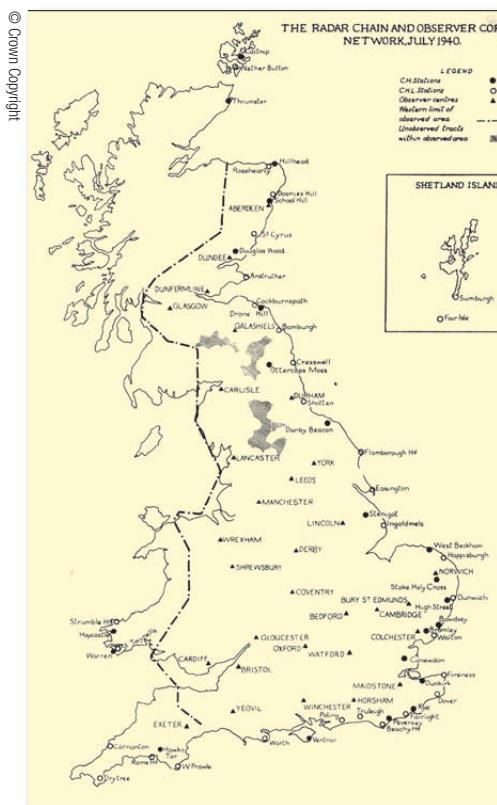
Things were now starting to move quickly. By 1936 the RAF's first two advanced monoplane fighters – the Hurricane and Spitfire – were flying in prototype form. A radar research facility was set up at Bawdsey Manor in Suffolk, which was able to produce practical operational solutions using existing available components. These were developed under the aegis of Sir Hugh Dowding, who had been Air Member for Supply and Research since 1930. Advanced bombers were also being designed and built.



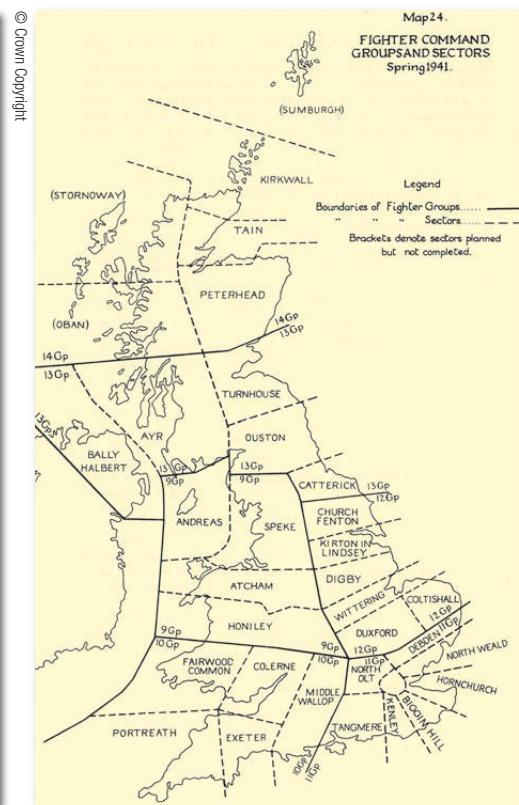
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The other key Groups were 10 Group which guarded the South West and 11 Group which covered the Midlands. Each were later to play key roles in the Battle of Britain.

The RAF's growth also increased. Expansion Scheme F in 1936 provided for an additional 8,000 aircraft over three years, but when it was superceded in 1938 had only delivered 4,500 airframes. Nevertheless much additional production capacity was being put in place, partly as shadow factories to support the main manufacturers.

Sir Thomas Inskip, Minister for the Co-ordination of Defence, carried out a further review in late 1937, which gave priority to fighter production over bombers. After the Munich Crisis in 1938 the Government decided to increase the fighter establishment to fifty squadrons. The new Scheme L envisaged the production of 12,000 aircraft in the next two years. Scheme M in 1938 added yet more fighters.

Command and control

Alongside the additional fighters, the coastal Chain Home and Chain Home Low radar stations were also being built along with the Observer Corps lookout posts inland. The

vital part of this network from Ventnor on the Isle of Wight round to Bawdsey near Felixstowe was complete and fully operational when war broke out. Filter Rooms at headquarters assessed incoming reports before passing them on.

Sector, Group and Command headquarters had their own operations rooms and controllers to direct the fighter response to enemy raids. The Biggin Hill Station Commander Wing Commander Grenfell developed the techniques to guide interceptions, which became standard practice. Direction finding stations kept track of the fighters.

Inevitably there were teething troubles and many mistakes were made, including the infamous *Battle of Barking Creek* where two 56 Squadron Hurricanes were shot down by Hornchurch Spitfires and a pilot killed. But the system was robust and flexible.

The proof of the pudding is in the eating

When the ultimate test in combat came during the summer of 1940, all the elements on the ground and in the air proved to be sufficient to gain a significant victory over a formidable enemy. The planning had not been in vain. ■



Gloster Gauntlet in pre-Munich silver scheme with the 151 Squadron Blue and Black fuselage flash



Gloster Gauntlet in post-Munich camouflage scheme with Squadron code TV applied

Brown and green

151 Squadron prepares for war after the Munich crisis in 1938...

The growing political crisis in Europe during the late 1930s came to a head in September 1938. Following Hitler's annexation of Austria in March of that year, the *Anschluß*, he turned his attentions to alleged discrimination of ethnic Germans in the western part of Czechoslovakia known as the *Sudetenland*.

This was used as a pretext to apply political pressure on the Czechs which culminated in the Munich conference attended by Britain, France, Germany and Italy at the end of September, where it was agreed that the Czechs should be urged to hand over the *Sudetenland* to Germany. It also led to the British Prime Minister Neville Chamberlain's '*Peace in our time*' speech and his infamous slip of paper on his return from Munich.

In the UK, the RAF moved units to their war stations at the end of September 1938 in case the political crisis escalated into armed conflict.

For example, 604 Squadron moved its Hawker Demon fighters from Hendon to North Weald. (The Squadron flew in again at the outbreak of war in September 1939, but was now equipped with Blenheim IFs.)

A further major consequence of the political upheaval was the application of camouflage to combat aircraft in place of the silver schemes with colourful squadron flashes, so evocative of the peacetime RAF. At North Weald, the pilots and groundcrew of 151 Squadron hastily covered their gleaming silver Gloster Gauntlets with brown and green paint.

The aircraft also received squadron codes – TV (later changed to DZ) and low conspicuity blue and red roundels. Fortunately it would be another year before the RAF would be called upon to fight, and was able to replace its obsolescent aircraft with modern types. 151 Squadron started re-equipping with Hurricanes in

December, finally passing its remaining Gauntlets to 602 Squadron in February 1939.

The Squadron had been reformed from a detachment of 56 Squadron at North Weald in 1936. It was destined to swap places with 46 Squadron from Digby in September 1940, where it became a nightfighter squadron equipped with the two-seat Defiant turret fighter. This type had been decimated in daytime combat once the *Luftwaffe*'s pilots realised it had no forward firing guns.

In March 1939, Germany annexed the remainder of Czechoslovakia and its armaments industry, renaming it Bohemia and Moravia. The policy of appeasement had failed, and Europe was heading for war as Hitler now fixed his sights on Poland, which was invaded on 1 September.



An 'A' Scheme Hurricane, R4213, flown by Sgt Feliks Gmur, which was hit over the Thames Estuary and crashed at Epping Green killing the Polish pilot on 30 August 1940. It was fitted with a de Havilland propeller



An 'B' Scheme Hurricane, V7434, flown by P/O Irving Smith. This New Zealand pilot had a Maori 'Tiki' image painted on the fuselage behind the cockpit for good luck. This aircraft had a Rotol propeller

On new aircraft camouflage was applied at the factory as A or B schemes alternating for each sequential airframe on the production line. Hurricanes with even serial numbers wore the B scheme, while Spitfires had the A scheme, using heavy rubber masks as templates. The A Scheme had rearward facing green elements on the port side and forward facing ones on the starboard side. The B Scheme was the reverse.

After 1941 the same scheme was applied to all aircraft, with most manufacturers using the A scheme. ■

In the early part of the Second World War, 56 Squadron carried LR codes, which were subsequently changed to US. This Hurricane Mark 1, L1800, has fabric wings and is equipped with a de Havilland variable pitch propeller.



September 1939

North Weald goes to war and days later experiences tragedy

The Airfield had seen a previous mobilisation exercise during the Munich Crisis in 1938, when squadrons moved to their war stations. When Britain and France declared war on Germany on 3 September 1939, following the invasion of Poland, the process was repeated. 604 Squadron of the Royal Auxiliary Air Force moved to North Weald from Hendon with its Blenheim IFs. Here they joined 56 and 151 Squadrons and their Hurricanes as part of E Sector of 11 Group.

The Sector was responsible for guarding the north bank of the Thames and Essex as well as providing convoy patrols along the east coast. Its forward base was at Martlesham Heath with a satellite station at Stapleford Tawney. Its Chain Home radar station was at Canewdon near Southend.

A fault in the filter screen at Canewdon caused the Airfield's first fatality in what became known as the *Battle of Barking Creek*. The filter was designed to limit the radar contacts picked up to just the seaward-facing direction, with Observer Corps personnel responsible for plotting landward visual sightings. When the filter failed the radar started to display contacts from all directions, but this was unknown to the operators at the time.

A plot was first picked up at 06.15 am on 6 September over West Mersea and the Sector Controller in his enthusiasm scrambled both Flights from

56 Squadron rather than just a single one, as had been ordered by Group controllers. These were then followed by two additional reserve aircraft from the Squadron. The two Hurricanes were picked up by the radar and thought to be more hostile contacts coming



from the east. Additional aircraft were then sent off including 151 Squadron from North Weald and Spitfires of 54, 65 and 74 Squadrons from D Sector at RAF Hornchurch.

'A' Flight of 74 Squadron, led by 'Sailor' Malan, caught up with the two Hurricanes which were just behind and below the main formation, and misidentifying them as

Messerschmitt Bf 109s, attacked the pair. Two of the three pilots – F/O Vincent 'Paddy' Byrne and P/O John Freeborn – opened fire, shooting down both aircraft. The pilot of one of the Hurricanes – P/O Montague Hulton-Harrop in L1985 – was hit in the head and killed, the aircraft having no seat armour, the other – P/O Frank Rose in L1980 – managed to make a successful forced landing near Ipswich.

Hurricane L1980 was the first to be fitted with a de Havilland variable pitch propeller. It was repaired and eventually lost while serving with 46 Squadron when HMS

Glorious was sunk on 8 June 1940 during the evacuation which followed the Norwegian Campaign. Rose was sadly killed in action over Vitry-en-Artois in France, on 18 May.

As the war was only three days old, no RAF pilots had experienced combat with German aircraft, their radio transmissions were distorted and *Identification Friend or Foe* (IFF) devices still being developed. This friendly-fire incident resulted in Court Martials for both pilots. They were later exonerated and the case was ruled to be a tragic accident. Hulton-Harrop is buried in St Andrew's Churchyard.

Fortunately there was to be a period of several months for the RAF to gain more practical operational experience in command and control before the *Luftwaffe* attacks which began in earnest with the Battle of Britain in July 1940. ■

Blenheim IF fighter, L8715, of 604 Squadron. This aircraft was flown by John Cunningham, who was to become one of the RAF's best nightfighter aces





A painting of the evacuation from Dunkirk by Charles Cundell

No more Phoney War

North Weald was involved with the Battle of France and the evacuation from Dunkirk in 1940...

With the German attack on France, Holland and Belgium in May 1940 both of North Weald's Hurricane squadrons became involved in the fierce fighting over the continent and suffered losses to pilots and aircraft. The old set-piece Fighting Area tactics were shown to be inappropriate against a battle-hardened air force, which referred to them as *idiotenreihen* or 'rows of idiots.' But it took time to develop new ones, which later drew upon German practice.

On 12 May, 151 Squadron was operating from North Weald's Sector station at Martlesham Heath. F/Lt Frederick Ives reported a sortie with his section over Holland: "Whilst on patrol we noticed that approximately 50 parachutes were lying on the ground about 3 miles north of the Hook. On a small aerodrome at the same place there were about 15 German aircraft burnt out, bombed and wrecked."

Ives was later involved in a mid-air collision on 25 May while flying on a bomber escort mission from North Weald and died on 5 June when the *SS Aboukir*, the ship he was returning on, was torpedoed and sunk with large loss of life.

As more and more squadrons were sucked into defending France, Sir Hugh Dowding, AOC-in-C of Fighter Command, had to make a stand to stop his force suffering such attrition, in what was fast becoming a lost cause, that it would be unable to protect Britain. Some squadrons thus ended up flying to France on a daily basis, returning in the evening.

On 16 May six aircraft from B Flight of 56 Squadron went to France on temporary detachment. They were followed by their groundcrew who first travelled by lorry to Manston and then on by air, as Eric Clayton explains: "We arrived in the early sunlit evening and after a quick mug of cocoa, we boarded two waiting Dragon Rapide biplanes for an unknown destination in France. Dusk was gathering when, about forty five minutes later, we arrived at our destination – a grass airfield on the outskirts of a village called Vitry-en-Artois and about five kilometres from the town of Douai. Slightly bewildered, we were driven to an army camp next to the village and told to bed down in a large hut occupied by soldiers of the 1st Battalion of the Ox and Bucks regiment." A pilot noted that the village had "cobbles everywhere, no kerbs, lots of straw and smell."

One of the casualties was Tommy Rose, who had previously been shot down by Hornchurch Spitfires during the *Battle of Barking Creek* in 1939. He was killed on 18 May along with the Flight Commander Ian Soden. As the situation deteriorated the Flight was brought back to North Weald on 22 May, having claimed thirteen enemy aircraft.



Wing Commander F V Beamish (right), the Station Commander of North Weald, standing with Squadron Leader E M Donaldson, Commanding Officer of 151 Squadron, following a combat with enemy fighters over Dunkirk on 30 June 1940, during which Beamish destroyed two Messerschmitt Bf 109s and Donaldson was shot down and later rescued

Operation Dynamo – the evacuation of the BEF from Dunkirk began four days later. During the month the Squadron had lost six aircraft and four pilots. Patrols over Belgium and France as well as bomber escorts followed relentlessly day by day. In May and June their companions in 151 Squadron had also lost eight pilots killed or missing.

Geoffrey Page from 56 Squadron who flew on missions over Dunkirk summed up the scene: "I had a good view of the beaches. It looked like masses of ants on the sand. I felt desperately sorry for the troops down below."

On 8 June, 56 and 151 Squadrons operated together on Blenheim escort missions. During the second of these P/O Michael Maxwell was hit in the leg and his Hurricane very badly damaged. He managed to limp back to North Weald where groundcrew helped him from his aircraft. He left a bloodstained footprint on the wing. One airman remarked "Blimey, I fort it was blue!" Maxwell replied "Oh no, my dear fellow, I can assure you it is good ordinary red stuff – always has been."

Even the North Weald Station Commander Wing Commander Victor Beamish took part in the fighting. Later, on 30 June he was leading 151 Squadron on an

Hawker Hurricane P3153, US-U, was named 'Euthanasia' and flown by F/O Richard Brooker of A Flight, 56 Squadron. The aircraft was hit by return fire from a Dornier Do17 of 8/KG2 on 21 August, made a forced landing near Ipswich and was burned out. Brooker had previously been shot down in P3587 on 13 August and force landed yet again on 30 August in N2668. He was killed along with his wingman in April 1945 while leading 122 Wing flying Tempests on a sortie over Germany



escort mission for Blenheims attacking Vignacourt. The formation was intercepted by Messerschmitts and in the ensuing combat three were destroyed, two by Beamish himself. The CO of 151 Squadron, Teddy Donaldson, was shot down as well and was later picked up near the French coast and taken to Ramsgate.

Over the nine days of *Operation Dynamo*, the RAF flew 2,739 fighter sorties, 651 bombing raids and 171 reconnaissance flights. Fighter Command claimed 262 enemy aircraft and lost 106 of their own. The Battle of France as a whole cost the RAF 386 Hurricanes and 67 Spitfires as well as 128 pilots. Many were experienced flight or section leaders. The aircraft were easier to replace.

The *Luftwaffe* also suffered heavily, losing 1,428 aircraft with a further 488 damaged during May and June according to surviving post-war records. Transports suffered particularly badly with 45% destroyed or damaged, many in the attack on Holland. There were 3,278 aircrew either killed or missing.

While the Army later criticized the RAF for its supposed lack of visibility over the beaches, the *Luftwaffe*'s *Fliegerkorps II* reported in its war diary that it lost more aircraft on 27 May attacking the evacuation than it had lost in the previous ten days of the campaign, showing that the RAF were indeed having a significant effect, although mostly unseen. The fighter leader Adolf Galland also admitted that the RAF "made a great and successful effort to provide air cover for the remarkable evacuation operation." Thus, following the fall of France, the *Luftwaffe* needed an urgent regrouping while new airfields were brought into use on the Channel coast, losses replaced and plans drawn up to begin its all-out airborne assault on Britain.

This gave Fighter Command a valuable breathing space as well, and a chance to ponder on how best to apply the lessons learnt over the past couple of months. Those who had lived through the German raids on London during World War 1 also now had an inkling of what was to come... ■



Armstrong Whitworth Siskin J-9895 of A Flight 56 Squadron, bearing the Squadron's distinctive red and white chequers

North Weald's aircraft

The types which operated from the Airfield between the wars...

The Armstrong Whitworth Siskin IIIA

The Armstrong Whitworth Siskin was a single seat fighter used by the RAF. The main production version was the Siskin IIIA, which originally was powered with a Jaguar IV engine, but was later re-engined with the supercharged Jaguar IVA engine. This greatly improved speed and climb above 10,000 feet.

The first Siskin IIIs were delivered to squadrons in May 1924. The Siskin III was popular in service, being very good for aerobatics although slightly underpowered. The improved Siskin IIIA was first delivered in September 1926. The type was operated by eleven RAF squadrons, including 29 and 56 Squadrons at North Weald.

The Siskin was armed two Vickers machine guns and the underlying structure was all-metal, the first used by the RAF.

The Bristol Bulldog

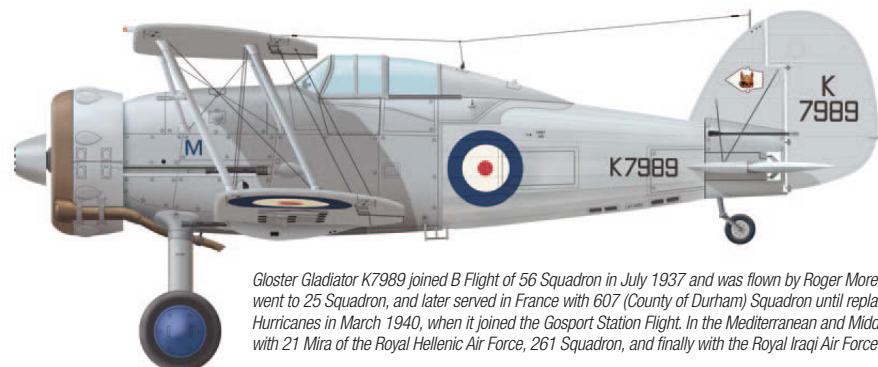
The Bristol Bulldog first flew in 1927 and was a successful fighter design used by the RAF for the next ten years, equipping eleven squadrons, including 29 and 56 Squadrons at North Weald. It started to replace the Siskin in squadron service in 1929.

The Bulldog was powered by a Bristol Jupiter nine-cylinder radial engine designed by Roy Fedden, which gave it a top speed of 178 mph. It carried the standard armament of two synchronised Vickers machine guns firing through the propeller.

The type was widely exported and saw action with the Finnish Air Force in World War 2, shooting down several Soviet fighters and bombers, and also with the Republican forces in the Spanish Civil War.

The Hawker Demon

The Hawker Demon was a two seat fighter version of the famous family of biplanes developed by Hawkers during the 1930s. The Demon was powered by a V-12 Rolls Royce Kestrel V engine of 585 hp, giving it a top speed of



Gloster Gladiator K7989 joined B Flight of 56 Squadron in July 1937 and was flown by Roger Morewood. It then went to 25 Squadron, and later served in France with 607 (County of Durham) Squadron until replaced by Hurricanes in March 1940, when it joined the Gosport Station Flight. In the Mediterranean and Middle East it fought with 21 Mira of the Royal Hellenic Air Force, 261 Squadron, and finally with the Royal Iraqi Air Force

182 mph, faster than contemporary single-seat fighters.

It was armed with two forward firing Vickers machine guns and a single Lewis gun in the rear cockpit, which proved to be difficult to handle in the slipstream. Later versions were fitted with a Frazer-Nash folding clamshell turret mechanism to give the gunner some protection.

The main operator of the type at North Weald was 29 Squadron. There were also brief detachments by 64 Squadron in 1936 and 604 Squadron in 1937 and 1938.

The Gloster Gauntlet

The Gloster Gauntlet replaced the Bulldog as the RAF's standard fighter from 1935, and was flown by 26 different squadrons.

North Weald's 56 Squadron was the first to take the improved Mark II on charge in 1936, which also served with 151 Squadron at the Airfield.

The Gauntlet was powered by a 645 hp Bristol Mercury VI radial engine developed from the earlier Jupiter, giving it a maximum speed of 230 mph, considerably faster than

the Bulldog it replaced, but was still only fitted with two Vickers machine guns.

The type was still serving in the Middle East at the start of World War 2 and saw action against the Italians. It was also operated by the Finnish Air Force against the Soviet Union.

The Gloster Gladiator

The Gloster Gladiator was developed from the Gauntlet and had an enclosed cockpit and four Browning machine guns, thus doubling the firepower compared with previous fighter aircraft.

It was the RAF's last biplane fighter and equipped 56 Squadron at North Weald for a brief period from July 1937 to May 1938 until the Squadron was re-equipped with Hurricanes.

The type saw limited combat in Norway and the Battle of Britain and later gained fame for its defence of Malta by three Gladiators called *Faith*, *Hope* and *Charity*.

The Gladiator was powered by an 830 hp nine-cylinder supercharged Bristol Mercury IX radial engine, giving a top speed of 253 mph. ■



Hawker Demon K4496 of 604 Squadron, which was equipped with the later Frazer-Nash clamshell turret to give the gunner protection from the effects of slipstream. Demons first equipped this squadron in June 1935. They were first detached to North Weald in October 1937 for sector affiliation training when the Squadron joined 11 Group



Bristol Bulldog K2198 of B Flight, 29 Squadron. The spinner has been removed, but the propeller shaft retains the Hucks Starter sleeve



Bristol Bulldog K2215 of B Flight, 56 Squadron. The propeller shaft retains the Hucks Starter sleeve

The aero engines

The types which operated from the Airfield between the wars...

Armstrong Siddeley Jaguar

The Jaguar was an air-cooled 14-cylinder two-row radial engine. It was the first production aero engine incorporating a geared supercharger and developed 400 hp, however throughout its career the Jaguar suffered from vibration due to a lack of a crankshaft centre bearing.

The Jaguar powered the Armstrong Whitworth Siskin, Argosy and Atlas, the Fairey Flycatcher and Supermarine Southampton flying boat, as well as many other aircraft through the 1920s.

A single row version of the engine became the Armstrong Siddeley Lynx.

Bristol Jupiter

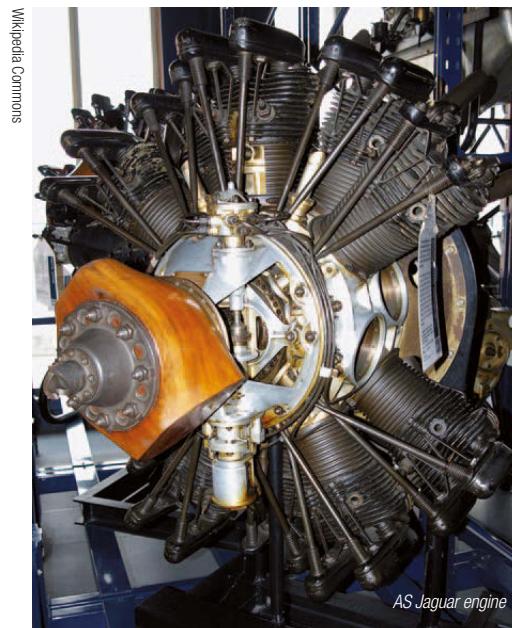
The Jupiter was a nine-cylinder single-row piston radial engine, which displaced 1,753 cubic inches. It developed 525 hp at 2,000 rpm for continuous power at 11,000 feet. It was designed by Roy Fedden.

The engine became one of the most reliable, and was the first air-cooled engine to pass the Air Ministry's full-throttle test, the first to be equipped with automatic boost control, and the first to be fitted to airliners, powering the Handley Page HP 42 and Dornier Do X flying boat.

Military use included the Bristol Bulldog, as well as the Gloster Gamecock and Boulton Paul Sidstrand bomber.

The Bristol Mercury

The Mercury was a nine-cylinder, air-cooled, single-row,



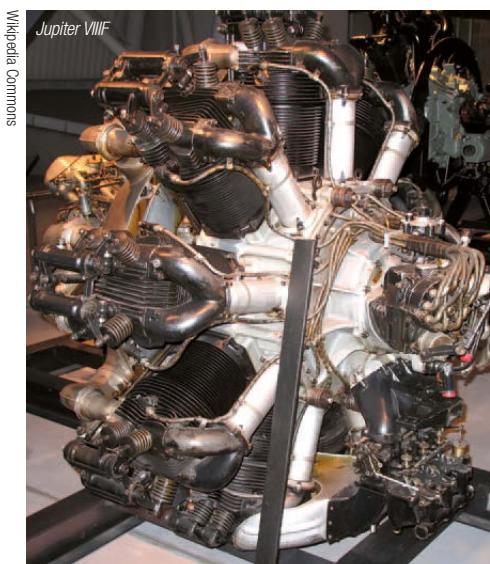
radial engine, developed from the earlier Jupiter. The engine could produce 800 hp from a capacity of 1,500 cubic inches using a geared supercharger.

The Mercury's smaller size was aimed at use in fighters such as the Gloster Gauntlet and later Gladiator. It also powered the Westland Lysander and the twin-engined Bristol Blenheim.

The Mercury XV was one of the first British aero engines to be tested and cleared to use the 100-octane fuel in 1939, which would allow engines to run at higher compression ratios and supercharger boost pressure. It was also the first to be approved for use with variable-pitch propellers.



Gloster Gauntlet K5288 of A Flight, 56 Squadron, wearing the characteristic red and white chequer pattern on the fuselage. The aircraft was powered by a Bristol Mercury engine



Rolls Royce Kestrel

The Kestrel was a twelve cylinder Vee format engine developing around 630 hp from a displacement of 1,342 cubic inches. It was Rolls Royce's first aluminium cast-block engine, and was one of the most powerful engines of its era. In its final form with higher octane fuels it was able to produce 720 hp.

During the 1930s it was fitted to the wide range of Hawker biplane fighters, bombers and trainers, including the Demon fighter, which served at North Weald with 29, 64 and 604 Squadrons. It was also used in the Messerschmitt Bf 109 and Junkers 87 Stuka prototypes! ■

Ours or theirs?

The evolution of national markings on military aircraft...

At the outbreak of World War 1 the Royal Flying Corps (RFC) operated a mixed bag of aircraft including Avros, Blériots and Farmans. These were used for reconnaissance, and it soon became clear that all soldiers on the ground would shoot at any aircraft overhead regardless of nationality.

Union Jacks were soon painted on wings, but these were still confused with the black Iron Crosses displayed on German aircraft. The French had adopted a red, white and blue roundel and the British soon followed suit with a blue, white and red version.

This became the basis of RFC and RAF markings to this day. A fin flash in blue, white and red was also used, mimicking the French flag. This was changed on RAF aircraft in 1928 to the red, white and blue version still in use.

What has changed over time and for operational reasons is the proportion of the three elements making up the roundel. Versions of the original Type A were used from 1915 up until 1942. These had a ratio of 1:3:5, the tones of the red and blue darkening and becoming duller over the years. There is also much photographic evidence of local variations in the proportion of the red central element of the roundel.

On dark surfaces during World War 1 a 2-inch white border was also used. Some nightfighters also had the white element of the roundel and fin flash overpainted with the prevailing dope colour to be less conspicuous.

On camouflaged surfaces from 1937-39, and on fuselage sides until 1942, the Type A1 was used which had a thick yellow outline to help with recognition in the air. This had a ratio of 1:3:5:7. Some aircraft featured the Type A2, which had a thinner yellow band in the ratio 1:3:5:6.

The Type B roundel was used by night bombers from World War 1 onwards and was a blue and red roundel in



A Siskin from B Flight (blue spinner and wheel covers) of 29 Squadron. The Squadron used modified Type A Roundels with larger red centres. This aircraft features the early style of blue, white and red fin flash

the ratio of 2:5. It was also used in all positions on camouflaged aircraft from 1938 until superceded by the Type A1 roundels.



The Type C roundel was introduced on light surfaces in 1942, and remained in use until 1947. This reduced the size of the white element and had a ratio of 3:4:8. The Type C1 had a thin yellow outline as well and was used on dark surfaces from 1942 until 1945 as well as wing roundels for 2 TAF bombers and photo-reconnaissance aircraft. Its ratio was 3:4:8:9. Fin flashes were modified in the same way with a narrower white band.



In the Far East the red element was removed from the roundels to avoid confusion with the red markings carried by Japanese aircraft. The white element was also often painted in a light blue to reduce conspicuity.



The Type D roundel was introduced in 1947 and is still used today. Its ratio was 1:2:3, with brighter colours and sometimes with a narrow outer white outline. A Type D Pale version was also applied over anti-flash white schemes on the V-Bomber force.

A Low Visibility Roundel in blue and red has been used on camouflaged aircraft since the 1970s. The ratio differs from the Type B and is 1:2. A pale version is also in use on grey air superiority schemes and is known as Salmon Pink and Baby Blue. There is a pale two-colour fin flash as well. ■



A Spitfire Vb from 331 (Norwegian) Squadron at North Weald. It has the Type A1 Roundel on the fuselage, and is finished in the 1941 Day Fighter Scheme of Dark Green and Ocean Grey top surfaces with Medium Sea Grey under surfaces, Sky squadron codes, tail band and spinner, along with yellow leading edges to the wings. The cannon housings have bands painted in the Norwegian national colours