Bleriot XI

The Bleriot XI is a French aircraft of the pioneer era of aviation. The first example was used by Louis Blériot to make the first flight across the English Channel in a heavier-than-air aircraft, on 25 July 1909. It is one of the most famous accomplishments of the pioneer era of aviation, and not only won Blériot a lasting place in history but also assured the future of his aircraft manufacturing business. The event caused a major reappraisal of the importance of aviation; the English newspaper *The Daily Express* led its story of the flight with the headline "Britain is no longer an Island".

It was produced in both single- and two-seat versions, powered by several different engines, and was widely used for competition and training purposes. Military versions were bought by many countries, continuing in service until after the outbreak of World War I in 1914. Two restored examples – one in the United Kingdom and one in the United States – of original Bleriot XI aircraft are thought to be the two oldest flyable aircraft in the world.

**Design**

The Bleriot XI, largely designed by Raymond Saulnier, was a development of the Blériot VIII, which Blériot had flown successfully in 1908. Like its predecessor, it was a tractor-configuration monoplane with a partially covered box-girder fuselage built from ash with wire cross bracing. The principal difference was the use of wing warping for lateral control. The tail surfaces consisted of a small balanced-delta moving rudder mounted on the rearmost vertical member of the fuselage and a horizontal tailplane mounted under the lower longerons. This had elevator surfaces making up the outermost part of the fixed horizontal surface; these "tip elevators" were linked by a torque tube running through the inner section. The bracing and warping wires were attached to a dorsal, five-component "house-roof" shaped cabane consisting of a pair of inverted V struts with their apices connected by a longitudinal tube, and an inverted four-sided pyramidal ventral cabane, also of steel tubing, below. When first built it had a wingspan of 7 m (23 ft) and a small readap-shaped fin mounted on the cabane, which was later removed.

Like its predecessor, it had the engine mounted directly in front of the leading edge of the wing and the main undercarriage was also like that of the Type VIII, with the wheels mounted in casting trailing arms which could slide up and down steel tubes, the movement being sprung by bungee cords. This simple and ingenious design allowed crosswind landings, with less risk of damage. A sprung tailwheel was fitted to the rear fuselage in front of the tailplane, with a similar castering arrangement.

When shown at the Paris Aero Salon in December 1908, the aircraft was powered by a 26 kW (35 hp) 7-cylinder R.E.P. engine driving a four-bladed paddle-type propeller. The aircraft was first flown at Issy-les-Moulineaux on 23 January 1909, but although the aircraft handled well, the engine proved extremely unreliable and, at the suggestion of his mechanic Ferdinand Collin, Blériot made contact with Alessandro Anzani, a famous motorcycle racer whose successes were due to the engines that he made, and who had recently entered the field of aero-engine manufacture. On 27 May 1909, a 19 kW (25 hp) Anzani 3-cylinder, fer-configuration (semi-radial) engine was fitted. The propeller was also replaced with a Chauvière Intégrale two-bladed scimitar propeller made from laminated walnut wood. This propeller design was a major advance in French aircraft technology and was the first European propeller to rival the efficiency of the propellers used by the Wright Brothers.

During early July, Bleriot was occupied with flight trials of a new aircraft, the two-seat Type XII, but resumed flying the Type XI on 18 July. By then, the small cabane fin had been removed and the wingspan increased by 79 cm (31 in). On 26 June, he managed a flight lasting 36 minutes 55 seconds, and on 13 July, Bleriot won the Prix du Voyage of a 42 km (26 mi) flight between Etampes and Orléans.

**The Channel crossing**

The Bleriot XI gained lasting fame on 25 July 1909, when Blériot crossed the English Channel from Calais to Dover, winning a £1,000 (equivalent to £115,000 in 2018) prize awarded by the Daily Mail. For several days, high winds had grounded Blériot and his rivals. Hubert Latham, who flew an Antoinette monoplane, and Count de Lambert, who brought two Wright biplanes. On 25 July, when the wind and the morning had cleared, Blériot took off at sunrise. Flying without the aid of a compass, he deviated to the east of his intended course, but, nonetheless, spotted the English coast to his left. Battling turbulent wind conditions, Blériot made a heavy "pancake" landing, nearly collapsing the undercarriage and shattering one blade of the propeller, but he was unharmed. The flight had taken 36.5 minutes and had made Blériot a celebrity, instantly resulting in many orders for copies of his aircraft.

The aircraft, which never flew again, was hurriedly repaired and put on display at Selfridges department store in London. It was later displayed outside the offices of the French newspaper *Le Matin* and eventually bought by the Musée des Arts et Métiers in Paris.

**Subsequent history**

After the successful crossing of the English Channel, there was a great demand for Bleriot XIs. By the end of September 1909, orders had been received for 103 aircraft. After an accident at an aviation meeting in Istanbul in December 1909, Bleriot gave up competition flying, and the company's entries for competitions were flown by other pilots, including Alfred Leblanc, who had managed the logistics of the cross-channel flight, and subsequently bought the first production Type XI, going on to become one of the chief instructors at the flying schools established by Bleriot.

In February 1912 the future of the Type XI was threatened by the French army placing a ban on the use of all monoplanes. This was the result of a series of accidents in which Bleriot aircraft had suffered wing failure in flight. The first of these incidents had occurred on 4 January 1910, killing Leon Delagrange, and was generally attributed to the fact that Delagrange had fitted an over-powerful engine, so over stressing the airframe. A similar accident had killed Peruvian pilot Jorge Chavez at the end of 1910 at the end of the first flight over the Alps, and in response to this the wing spans of the Bleriot XI had been strengthened. A later accident prompted further strengthening of the spars. Bleriot produced a report for the French government which came to the conclusion that the problem was not the strength of the wing spars but a failure to take into account the amount of downward force to which aircraft wings could be subjected, and that the problem could be solved by increasing the strength of the upper bracing wires. This analysis was accepted, and Blériot's prompt and thorough response to the problem enhanced rather than damaged his reputation.

**Further development**

The Type XI remained in production until the outbreak of the First World War, and a number of variations were produced. Various types of engine were fitted, including the 120° "Y"-configuration, "full radial" three-cylinder Anzani (the restored example at Old Rhinebeck Aerodrome still flies with this) and the 37 kW (50 hp) and 52 kW (70 hp), seven cylinder Gnome rotary engines. Both single and two-seat versions were built, and there were variations in wingspan and fuselage length. In later aircraft the tip elevators were replaced by a more conventional trailing edge elevator, the tailwheel was replaced by a skid, and the former "house-roof" five-member dorsal cabane being replaced by a small tailplane. Other developments included Fokker monoplane control surfaces, and the addition of ailerons.
Civil use

The Type XI took part in many competitions and races. In August 1910 Leblanc won the 805 km (500 mi) Circuit de l’Est race, and another Blériot flown by Emile Aubrun was the only other aircraft to finish the course. In October 1910, Claude Grahame-White won the second competition for the Gordon Bennett Trophy flying a Type XI fitted with a 75 kW (100 hp) Gnome, beating a similar aircraft flown by Leblanc, which force-landed on the last lap. During the race Leblanc had built a stall in his aircraft. In 1911, André Beaumont, won the Circuit of Europe in a Type XI and another, flown by Roland Garros, came second.

Louis Blériot established his first flying school at Etampes near Rouen in 1909. Another was started at Pau, where the world speed record was made. In early 1909 and in September 1910 a third was established at Hendon Aerodrome near London. As a considerable number of pilots were trained by: by 1914 nearly 1,000 pilots had gained their Aero Club de France license at the Blériot schools, around half the total number of licences issued. Flight training was offered free to those who had bought a Blériot aircraft; for others it initially cost 2,000 francs, this being reduced to 800 francs in 1912. A gifted pupil favoured by good weather could gain his licence in as little as eight days, although for some it took as long as six weeks. There were no dual control aircraft in these early days, training simply consisting of basic instruction on the use of the controls followed by solo taxiing exercises, progressing to short straight-line flights and then to circuits. To gain a license a pilot had to make three circular flights of more than 5 km (3 mi), landing within 150 m (490 ft) of a designated point.

Military use

The first Blériot XIIs entered military service in Italy and France in 1910, and a year later some were used by Italy in North Africa (the first use of heavier than air aircraft in military use). Squadrons operated various military versions of the aircraft, mainly for observation duties also but as trainers, and in the case of single-seaters as light bombers with a bomb load of up to 25 kg.

Famous Blériot Monoplane pilots

- **Oskar Rider** - Swiss aviator who flew over the Pyrenees and the Alps in 1913.
- **Baron Carl Cederström** - who made the first flight of a heavier-than-air craft in Norway on 14 October 1910. He made a flight of 23 minutes and reached a height of 300 metres (983.9 ft).
- **Jean Conneau** (André Beaumont) - In 1911 won the Paris-Rome race, the Circuit d’Europe (Tour of Europe) on 7 July and the Daily Mail Circuit of Britain Race on 26 July 1911.
- **Jorge Chavez** - French-Peruvian aviator who crossed the Alps in 1910, but crashed on arrival and was killed.
- **Denys Corbett-Wilson** - Anglo-Irish aviator who made the first successful flight from Britain to Ireland in April 1912.
- **Leon Delagrange** - One of the first people to fly an aircraft in France, killed on 4 January 1910 flying a Blériot XI when his propeller broke.
- **Carlo Piazza** - On 22/23 October 1911, Captain Piazza of the Italian Royal Army Air Services conducted the first aerial reconnaissance flight, between Tripoli and Ain Zara during the Italo-Turkish War.
- **Roland Garros** - Won second place in the 1911 Circuit of Europe race, and set two world altitude records in 1912 in an adapted Type XI, flying to 5,000 m (16,000 ft) on 6 September 1912.
- **Claude Grahame-White** - Won the 1910 Gordon Bennett Trophy race, held in New York, flying a Blériot.
- **Eugène Gilbert** - Went to the Blériot school in 1910 after having built his own small unsuccessful aircraft in 1909. During a flight across the Pyrenees Mountains his Blériot XI was attacked by a large eagle, which Gilbert drove off by firing a pistol.
- **Troppo Gran** - Norwegian aviator, first to cross the North Sea from Scotland to Norway, on 30 July 1914. The flight set a record for the longest flight over open water, a distance of 450 km (280 mi) taking 4 hours and 10 minutes.
- **Maurice Guillaux** - French aviator, visited Australia April-October 1914. Flew Australia’s first air mail and air freight from Melbourne to Sydney, 16-18 July 1914.
- **Gustav Hamel** - Flew the world’s first regular airmail service between Hendon and Windsor in September 1911.
- **Vasily Kamensky** - A famous Russian Futurist poet, one of the pioneering aviators of Russia.
- **Jan Ka?par** - Lieutenant in the Belgian Army during the First World War.
- **Erica Beaudin** - Swiss aviator who first flew on 22 March 1910, in his newly bought Blériot XI, and flew about 150,000 kilometres (93,000 mi) during the next five years, using various aircraft, among them the Blériot XI, Morane-Borel monoplane, Dufaux 4, Dufaux 5 and STA I S3 seaplane.
- **Hendrik Vlies** - One of the first people to fly in an aircraft in France, killed on 4 January 1910 flying a Blériot XI when his propeller broke.
- **Hubert Le Blon** - A former racing car driver who took up aviation and designed his own monoplane. On 2 April 1910, flying a Blériot XI, he became the second (after Delagrange) fatality in the type after crashing in San Sebastian, Spain.
- **Alfred Leblanc** - Broke the flight airspeed record on 29 October 1910 while flying a Blériot XI. His speed was calculated at 68.20 mph (109.76 km/h): on 11 April 1911 he raised the record to 111.8 kph.
- **Bennetta Miller** - Fifth licensed woman pilot in the U.S. Chosen as pilot to demonstrate the Moisant-Blériot monoplane to the U.S. Army in 1912.
- **Jan Olieval** (1883-1942) - Lieutenant in the Belgian Army during the First World War.
- **Earle Ovington** - First airmail pilot in the United States, used a Blériot XI to carry a sack of mail from Garden City, New York to Mineo, Long Island.
- **Adolphe Pégoud** - First man to demonstrate the full aeronautic potential of the Blériot XI, flying a loop with it in 1913. Together with John Domenjou and Edmond Perreyon, he successfully created what is considered the first air show.
- **Harriet Quimby** - First licensed female pilot in the United States; first female to fly the English Channel solo. Died on 1 July 1912 when she and her passenger were ejected from her new Blériot XI-2.
- **Rene Simon** - In February 1911 the Mexican government engaged Rene Simon, a member of an aerial circus touring the southwestern United States, to reconnoiter rebel positions near the border city of Juarez.
- **Emile Taddéoli** - Swiss aviator who first flew on 22 March 1910, in his newly bought Blériot XI, and flew about 150,000 kilometres (93,000 mi) during the next five years, using various aircraft, among them the Blériot XI, Morane-Borel monoplane, Dufaux 4, Dufaux 5 and STA I S3 seaplane.

Variants

Blériot XI (REP)

1908, the first Type XI, powered by a 22 kw (30 hp) REP engine, displayed at the 1908 Paris Salon Exposition, first flown at Issy on 18 January 1909.

Blériot XI (Anzani)

1909, the first aircraft re-engined with a 19 kw (25 hp) Anzani engine and with wings enlarged from 12 to 14 m² (130 to 150 sq ft). Fitted with a flotation bag for Blériot’s cross channel flight.

Blériot XI Militaire

Military single-seater, powered by a 37 kw (50 hp) Gnome engine.

Blériot XI Artilleurie

Very similar to the Militaire version, but with a fuselage divided into two sections so that it could be folded for transport.

Blériot XI-1 Artilleurie

Single-seat er powered by a 50 hp (37 kW) Gnome 7 Omega, with collapsible fuselage for transportation.
Blériot XI E1
Single-seat training version.

Blériot XI Type Ecole
A trainer with considerable wing dihedral looped can e tailskid, tip elevator s and other modifications.

Blériot XI R1 Pinguin
Rouleur or ground training aircraft, fitted with clipped wings and a wide-track undercarriage with a pair of forward-projecting skids to prevent nose-overs. Some examples were fitted with a 26 kW (35 hp) Anzani engine and others with old 37 kW (50 hp) Gnome engines that were no longer producing their full power output.

Blériot XI (1912)
From March 1912 with two-piece elevators and high fuselage skid.

Blériot XI (1913)
As for Blériot XI (1912) with landing gear reinforcements removed, powered by a 60 hp (45 kW) Clerget 7Y.

Blériot XI Parasol aka Brevet-gouin, modified by Lieutenant Gouin and Henri Chazal with a parasol wing and split airbrake/rudder.

Blériot Xbix
In January 1910 the bis introduced more conventional tail feathers and elliptical elevators with a half-cowled Gnome engine.

Blériot XI-2 Tandem
Standard tandem 2-seat touring, reconnaissance, training model, powered by a 52 kW (70 hp) Gnome 7 Gamma rotary piston engine.

Blériot XI-2 bis "côte-à-côte"
February 1910 2-seat model, with side-by-side seating and a non-lifting triangular tailplane with semi-elliptical trailing-edge elevators, with several variations such as floats extended nose, modified tail-skid and other changes. (Length 8.32 m (27.3 ft), Wingspan 10.97 m (36.0 ft)

Blériot XI-2 Hydroaeroplane
Two-seater floatplane with wingspan of 11 m (36 ft) powered by a 60 kW (80 hp) Rhône engine. First flown with an extended rudder with a float on the bottom: this was later replaced by a standard rudder and a float fitted under the rear fuselage.

Blériot XI-2 Artillerie
Military Two-seater powered by a 70 hp (52 kW) Gnome Gamma, with modified rudder and undercarriage. Two aircraft or versions of the same aircraft with differing elevators.

Blériot XI-2 Génie
Military version designed for easy transport, powered by a 70 hp (52 kW) Gnome Gamma, it could be broken down/reassembled in 25 minutes.

Blériot XI-2 Vision totale
An XI-2 modified with a parasol wing in July 1914, also known as XI Brevet-Gouin.

Blériot XI-2 Hauteur
Powered by an 60 kW (80 hp) Gnome rotary piston engine and used by Roland Garros in altitude record flights in August 1912 and March 1913.

Blériot XI-2 BG
Two-seat high-wing parasol model.

Blériot XI-3 Concours Militaire
Tandem 3-seat model, powered by a twin-row 14-cylinder, 100 kW (140 hp) Gnome 14 Gamma-Gamma rotary engine. Span 11.35 m (37.2 ft), length 8.5 m (28 ft)

Thulin A
Licence-built in Sweden

Military operators
- Argentina
  - Argentine Air Force
- Australia
  - Australian Flying Corps
    - Central Flying School AFC @ Point Cook, Victoria
- Belgium
  - Belgian Air Force
- Bolivia
  - Bolivian Air Force
- Brazil
  - Brazilian Air Force
- Bulgaria
  - Bulgarian Air Force
- Chile
  - Chilean Air Force
- Denmark
  - Royal Danish Air Force
- France
  - French Navy
- Greece
  - Hellenic Air Force
Surviving aircraft

In addition to the aircraft used by Louis Blériot to make his cross-channel flight in 1909, on display in the Musée des Arts et Métiers in Paris, a number of examples have been preserved. Both the British and American restored-to-airworthiness examples, each now over a century old and believed to be the two oldest flyable aircraft anywhere on Earth, are usually only “hopped” for short distances due to their uniqueness.

Airworthy aircraft

- 14 - Blériot XI airworthy at the Shuttleworth Collection in Old Warden, Bedfordshire. Built in 1909 and now with the British civil registration G-AANG, this is the world's oldest airworthy aircraft. It is powered by a three-cylinder "W form" Anzani engine.

- 56 - Blériot XI airworthy at the Old Rhinebeck Aerodrome in Red Hook, New York. It is powered by a 120°-angle regular "radial" Anzani three-cylinder engine and bears U.S. civil registration N60094. The front and back thirds of the fuselage are original.

- 1381 - Blériot XI-2 bis on display at the Swedish National Museum of Science and Technology in Stockholm. A Blériot XI, the oldest airworthy museum aircraft in Sweden, manufactured in 1918 under licence by AETA, Enoch Thulins Aeroplane Works, in Landskrona, Sweden, as type Thulin A, has been owned by the museum since 1928. Following a two-year restoration by Mikael Carlson, the Blériot XI made what was probably its maiden flight to celebrate the Centenary of Flight in Sweden, at the Stockholm Festival of Flight on 20-22 August 2010. Registered with the Swedish Civil Air Traffic Authority in 2010 as SE-AEC, the Blériot uses its original rotary engine, a Thulin-built copy of the Gnome Omega.

- Reproduction - Blériot XI airworthy at the Montreal Aviation Museum in Sainte-Anne-de-Bellevue, Quebec. It is a reproduction of the Blériot XI "Le Scarabée", flown over Montreal by Count Jacques de Lesseps in 1910, built by volunteers at the museum. They spent nearly 15 years building this exacting reproduction from original blueprints; its first flight took place in September 2014.

- Reproduction - Blériot IX airworthy with Eric A. Presten in Vineburg, California.

Display aircraft

- 9 - Blériot XI on static display at the New England Air Museum in Windsor Locks, Connecticut. It was built in 1911 by Ernest Hall and has a Detroit Aero engine.

- 76 - Blériot XI on static display at the National Technical Museum in Prague. It was used by Jan Kaťápar.

- 153 - Blériot XI on static display at the Cradle of Aviation Museum in Garden City, New York. It was originally purchased by Rodman Wanamaker, is the first aircraft to be imported into America, and was acquired from the Old Rhinebeck Aerodrome.

- 164 - Blériot XI on static display at the Royal Air Force Museum London in London. It has a reproduction fuselage and a six-cylinder Anzani engine installed.
Specifications (Blériot XI)

Data from

General characteristics

- Crew: 1
- Length: 7.62 m (25 ft 0 in)
- Wingspan: 7.79 m (25 ft 7 in)
- Height: 2.69 m (8 ft 10 in)
- Wing area: 14 m² (150 sq ft)
- Empty weight: 230 kg (507 lb)
- Powerplant: 1 × Anzani 3-cyl. fan, 2-cyl. air-cooled fan-style radial piston engine, 19 kW (25 hp)
- Propellers: 2-bladed Chauvière Intégrale, 2.08 m (6 ft 10 in) diameter

Performance

- Maximum speed: 75.6 km/h (47 mph; 41 kn)
- Service ceiling: 1,000 m (3,300 ft)

References

Notes

2. Elliott 2000, p. 142.
3. "Blériot No.9 Flight" 9 January 1909
5. Elliott 2000, p. 73.

Bibliography


External links

- Old Rhinebeck Aerodrome's 1909-10 Blériot XI page
- Blériot XI World's Oldest Flying Aeroplane
- YouTube video of Old Rhinebeck's N60094 Blériot XI making a short flight
- The Shuttleworth Collection's oldest-of-all Blériot XI making a flight
- Louis Blériot - Developer of Commercial and Military Aircraft. US Centennial of Flight Commission
- A Blériot XI at Maurice Dufresne Museum, France
- Blériot XI at Musée des transports de Lucerne, Switzerland
Amplifiers
Acoustic Guitars
Bass Guitars
Computers
Cymbals
Drums
Electric Guitars
Electronic Drums
Microphones
MIDI Controllers
Music Theory Books

Music Scenes
Anaheim, California
Albuquerque, New Mexico
Anchorage, Alaska
Atlanta, Georgia
Arlington, Texas
Aurora, Colorado
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Baton Rouge, Louisiana
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Boise, Idaho
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El Paso, Texas
Fort Wayne, Indiana
Fort Worth, Texas
Fresno, California
Honolulu, Hawaii
Indianapolis, Indiana
Irvine, California
Jacksonville, Florida
Jersey City, New Jersey
Kansas City, Missouri
Lansing, Michigan
Las Vegas, Nevada
Lexington, Kentucky
Los Angeles, California
Lincoln, Nebraska

Popular Artists
Adele
Alicia Keys
Ariana Grande
Beyonce
Bruno Mars
Chris Brown
Coldplay
Drake
Ed Sheeran
Gorillaz
Jay-Z
Justin Bieber
The Blériot XI is the aircraft that was used by Louis Blériot on 25 July 1909 to make the first flight across the English Channel made in a heavier-than-air aircraft. This achievement is one of the most famous accomplishments of the "pioneer era" of aviation, and not only won Blériot a lasting place in history but also assured the future of his aircraft manufacturing business. The event caused a major reappraisal of the importance of aviation; the English newspaper, The Daily Express, led its story of The Bleriot XI was just as successful when flown by other pilots, and it was a rare air meet in Europe that did not feature a Bleriot XI among the prizewinning aircraft. By 1913, Louis Bleriot's factories had delivered no less than 800 examples of the Bleriot XI, an amazing production run for the time, especially for an aircraft priced at about $5,000. Bleriot schools turned out many aviators and, of course, used Bleriot trainers. But the very success of the Bleriot XI spelled trouble for it.