

LARGE PRINT GUIDE



THE BATTLE OF BRITAIN

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OF **BRITAIN**

Lace panel

This is one of 38 lace panels produced as a tribute to the aircrew who flew in the Battle of Britain.

It was designed by Harry Cross of Dobson and M Browne & Co, a Nottingham lace manufacturer. Its complex design includes aircraft, buildings and symbols that represent both 'the Few' who sacrificed so much to defend Britain and 'the Many' who were affected by the Battle. Each panel required 40,000 jacquard cards, 975 bobbins and 41.8 kilometres / 26 miles of cotton to complete. They were presented to notable people and organisations including Winston Churchill and museums and civic centres in Kent, the Netherlands and Commonwealth countries.

76/C/100

THE BATTLE OF BRITAIN

Following the defeat of France by Nazi Germany in the first year of the Second World War, Prime Minister Winston Churchill announced 'I expect that the battle of Britain is about to begin ... The whole fury and might of the enemy must very soon be turned on us. Hitler knows that he will have to break us in this Island or lose the war. If we can stand up to him, all Europe may be free and the life of the world may move forward into broad, sunlit uplands.'

From 10 July to 31 October 1940, the RAF fought the Luftwaffe relentlessly, supported by a wide range of civilian organisations on the ground. When Hitler realised that Germany could not gain air superiority, he abandoned his plans to invade Britain.

In Churchill's words 'This was their finest hour'.

Bristol Blenheim Mk IV

The Bristol Blenheim was faster than its contemporary RAF fighters when it entered service in 1937. Blenheims served in RAF Fighter, Bomber, Army Co-operation and Coastal Commands. During the Battle of Britain, they had the important mission to bomb Channel ports to disrupt German preparations for invasion.

In July 1940, at the start of the Battle of Britain, a Blenheim Mk IF night-fighter made the first successful radar interception of an enemy bomber.

This Canadian-built Blenheim IV served with the Royal Canadian Air Force on training duties. As no RAF Blenheims exist, it is used here to represent the aircraft's role in the Battle and wears the code letters of a No. 139 Squadron aircraft – the first RAF squadron to undertake an operational mission during the Second World War.

70/A/626

Dimensions

Span: 17.2m / 56ft 4in.

Length: 13.0m / 42ft 7in.

Date

1939–1942

Use

Light bomber

Engine

Two 686kW / 920hp Bristol Mercury XV
nine-cylinder air cooled radial

Top speed

266mph at 11,800ft / 428km/h at 3,600m

Maximum altitude

6,700m / 22,000ft

Armament

One .303in. / 7.7mm gun fixed forward

Two .303in. / 7.7mm guns in dorsal turret

Two .303in. / 7.7mm guns in optional blister below
the nose

Up to 1,200lb / 540kg bombs

Where used

UK, Northern Europe, Africa, Middle East,
Far East

THE DOWDING SYSTEM

The Dowding System was the first integrated air defence system. Information about approaching raids was received from radar stations and the Observer Corps and filtered. It was then passed to Controllers, who deployed their resources, including anti-aircraft artillery and fighter squadrons, to counter the threat. This gave the RAF a crucial advantage over the enemy, leading Churchill to describe Dowding's leadership as 'an example of genius in the art of war'.

Today, the RAF still uses a similar system to mobilise its Quick Reaction Alert stations to protect UK air space.

Dowding and Göring

Air Chief Marshal Sir Hugh Dowding, as Air Officer Commander-in-Chief of Fighter Command, had a clear goal – the air defence of the United Kingdom. Reichsmarschall Hermann Göring, Commander-in-Chief of the Luftwaffe, lacked the same clarity of purpose and often changed his plans.

Dowding understood that no individual could control an air battle and delegated authority to his subordinates. Göring, by contrast, retained control and did not give his commanders independence.

1. Bust of ACM Baron Dowding of Bentley Priory by Eva Britton

1969

Despite being a public figure, Sir Hugh Dowding was a private man and there are few photographs of him during his RAF service. Eva Britton created this bust shortly before his death in 1970. Britton trained at the Slade School of Art in London in the 1950s.

FA20004

2. Bust of Hermann Göring

by Walther Wolff, 1936

Reichsmarschall Hermann Göring was commander-in-chief of the Luftwaffe and President of the Reichstag. He was considered as Adolf Hitler's deputy, giving considerable him military and political power.

This bust is one of a series made by Walther Wolff, who became sought after in Germany after he created an iron relief of Hitler in 1933. He was commissioned to make widely-circulated propagandist busts and reliefs of senior officials serving in the Third Reich. The Nazis considered sculpture as an ideal way to convey the heroic qualities of their leaders – this bust is just slightly larger than life size.

The bust was donated to the Museum by Eric Campion.

FA20067

3. Medal Bar of ACM Baron Dowding of Bentley Priory

1914–1953

Dowding received relatively few medals compared to many RAF personnel. Although he did little flying, he was an excellent organiser, whether it was an air display here at RAF Hendon or the air defence of the United Kingdom.

The medal bar includes: 1914 Star with clasp, War Medal 1914–1918, Victory Medal with Mention in Despatches oak leaf, Defence Medal, War Medal 1939–1945 Silver Jubilee Medal 1935, Coronation Medal 1937, Coronation Medal 1953, King Feisal War Medal (Iraq)

1997/0245/D

4. Medal Bar of Reichsmarschall Göring

Hermann Göring was awarded the Iron Cross and Pour le Mérite (Blue Max) while serving as a fighter pilot in the First World War.

During the Second World War Göring was the most senior military officer in Germany, as well as commander-in-chief of the Luftwaffe. He received many medals because of his rank, rather than his actions. He wore this medal bar on his uniform.

Medals, left to right: Iron Cross 2nd Class with 1939 Clasp, Knights Cross With Swords of the House Order of Hohenzollern, Military Karl-Friedrich Merit Order, Order of the Zähringer Lion, Honour Cross of the World War 1914/1918, Wehrmacht Long Service Award First Class (Luftwaffe), Wehrmacht Long Service Award Second Class (Luftwaffe), Anschluss Medal, Sudetenland Medal with Prague Castle Bar, Memel Medal, West Wall Medal, Air Defence Cross First Class, Bulgarian War Service Medal 1915–1918.

The Pour le Mérite was worn at the neck.

X002-9500

Image

ACM Sir Hugh Dowding.
D1417, © Crown Copyright, Imperial War Museum

The Prime Architect of the Wartime Air Force

Air Chief Marshal Sir Cyril Newall was Chief of the Air Staff from 1937 and promoted to Marshal of the Royal Air Force in October 1940, shortly before being forced into retirement.

Sir Cyril not only assisted Sir Hugh Dowding with the creation of his air defence system but also protected him from politicians. It is likely that without his backing Dowding would have been replaced before the Battle of Britain.

1. Baron Newall of Clifton's No. 1 Officer's Jacket and Trousers

1940–1963

This 1920 pattern dress uniform of a Marshal of the Royal Air Force was used by Sir Cyril for ceremonies and other special events after he had retired. The red sash is not part of the uniform but worn with the Order of the Bath.

Jacket 66/U/244, Trousers 66/U/239

2. The Enigma Machine

1935–1945

Enigma was the trade name for the cypher machine used by the Germans to encode their communications. These were intercepted and passed to Station X at Bletchley Park where they could be decoded and translated. The resulting intelligence was shared with the appropriate commanding officer to help inform their decisions.

82/R/503

‘In the words of Sir John Slessor, Newall was ‘the prime architect of the wartime air force.’

‘The Right of the Line’ by John Terraine, Sceptre 1988

Images

ACM Sir Cyril Newall (left) with MRAF Lord Trenchard, RAF Northolt 1939.
5840-16, Charles Brown Collection, © RAF Museum

(Rear of showcase) The Operations Room at RAF Bentley Priory, February 1940
PC71-19-336-18 © Crown Copyright, RAF Museum

Junkers Ju 87D/G-2

The Junkers Ju 87 two-seat dive bomber gained a fearsome reputation during the early years of the Second World War. Its innovative design included louvered dive brakes to ensure automatic recovery from its steep – and highly accurate – dive bombing attacks.

The Ju 87 was also known as the Stuka (a shortened form of the German term for dive bomber, Sturzkampfflugzeug). It was fitted with sirens which gave a distinctive and terrifying scream when it dived. During the Battle of Britain, Ju 87s attacked British airfields and radar stations but proved highly vulnerable, suffering heavy losses.

This aircraft, a Ju 87G-2, is one of only two intact original examples of the Stuka to survive. Although it is a later model and never took part in the Battle of Britain, it is used here to represent the Stuka's role in that conflict.

78/A/657

Dimensions

Span: 13.8m / 45ft 3in.
Length: 11.48m / 37ft 8in.

Date

1937–1945

Use

Two-seat dive bomber and tank buster

Engine

One 1,043kW / 1,400hp Junkers Jumo 211J-1
twelve-cylinder inverted Vee liquid-cooled

Top speed

255mph at 13,500ft / 410km/h at 4,100m

Maximum altitude

Service Ceiling 7,285m / 23,905ft

Armament

Two 37mm / 1.45in. BK37 in underwing pods
One 7.92mm / 0.31in. MG 81Z twin machine gun on
flexible mounting in rear cockpit
Up to 1,800kg / 3,970lb in bombs

Where used

Spain, Poland, France, North Africa, USSR, UK

Heinkel He 111H-20

The Heinkel He 111, a German twin-engined medium bomber, was used extensively in the late 1930s and early years of the Second World War. Like many Luftwaffe aircraft, its development was concealed by the pretence that it was an airliner.

During the Battle of Britain, the He 111 proved vulnerable to fighter attack due to inadequate defensive armament, low speed and poor manoeuvrability.

This He 111 is a later version designed for paratroop transport. It was captured by Allied forces in 1945 and temporarily employed as a transport aircraft by an American fighter squadron. Although this particular aircraft never took part in the Battle of Britain, it is used here to represent the Heinkel in that conflict.

78/A/1033

Dimensions

Span: 22.6m / 74ft 2in.
Length: 16.4m / 53ft 10in.

Date

1936–1945

Use

Paratroop transport

Engine

Two 1,006kW / 1,350hp Junkers Jumo 211F-2
twelve-cylinder inverted Vee liquid-cooled

Top speed

249mph at 13,100ft / 400km/h at 4,000m

Maximum altitude

Service Ceiling 8,500m / 27,885ft

Armament

One 20mm / 0.75in. MG-FF cannon or one
7.92mm / 0.31in. MG15 machine gun in nose
One 13mm / 0.5in. MG131 machine gun in
electrically operated dorsal turret
Two fore and aft facing 7.92mm / 0.31in. machine
guns (MG15 or MG81) in ventral gondola
Two 7.92mm / 0.31in. machine guns (MG15 or
MG81) in beam positions

Where used

Spain, Central and Eastern Europe, UK

Civilians on the Front Line

The British public found themselves thrust into the middle of the fighting during 1940 with men, women and even children engaged in vital civil defence work. With many men serving with the armed forces, the emergency services relied on auxiliary personnel and volunteers.

The Air Raid Precautions (ARP) Service oversaw measures to protect civilians from the effects of bombing. Ambulance drivers, First Aid and rescue parties were ready for the call to action.

1. Auxiliary Fire Service (AFS) Jacket

1938–1941

The Auxiliary Fire Service was formed in 1938 to supplement the work of local fire brigades. It was made up of volunteers, many of whom were too old, or too young, for military service.

Uniforms were initially in short supply and some members only had a helmet, boiler suit and wellingtons.

X006-5580

2. Steel Police Helmet Mk I*

1939–1945

A severe shortfall in police numbers was met by calling up on Pensioner Reservists, recruiting Special Constables and members of the Women's Auxiliary Police Corps. Volunteers served as War Reserve Police Constables and, from 1941, as members of the Police Auxiliary Messenger Service, some of whom were under 18.

On loan from the Metropolitan police

L001-0917

3. Air Raid Precautions First Aid Box

1939

During the Second World War, ARP Wardens kept first aid boxes at their posts to provide immediate medical assistance after an enemy attack. These boxes contained supplies such as bandages, dressings and a first aid handbook.

1995/0385/S

‘I express my admiration for the exemplary manner in which all the Air Raid Precautions services of London are being discharged ... ’

Winston Churchill, 11 September 1940

Images

Recruitment poster for the London AFS.
FA10550, © Crown Copyright

Members of the AFS during an exercise, 1939.
HD-SN-99-02665, © US Defense Visual
Information Center

(Rear of showcase) Bomb damage at Warrens
Farm, Letchmore Heath, 26 September 1940.
X003-8460-b © Crown Copyright, RAF Museum

Avro Anson Mk I

The first RAF aircraft to feature a retractable undercarriage, the Avro Anson entered service with No. 48 Squadron, Coastal Command, in 1936. The Anson Mk I escorted British shipping in the North Sea and English Channel during the Battle of Britain.

The Anson's nickname was 'Faithful Annie'. It was an adaptable aeroplane and remained in production until 1952. In 2020 the RAF brought the Poseidon into service to carry out a similar maritime role.

This example was used for training with the Royal Australian Air Force and was later converted for airline use. Although it never took part in the Battle of Britain, it is used here to represent the Anson in that conflict.

1996/0066/A

Dimensions

Span: 17.2m / 56ft 6in.
Length: 12.9m / 42ft 3in.

Date

1936–1968

Use

Maritime patrol, air-sea rescue, transport and aircrew training

Engine

Two 260kW / 350hp Armstrong Siddeley Cheetah IX seven-cylinder air cooled radial

Top speed

188 mph at 7,000 ft / 302 km/h at 2,100m

Maximum altitude

4,877m / 16,000ft

Armament

Bomb load of 360lb / 163kg
One .303in. / 7.7mm gun fixed forward
One .303in. / 7.7mm gun in dorsal turret

Where used

UK, Canada, Australia, South Africa,
New Zealand, Rhodesia (now Zimbabwe)

Queen Mary

The Bedford OXC tractor was one of two tractors used with an articulated aircraft recovery trailer, commonly known as a Queen Mary, after the ship of the same name. The Bedford OXC tractor was developed with the assistance of Scammell, pioneers in the development of articulated lorries, now used extensively for transporting goods by road.

Squadron personnel were considered too busy to repair damaged aircraft so the Civilian Repair Organisation was set up to undertake the role. If an aeroplane could not be repaired on site, it was dismantled and taken on a Queen Mary to workshops for repair.

Bedford 72/V/1399, Semi-Trailer 72/V/1400

Dimensions

Length: Trailer: 12.9m / 40ft

Bedford: 4.4m / 14ft 6in.

Width: Trailer: 2.75m / 9ft

Bedford: 2m / 6ft 6in.

Date

1939–1950s

Tractor

4 x 2, Bedford-Scammell OXC/111 with trailer, articulated, 5 ton, low loading

Wheelbase

Bedford: 2.82m / 111in.

Engine

Bedford 6-cylinder Type WD

Capacity: 3,519cc / 221 cu in.

Power: 53.7kW / 72hp

Max speed

About 40mph / 65km/h

Crew

Two

Searchlight

Searchlights were used to illuminate enemy aircraft at night. They saw little use at the start of the Battle of Britain but became important once night raids started on Britain's towns and cities in October 1940.

Searchlights were used to show anti-aircraft guns and RAF night-fighters incoming German aircraft. There was a danger, however, that they would dazzle RAF pilots. Searchlights and anti-aircraft guns were operated by Territorial Army units of Anti-Aircraft Command.

79/O/554

Images

Auxiliary Territorial Services officers-in-training operate a searchlight in Western Command, 28 February 1944.

H_036315, © Imperial War Museum

Rescue workers assisted by searchlights, date unknown.

HU673, © Imperial War Museum

Date

1936–around 1950

Crew

Three

Carbon spark arc

Provided a 210 million candle power light source

90cm reflector

By changing the distance between the curved mirrored surface of the reflector and the arc, the beam could be focused or diffused

Controls

The beam was directed via the steering arm and elevation wheel

Caterpillar tracks

Allowed the searchlight to be deployed wherever it was needed

'We had inter-troop competitions, both for aircraft recognition and, of course, searchlight drill ... the winning detachment would receive a prize (usually an extra ration of cigarettes).'

Captain Gavin Dudley OBE, BBC People's War website

Wild Balloon Winch Mk IV

Balloons were an important deterrent to low-level attack, usually sited on the approach to important targets. If an aircraft hit the balloon's cable, it would then be cut by explosive links, which in turn activated two parachutes. These would rapidly slow the aircraft, forcing it to stall and crash.

Over the course of the war RAF Balloon Command claimed 66 aircraft and 231 V1 flying bombs destroyed by their barrages. However, an estimated 30 RAF and allied aircraft were also brought down.

By 1941, many Balloon Command personnel came from the Women's Auxiliary Air Force.

1995/0886/V

‘Balloon barrages ... exercise a very salutary moral effect upon the Germans and to a great extent protected the vital objectives which they surrounded ... ’

ACM Sir Hugh Dowding, London Gazette,
11 September 1946

Dimensions

Length: 7.32m / 24ft

Width: 1.8m / 6ft

Date

1937–1946

Engine

Ford V8 side valve

Capacity: 3,621cc / 221cu in.

Power: 63.4kW / 85hp

Maximum speed

20mph / 32km/h

Cable

2,013m / 7,000ft

Image

Fordson balloon winch, gas trailer and barrage balloon, RAF Hornchurch, 11 August 1939.
5876-3, Charles Brown Collection, © RAF Museum

Austin K2 Auxiliary Towing Vehicle

The Austin K2 Auxiliary Towing Vehicle was introduced in 1941 to replace numerous improvised vehicles in service with the Auxiliary Fire Service. Firemen and their equipment were carried inside and a trailer pump was towed behind. The pump could draw water from rivers or hydrants to supply the hoses.

German attacks on London and other towns in the First World War showed the importance of a well-equipped fire service to protect lives. Over 40,000 civilians are estimated to have been killed during the Battle of Britain and subsequent Blitz.

This Austin K2 was built in 1944 and displays the markings of the National Fire Service, formed by the merger of the Auxiliary Fire Service and regional brigades in 1941.

80/V/1259

‘ ... in the Auxiliary Fire Service, we have a most enthusiastic and efficient body of men.’

Mayor’s Annual Report 1938/39, by Councillor HG Potter, Hendon Council Minutes, 9 November 1939

Dimensions

Length: 5.5m / 18ft

Width: 2.3m / 7ft 6in.

Date

1941–around 1970

Engine

Austin 6-cylinder petrol engine

Capacity: 3,462cc / 211cu in.

Power: 44.7kW / 60hp

Maximum speed

50mph / 80km/h

Crew

Five

Image

The Austin K2 ATV was used to tow trailer pumps like these at Clapham Common, 1939.
5841-8, Charles Brown Collection, © RAF Museum

AFTER THE BATTLE

The Battle of Britain has been seen as a campaign fought by British pilots in the skies over Kent and London. In fact, those who fought in the air were supported by many on the ground, both in the Services and civilians. Luftwaffe general Adolf Galland later commented ‘We could do no other than knock frontally against the outstandingly well-organised and resolute direct defence of the British Isles’.

While Hitler’s invasion was postponed, and eventually abandoned, the end of the Battle did not mark the end of civilian suffering. German night bombing raids continued in the Blitz until Hitler turned his attention to the East and the invasion of the Soviet Union in 1941.

Image

(Rear of panel) Coventry after the Blitz of 16 November 1940.

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Additional Large Print Guides accompany these displays

People of the Battle of Britain

15 August 1940

