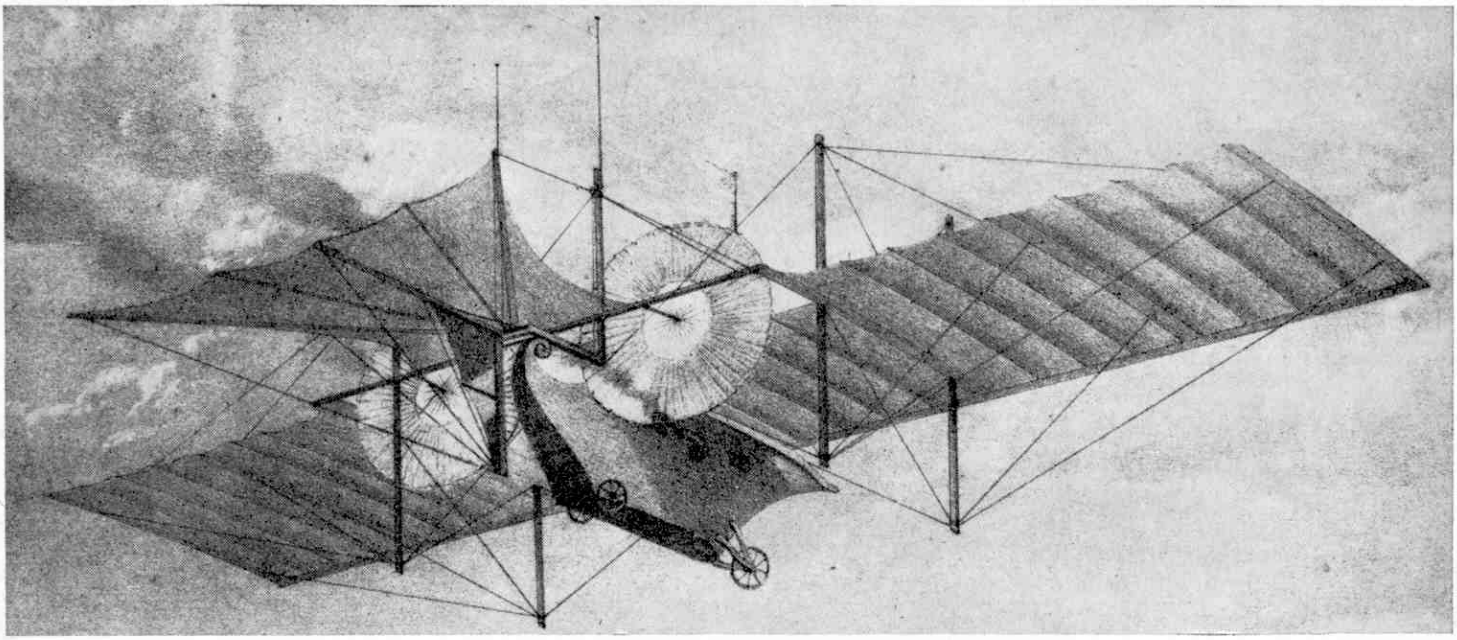

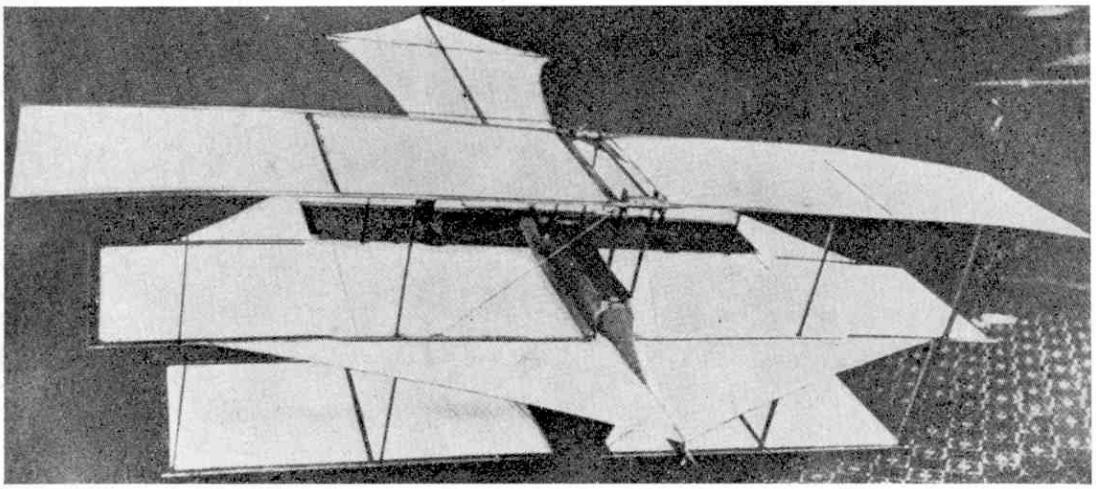

The fearful looking machine at the top of the page depicts Henson's 'Ariel', and is from a contemporary print issued by the Aerial Transit Company. In Stringfellow's triplane of 1868, shown in the lower illustration, can be seen the beginnings of today's aeroplanes

In these days of superso
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Aviation Pioneers, and
milestones in the history

AVIATION PIONEERS

FROM the earliest times man has been fascinated by the flight of birds, and made many attempts to fly himself. In the sixteenth century, Leonardo da Vinci considered the problem, and by constant observation, learned the mechanics of gliding and soaring birds. He came to understand that the outstretched wings supported the bird because the upward pressure of the air is equal to the weight of its body, and this is the principle upon which the flight of the aeroplane is based.

Since then, many adventurous men have killed and injured themselves by jumping off towers, cliffs and hills, with flapping wings attached to their arms and legs, but eventually it was realised that the unaided muscles of the human body would never be sufficient in themselves to conquer the problem of level flight.

An important step forward was made in 1810 when a Yorkshireman, Sir George Caley, built and successfully flew a model glider. He produced the main features of the present day aeroplane, it having narrow wings with a cambered shape from front to back. The model also showed how the control of direction could be brought about by the use of rudders.

On December 6, 1799, at Attercliffe, Sheffield, John Stringfellow, one of the early pioneers of the flying-machine, was born. While still a young boy, John and his father moved to Nottingham, where John was put to work as an apprentice for a firm of lace manufacturers. His alert and inventive mind served John Stringfellow well, for before he reached the age of twenty-one, he had earned himself a reputation for miles around Nottinghamshire, as one of the foremost bobbin and carriage makers in the lace trade.

In the early part of 1820, John decided upon a change of scene and moved to Chard in Somerset where, ever ambitious, he set up in business on his own account, from his own house, as a lace maker to the trade.

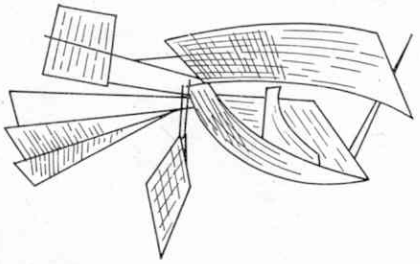
It was here that Stringfellow met up with another young man after his own heart, with an equally inventive and inquisitive mind, in the shape of William Samuel Henson; already making a local name for himself as an engineer. Both men had, from early childhood, been continually fascinated by the flight of birds, like da Vinci and Caley before them, and both had dreams of the possibility of actually building and flying machines. The coming together of these two minds brought about the design and construction of a light steam engine, with the idea of providing motive power for their first machine.

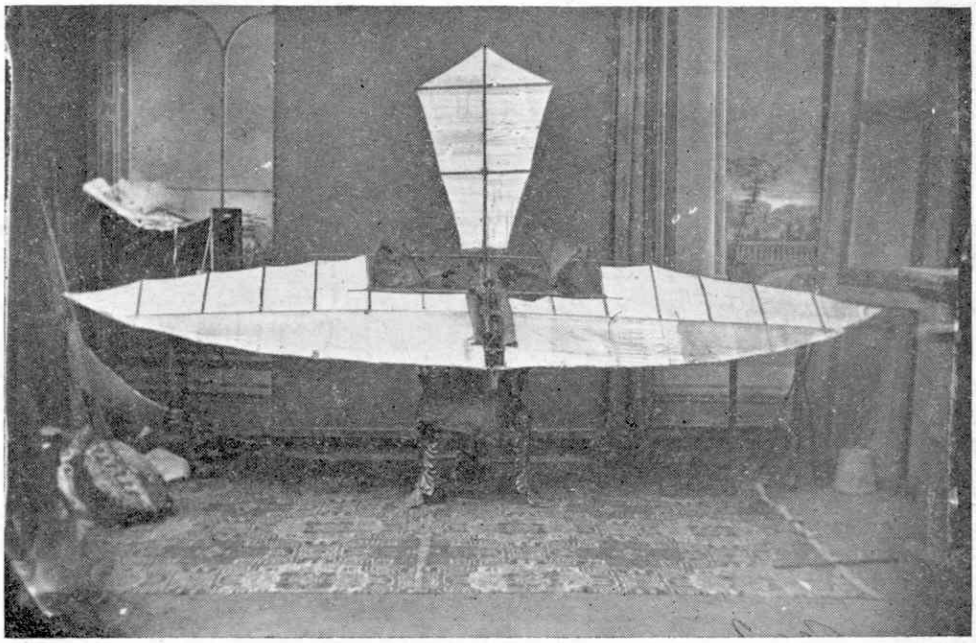
This project, however, took many years to perfect; but eventually in 1842 they filed a Provisional Specification at the Patents Office for what Henson called, 'Certain improvements in locomotive apparatus and machinery, for conveying letters, goods and passengers from place to place through the air'. The following year, with the aid of friends and acquaintances, Stringfellow and Henson formed 'The Ariel Steam Transit Company', the main purpose being to convey passengers and troops to China and India.

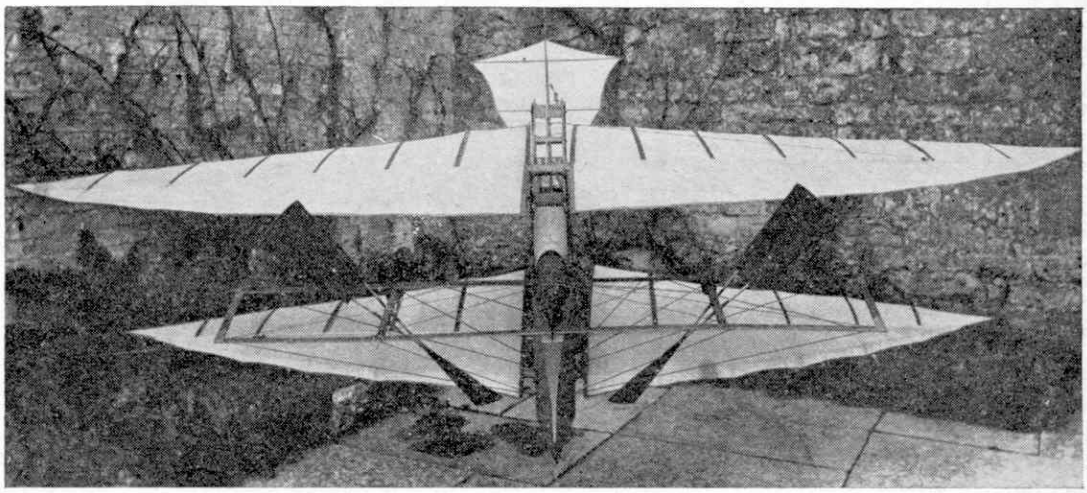
The following year, in 1843, other partners were bought out of the company, and the two men embarked upon the more modest enterprise of building experimental models. Between them, they produced several model flying machines, including one with a twenty square feet wing area; but despite many heartbreaking attempts by these patient pioneers, it failed to make a successful flight. One can imagine the two brave men trying to ignore the jeers and laughs of the local people who would turn up to watch; and the bitter disappointments and heartbreaks as their dreams of 'man taking to the sky and flying to the

Stringfellow's model of 1848

Design for a glider by Sir George Caley, 1799







These pictures of aircraft built by John Stringfellow in the 'eighties of the last century give a good idea of the size and construction of these 'model' aircraft. What a sensation they would cause on the flying field today!

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Sad to relate, utterly discouraged by constant failure, William Henson gave up and emigrated to America. John Stringfellow, however, carried on and his interest in the actual aeroplane, as well as the engine, increased. His perseverance resulted in an event of profound importance in the history of mechanical flight, when in 1848 he completed a model mono-plane which measured ten feet from wing tip to wing tip, and was powered by a steam engine, as in his earlier constructions.

Full of hope, John tested this new enterprise at Chard, in a disused lace factory, in a room about 22 yards long and 12 feet high. To the utter amazement of all present, the model gradually rose off the ground and travelled along an inclined wire which ran for about half the length of the room. At the end of the wire, the plane launched into free flight and rose higher and higher until it reached the far end of the room, striking a sheet of canvas, placed there to stop damage upon landing. Amongst the witnesses were J. Riste, Northcote Spencer and J. Toms, all persons of high integrity in Chard.

It was acclaimed at the time, to be the first occasion in the history of the world, when any flying machine had made a free flight. From the county of Somerset, travellers spread the word of the "flying bird", and eventually Stringfellow received an invitation to take his invention up to London to the exhibition in Cremone Gardens, where it made another successful flight, this time of some forty yards.

For some compelling reasons, John suddenly lost interest in his flying machines, and spent the next twenty years engrossed in his lace machine factory, but he did pay a visit to America with one of his sons, in 1849, where, it is presumed, he once again met up with William Henson.

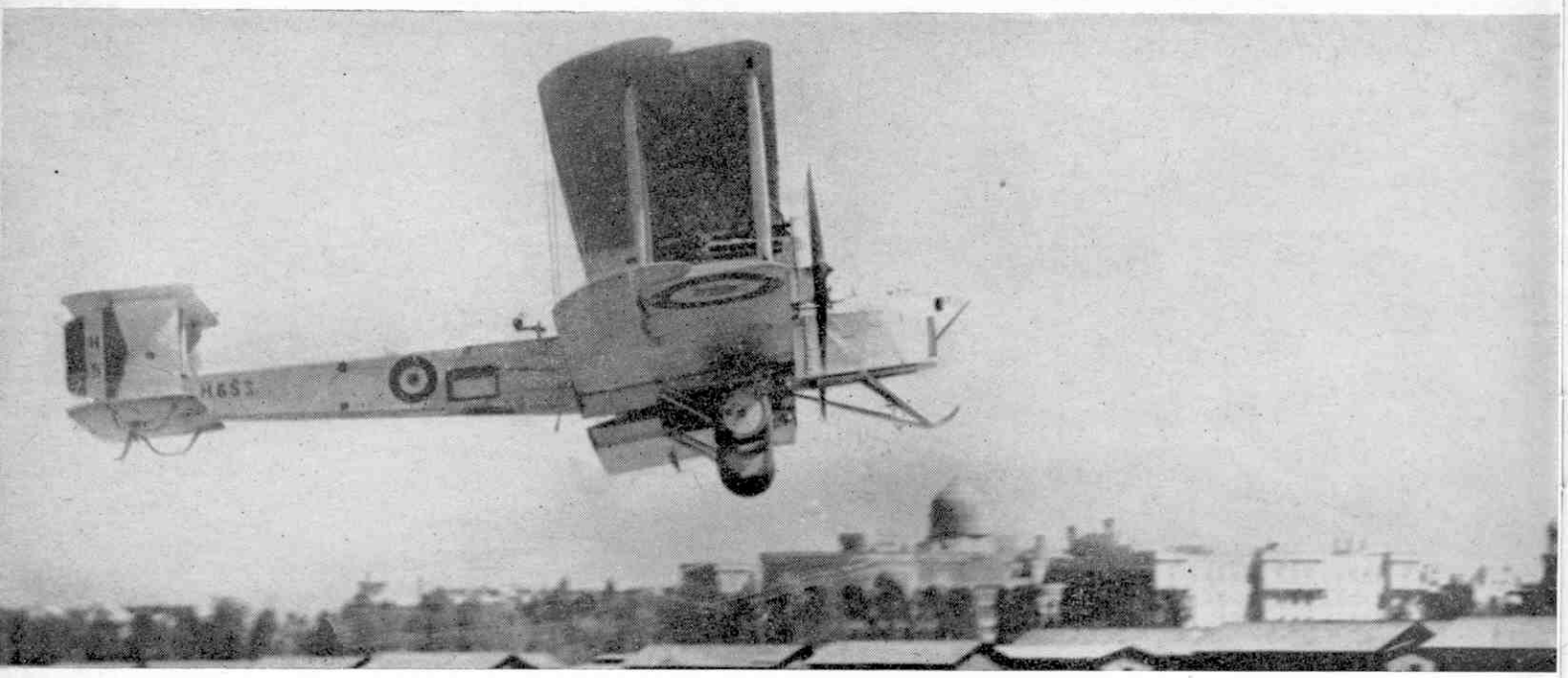
John's experiments and results were, however, not forgotten, and his interests were revived in 1866, by which time the Aeronautical Society of Great Britain had been founded. The Society's secretary, a Mr. F. W. Brierby, persuaded Stringfellow to exhibit at an aeronautical exhibition at the famous Crystal Palace, which he did, this time with a steam driven model biplane, running along a wire. The one horse power steam engine weighed, with its boiler, only a mere 13 lbs., and a special prize of £100 was awarded him by the Society for 'the lightest steam engine in proportion to its power'. The flight was made before the regal figure of the then Prince of Wales (later Edward the Seventh), who insisted that the pioneer be presented to him there and then.

Overwhelmed by his reception at the Crystal Palace, Stringfellow carried on with his experiments, his most treasured one being a model tri-plane, again powered by a very light weight steam engine. Both the tri-plane and the steam engine have been preserved and are now safely housed in the Government Museum in Washington D.C. in the United States.

John's work from now on was carried out in a 70 ft. shed which he erected in the high street in Chard. His confidence in the possibility of aerial flight on a full size scale never wavered, and he persevered in the face of many difficulties and discouragements which broke the faith of other men of his time. We must, in passing, not forget his other skills, which included inventions used by the medical profession, in physiotherapy, and for military use.

He died on December 13, 1883, at the ripe old age of 84, in his beloved Chard. An interesting collection of photographs of John Stringfellow and his models can be seen in the Chard Town Hall.

-JOHN STRINGFELLOW



A Vimy climbs majestically above the sunlit domes and minarets of Heliopolis, bound for Baghdad

FEW of the great pioneers of flying were wealthy. Britain's A. V. Roe saved sufficient money to build his early aeroplanes only by living on five shillings' worth of food each week and sleeping in his small wooden hangar at Brooklands. Over in France, Louis Blériot financed his flying by making headlamps for motor cars, at a time when there were not many cars.

Both men began designing aeroplanes in 1906. In all the world, only the American Wright Brothers had made worthwhile powered flights at that time, and little was known in Europe of what they had achieved or what their aircraft was like. The public as a whole shared the view of Wilbur Wright, who wrote in a letter to a friend, on October 10, 1906: 'We do not believe there is one chance in a hundred that anyone (else) will have a machine of the least practical usefulness within five years'.

To encourage more rapid progress, the Daily Mail newspaper offered a series of prizes ranging from £250 for a model aircraft contest to £1,000 for the first airman to fly across the English Channel and £10,000 for the first to fly from London to Manchester in 24 hours. The editor of a rival newspaper wrote sarcastically that he would give £10 million to anyone who could fly between the two cities! It is as well that nobody took him seriously, as all the Daily Mail prizes were claimed before the end of 1910.

Roe won the first prize of £75 at the model contest held in 1907 and used the money to build his first full-size aeroplane. Winner of the cross-Channel award was Louis Blériot, who flew from Baraques, near Calais, to Dover, on July 25, 1909.

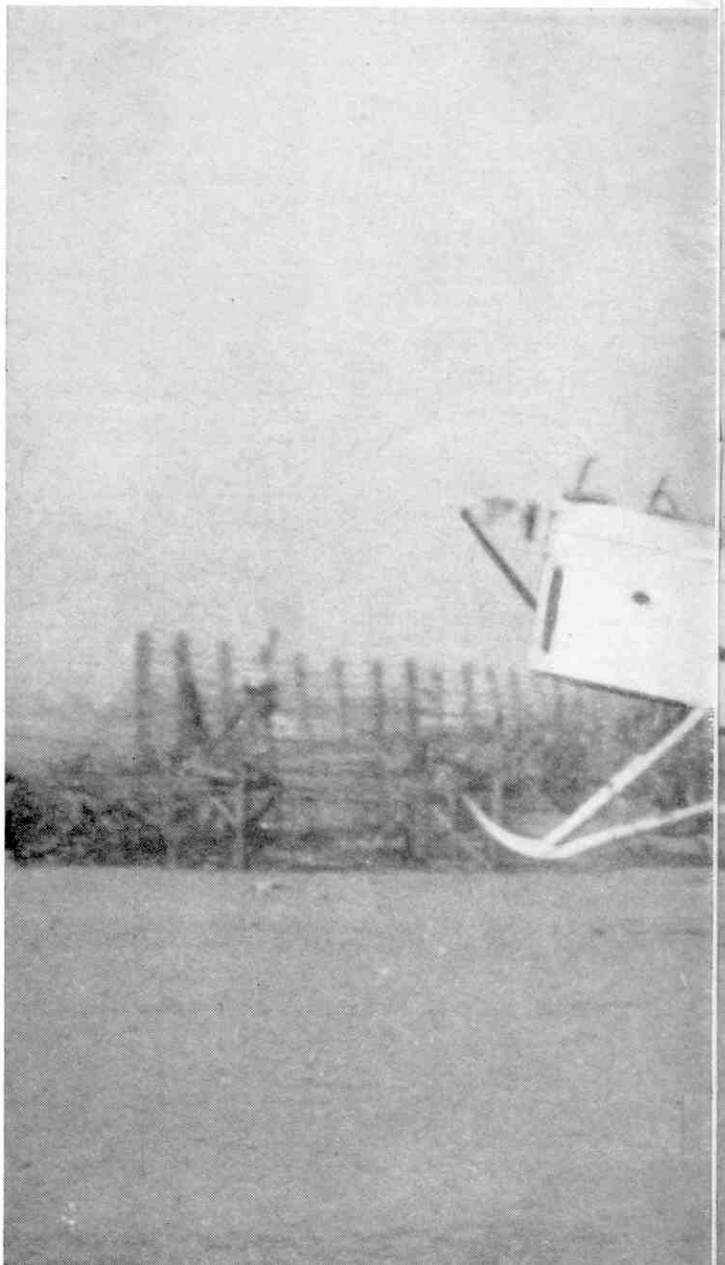
It is difficult to appreciate today how much he deserved his £1,000, and the further £3,000 which he received from the French government. You and I can cross the Channel in about 2½ minutes in armchair luxury in a jet airliner whenever we wish. When Blériot took off from France on that July morning, he had never managed to keep the engine of one of his aeroplanes running for more than about 20 minutes in the air—and England was nearly 40 minutes away! Halfway across, the little 25 h.p. three-cylinder Anzani engine began to overheat and the aircraft slowly lost height. Just as Blériot prepared for a ducking, a shower of rain cooled the engine and he was able to complete the flight.

As well as winning the prize money, Blériot suddenly found himself world famous. He had shown that aeroplanes were capable of flying from one country to another, and the more thoughtful Britons realised that the Channel and the Royal Navy might never again protect them from attack in any future war.

Within three years, Britain began to form an air force—the Royal Flying Corps—and among the first aircraft bought to equip it were Blériot XI monoplanes, not so very different from that used for the cross-Channel flight. The main differences were an increase in wing span, from 25 ft. 7 in. to 34 ft. 3 in., and the use of a more powerful (80 h.p.) Gnome rotary engine, so that a crew of two could be carried on reconnaissance missions.

Both the R.F.C. and the Royal Naval Air Service flew Blériots from 1912 to early 1915, about 25 aircraft going to naval squadrons. Like all the other machines in service on the outbreak of the 1914-1918 war, they were unarmed; but this did not restrict them to a purely passive rôle.

One of the pilots who flew from Netheravon to Dover on August 12, 1914, prior to crossing the Channel, was Captain (later Air Chief Marshal Sir) Philip Joubert de la Ferté of No. 3 Squadron, R.F.C. In his autobiography, *The Fated Sky* (Hutchinson, 1952), he wrote: 'We



had been ordered, secretly, that if a Zeppelin was seen by any of us we were, regardless of our safety, to ram it. I was proceeding peacefully 20 miles north of Portsmouth at about 3,000 feet, when my mechanic gripped my shoulder and shouted in my ear, "Zeppelin, sir!" Shuddering with fright, I looked over my shoulder and saw one of the Spit forts lifting its head above the morning mist. In this light it looked just like an airship—but I had a lot to say to the mechanic when we landed.

'Next morning, we were served out with a motor car tyre inner tube which we were instructed to blow up and wear around our middles in case we fell into the "drink" on our way to France. . . . As he crossed the French coast, one pilot found the Cap Gris-Nez lighthouse so inviting an object that he spent a little time trying to drop his inner tube, like a quoit, on to the spiky top.'

It is a great tribute to the engineering ability of Louis Blériot that a machine designed in 1909—and a monoplane at that—should

AVIATION PIONEERS

PIONEERS IN BATTLEDRESS

have proved capable of development into an aircraft which made possible the first aerobatic displays before the war and some of the first operational flights of the war. Joubert himself, in company with Lt. Mapplebeck of No. 4 Squadron in a B.E.2B, made the first reconnaissance sorties sent out by the R.F.C. on August 19, 1914.

The only marking carried by his aircraft was the number '389' on each side of the rudder; but one of the other Blériots taken to France by No. 3 Squadron was much more conspicuous. Known as the 'Entente Cordiale' Blériot, it was an ancient machine which had been bought originally by the Daily Mail. Under its starboard wing was a large 'Daily,' under the port wing a large 'Mail', while on the rudder were crossed a Union Jack and a Tricolour.

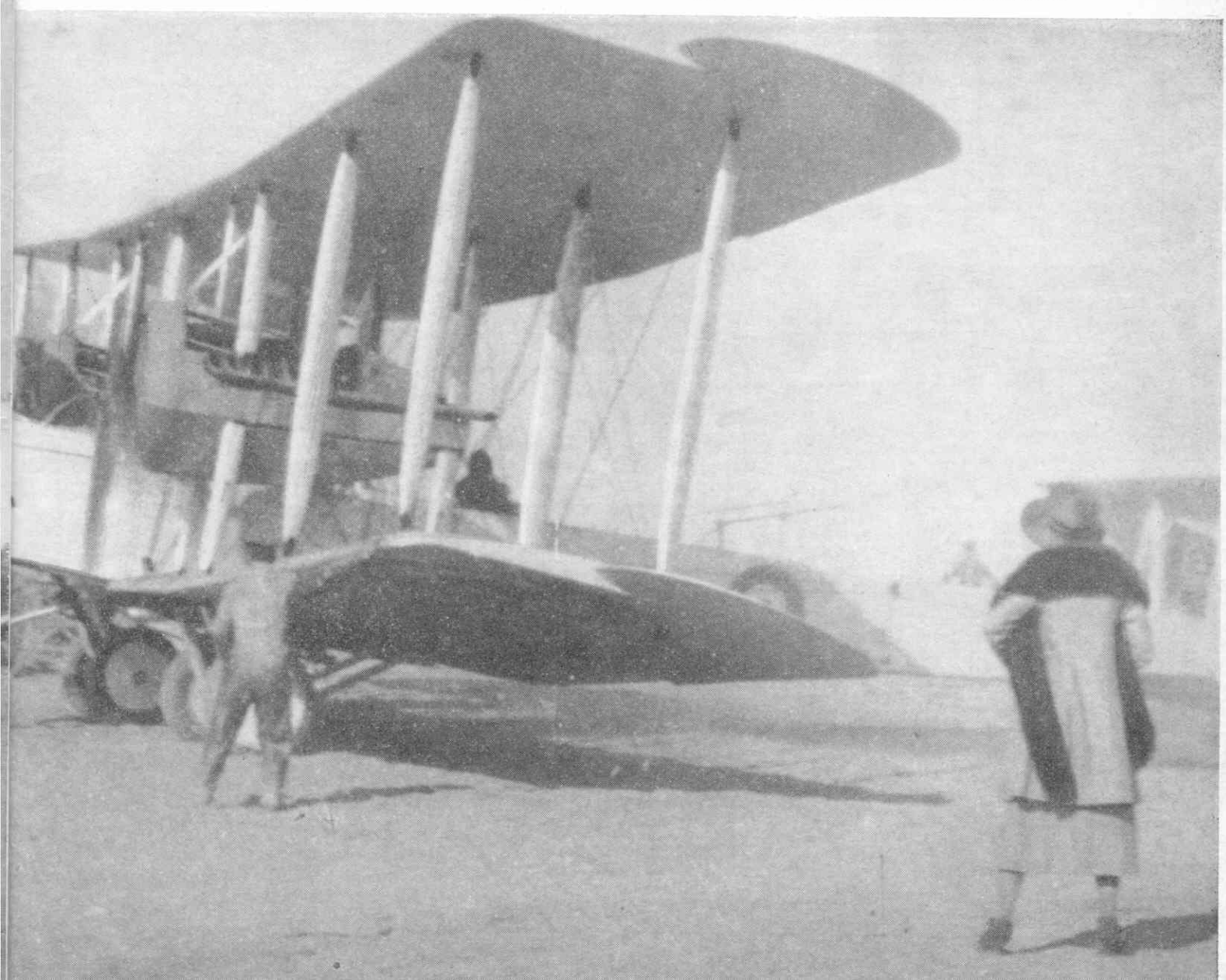
So, at the beginning of the 1914-18 war, one Daily Mail prize-winner, designed as a pioneer, saw service as a military aircraft. When the war ended, an aircraft that had been designed for combat use was modified to win another Daily Mail prize.

This prize, of £10,000, had been offered in 1912 for the first non-stop flight across the Atlantic. The fact that nobody offered £10 million this time, despite the immensity of the challenge, reflects the progress that flying had made in a few years. Nevertheless, it is perhaps as well that nobody tried to win the prize with the aircraft and aero-engines of pre-war vintage.

By the end of the war, aero-engines had become much more powerful and far more reliable; and, as most of you will know, a pair of 360 h.p. Rolls-Royce Eagles carried Capt. John Alcock and Lt. Arthur Whitten-Brown safely over the Atlantic in a Vickers Vimy biplane on June 14-15, 1919.

If you go to London's Science Museum, you can see in the National Aeronautical Collection the actual Vimy used for the flight. With its span of 68 ft., it overshadows every other aircraft on display, but it offered none of the comfort and had few of the safety aids associated with large aircraft today. It was built of wood and covered with fabric, like Blériot's monoplane. It was fitted with radio; but the propeller driving the electrical generator fell off soon after take-off, so the radio could not be used. As

Ready for take-off at Heliopolis. Only navigation aid across the uncharted desert was a furrow ploughed in a dead straight line from one side to the other!



NOTES

Used by France, Great Britain, Belgium and Italy.

Colours :-

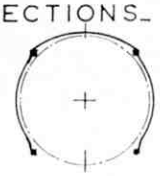
Natural varnished wood with clear doped covering. Cowling aluminium.

Metal fittings black

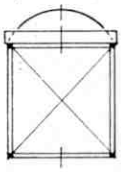
Usually the only markings were a black number on the rudder. Some French aircraft had the blue-white-red stripes on the rudder and roundels on the wings.

Individual aircraft often differed in minor details

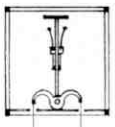
SECTIONS-



at the engine.



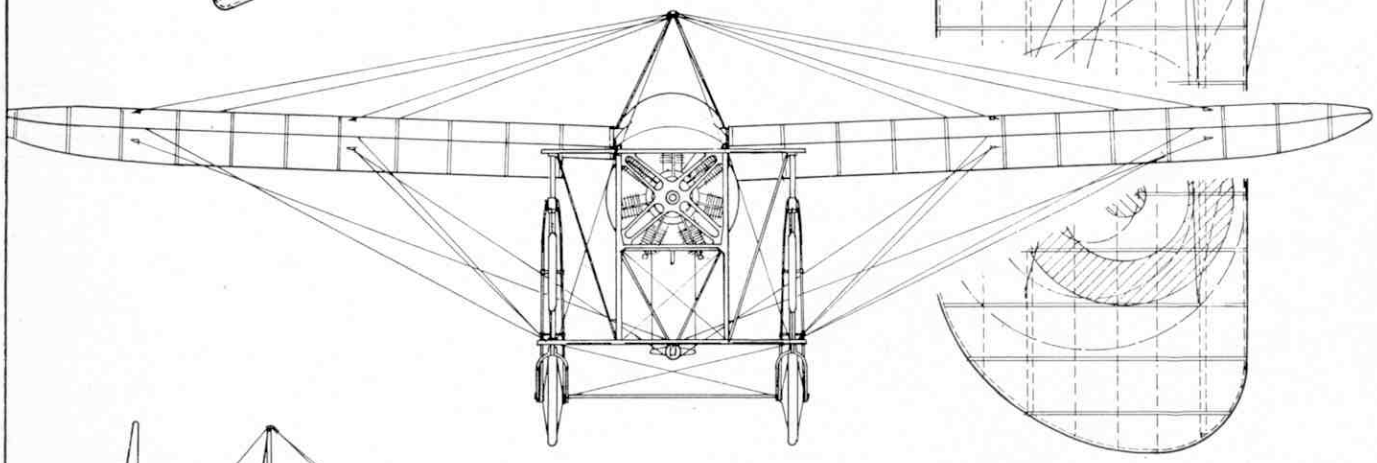
at front spar.

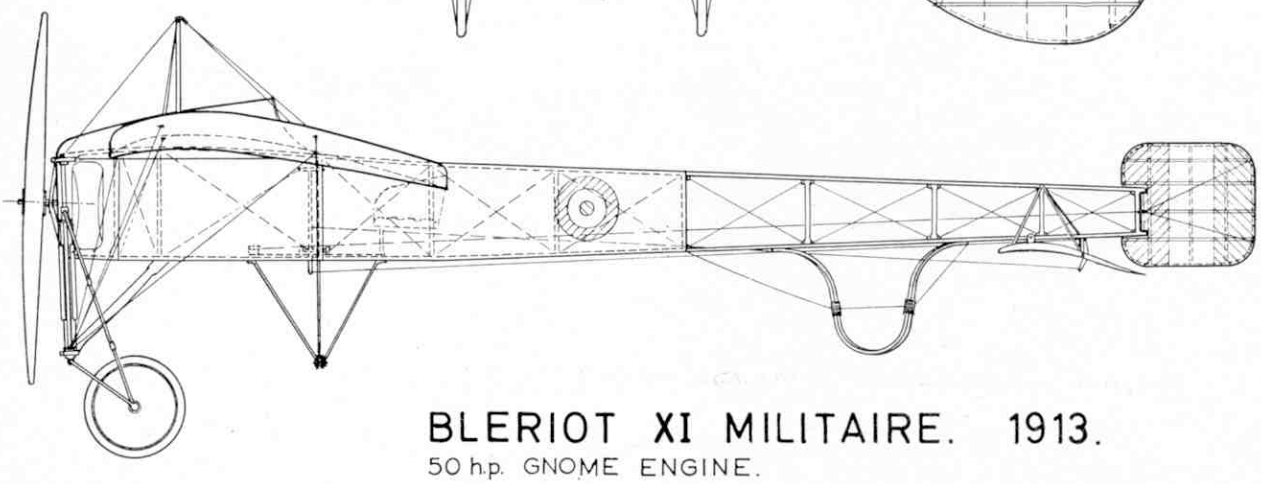


at control column

PLAN.

PROPELLER.





BLERIOT XI MILITAIRE. 1913.

50 h.p. GNOME ENGINE.

Drg. by Ian R. Stair.

0 1 2 3 4 5 6 7 ft.

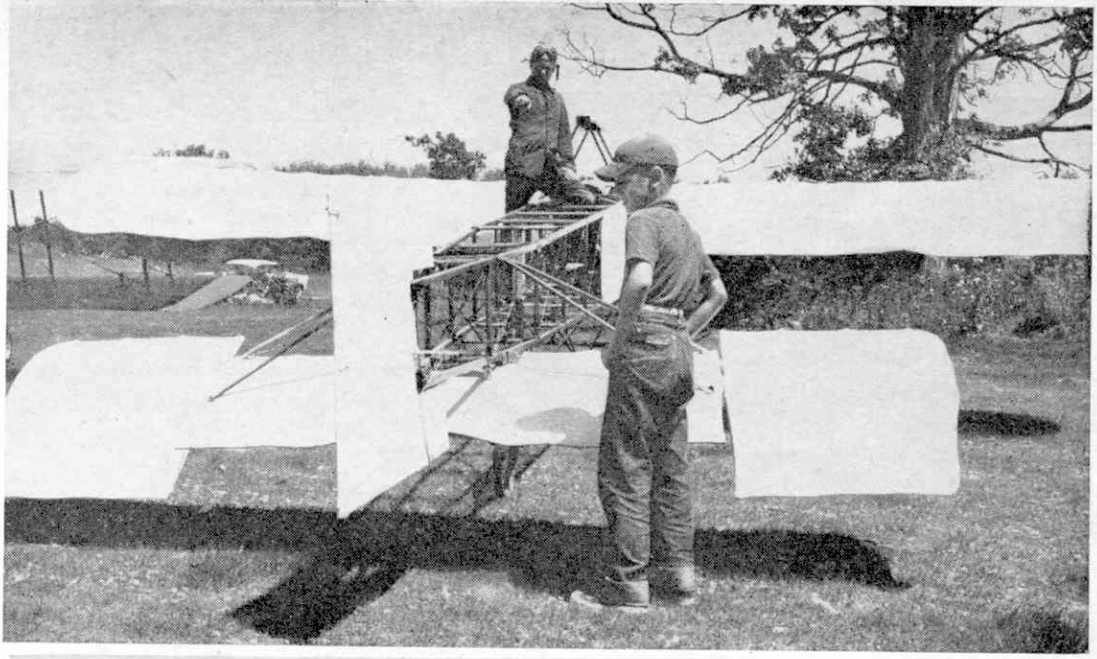
for 'twin-engined' safety, this certainly did not apply to the Vimy when it headed out over 1,800 miles of the Atlantic Ocean. Loaded with 865 gallons of fuel, it could never have stayed in the air if one engine had failed; so there were simply twice as many engines to go wrong!

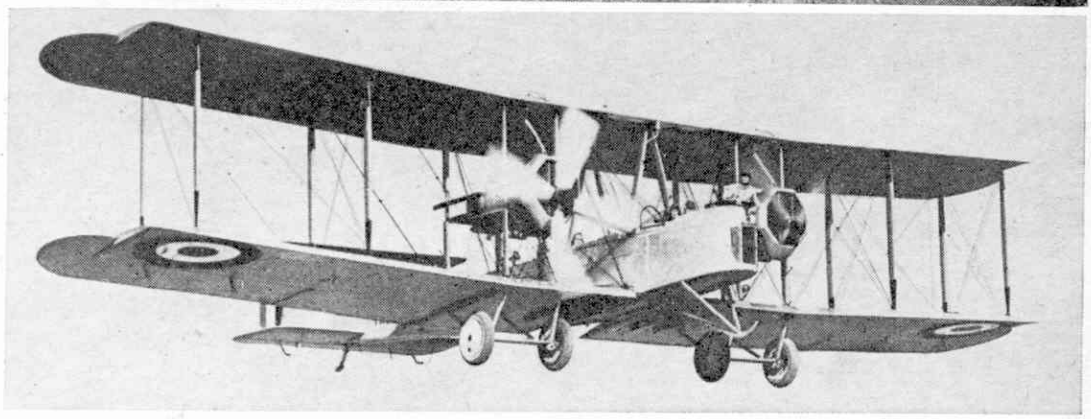
As everyone knows, the Eagles did not fail and, after a hair-raising journey of nearly 16 hours in their open cockpit, Alcock and Brown reached Ireland, gaining knighthoods as well as the £10,000 cheque from the Daily Mail. Other famous long-distance flights by Vimys followed, including the first from England to Australia and the first from England to South Africa.

In R.A.F. service, too, the Vimy made history. It had been designed as a three-seat strategic bomber to attack the German homeland, side-by-side with the D.H.10 Amiens and Handley Page V1500; but the war had ended before it became operational. Several different engines were fitted in the prototypes, and the first few production machines had 300 h.p. Fiat A-12 *bis* engines. Most of the 300 odd production Vimys were, however, Eagle-powered Mk. IV's. They were built by Vickers at Crayford and Weybridge, Morgan & Co. at Leighton Buzzard, the Royal Aircraft Establishment at Farnborough and Westland Aircraft at Yeovil.

Only a single Vimy had reached the R.A.F.'s Independent Force of strategic bombers by the time of the Armistice and it was not until July 1919 that Vimy IV's became fully operational, as replacements for the Handley Page 0/400's of No. 58 Squadron in Egypt. Other squadrons in Egypt followed; while at home the Vimys of D Flight of No. 100 Squadron at Spittlegate represented the entire U.K.-based twin-engined strategic bombing force of the R.A.F. until No. 7 Squadron was formed at Bircham Newton in mid-1923, followed by Nos. 9 and 58 Squadrons in the spring of 1924, all with Vimy IV's.

Bomb-load of the Vimy IV consisted of twelve 112 lb. bombs stowed vertically in the fuselage between the spars of the lower wing centre-section, eight 112 lb. bombs under the lower wings, inboard of the undercarriage, and four more 112 lb. or two 230 lb. bombs under the fuselage, up to a maximum of 2,476 lb. Defensive armament comprised two Lewis machine-guns on a Scarff ring in the nose cockpit, one on a Scarff ring above the fuselage aft of the wings and another in the bottom of the rear fuselage, firing under the tail.





Above: a young visitor looks awestruck at this 1910 Bleriot from Cole Palen's vintage aircraft collection in the U.S.A. Below: a Vimy in flight

Eight first-line squadrons flew Vimy IV's. Replacement by Virginias began in 1924, but No. 502 Squadron retained its Vimys until the beginning of 1929. Meanwhile, some 80 aircraft were re-engined with Jupiter or Jaguar radial engines of 420-450 h.p. for flying and parachute training duties. In the latter rôle, the aircraft took off with a trainee parachutist standing on a small platform and clinging to the outer rear interplane strut on each side. At a signal from the pilot, the parachutists pulled their ripcords and were dragged off their platform by the opening 'chute. A ladder was attached to the port side of the fuselage for free-fall jumps.

So, in various guises, the Vimy soldiered on with the R.A.F. until 1933. It had no opportunity to display its undoubted capability as a bomber, and is remembered mainly for its long-distance flights. Less well-known is the part that Vimys of No. 216 Squadron played in helping to maintain the R.A.F.'s pioneer Cairo-Baghdad mail service across the desert in 1922-26.

Before this service began, letters from England to British troops stationed in Iraq went by sea, via Bombay, and took about 28 days to get there. The air mail service reduced this to five days, even though surface transport still had to be used between Alexandria and London. Sole navigation aid across the uncharted desert was a furrow ploughed in a dead straight line from one side to the other. Refuelling sites were few and far between, in territory where the local Arabs were not always friendly, and the flights at 80 m.p.h., through bumpy skies, called for both skill and endurance from the aircrews.

In 1926 the air mail service was taken over by Imperial Airways as the first stage of a network of routes that was to extend eventually to every corner of the British Empire.

Blériot XI military two-seat reconnaissance aircraft: Span 34 ft. 3 in.; length 27 ft. 6 in.; wing area 248 sq. ft.; weights, empty 770 lb., loaded 1,388 lb.; max. speed 66 m.p.h. at sea-level; rate of climb 230 ft./min.

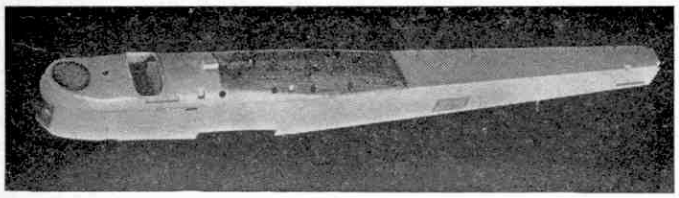
Vickers Vimy IV three-seat strategic bomber: Span 68 ft. 0 in.; length 43 ft. 6½ in.; height 15 ft. 0 in.; wing area 1,300 sq. ft.; weights, empty 7,101 lb., loaded 12,500 lb.; max. speed 103 m.p.h. at sea-level; rate of climb 360 ft./min.; service ceiling 7,000 ft.; endurance 11 hours. **J. W. R. Taylor**

The original nameplate on Cole Palen's Bleriot—type 11, serial No. 56

Ian Stair's drawing opposite of a Bleriot XI Militaire is drawn full-size for 1/48 scale, the same scale as the Bleriot in the Inpact range of veteran aircraft kits. With a little modification, the Inpact Bleriot, which retails at 5s. 6d., would make a very nice Militaire. Conversion would simply entail the addition of the forward fuselage fairing in Plastikard, and the replacement of the old 3 cylinder engine by the 7 cylinder rotary with its associated cowlings and front bearing supports cut from card.

A photograph of the Bleriot XI Militaire will appear in next month's issue.

VIMY GOES TO WAR



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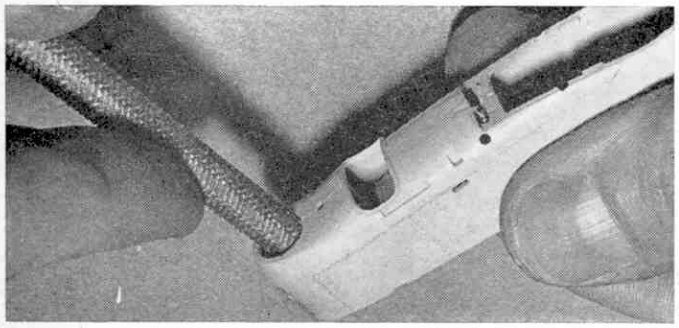

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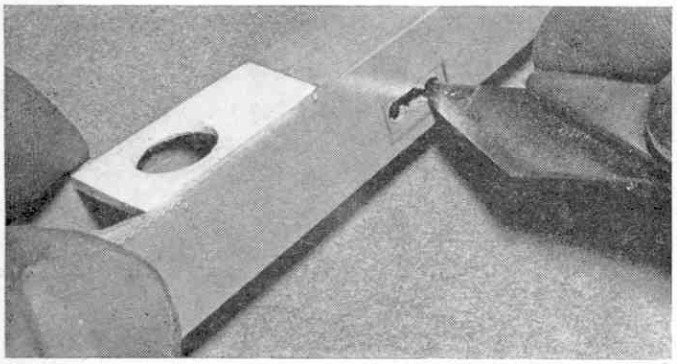

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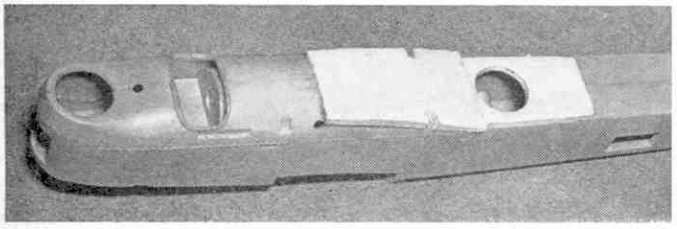

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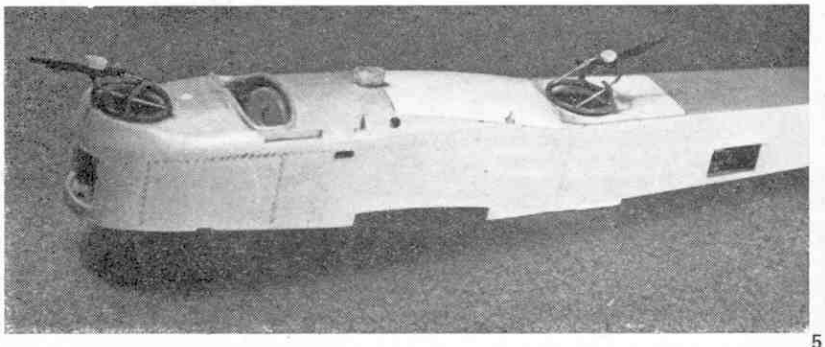

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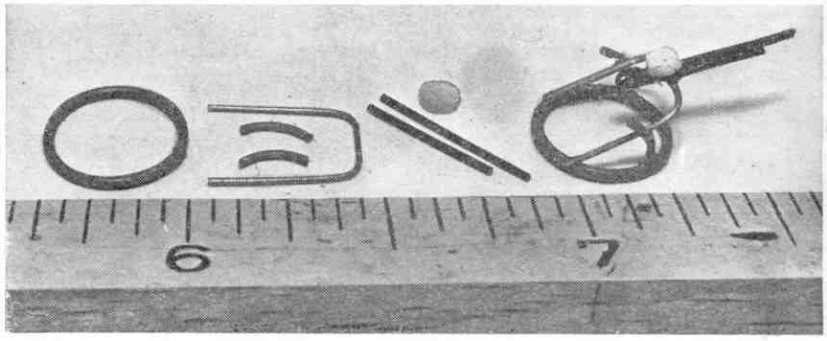

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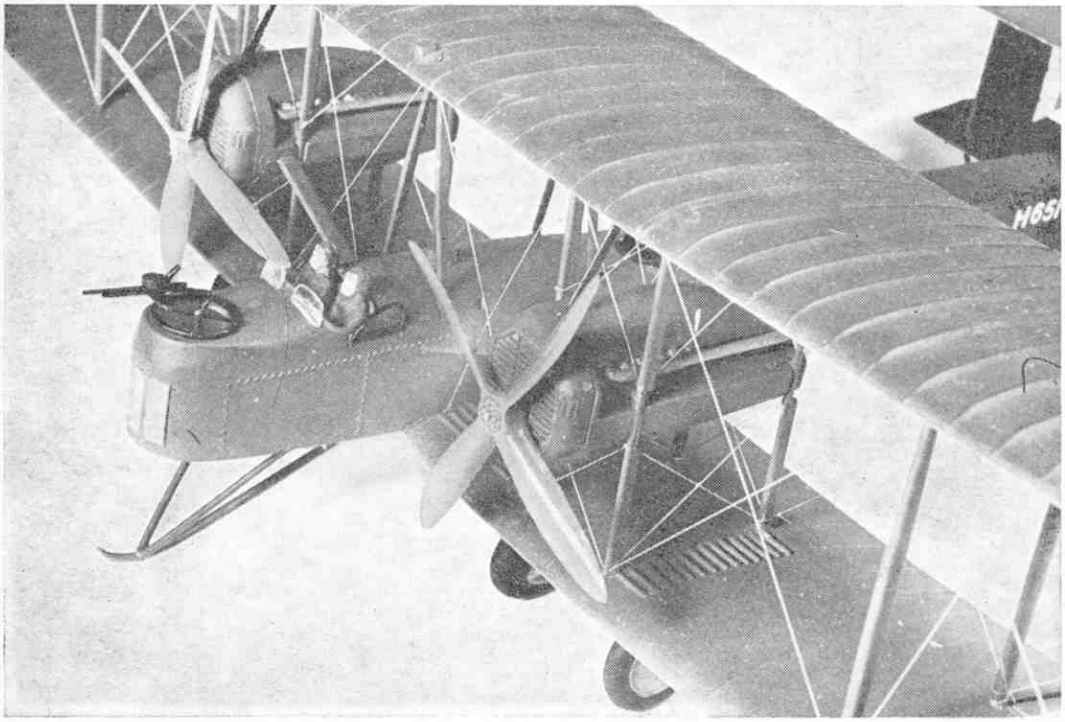


8

1 This is the 'standard' Vimy fuselage as supplied in the kit. The areas to be removed are shown shaded—they are the nose windows, nose gun position hole, rear turtle deck and rear fuselage side windows.

2 Using a razor saw and file remove the shaded areas. A round file will be found useful when carrying out final shaping of the gunners' positions.

3 Rear fuselage side windows are easy to pierce if three small holes are first drilled to give the knife a 'start'. Cut *almost* to the line and finish off with a Swiss file. Notice how the new rear decking including a rear gunner's position has been made from 60 thou. Plastikard and let into the top of the rear fuselage. The fabric lacing on the fuselage side will give you the size for this piece.

4 All holes cut and a piece of 60 thou. Plastikard cut (oversize), curved and cemented to form the new, short turtle deck. Notice the two cut-outs in the sides of the deck to take the lower ends of the rear centre section wing struts.

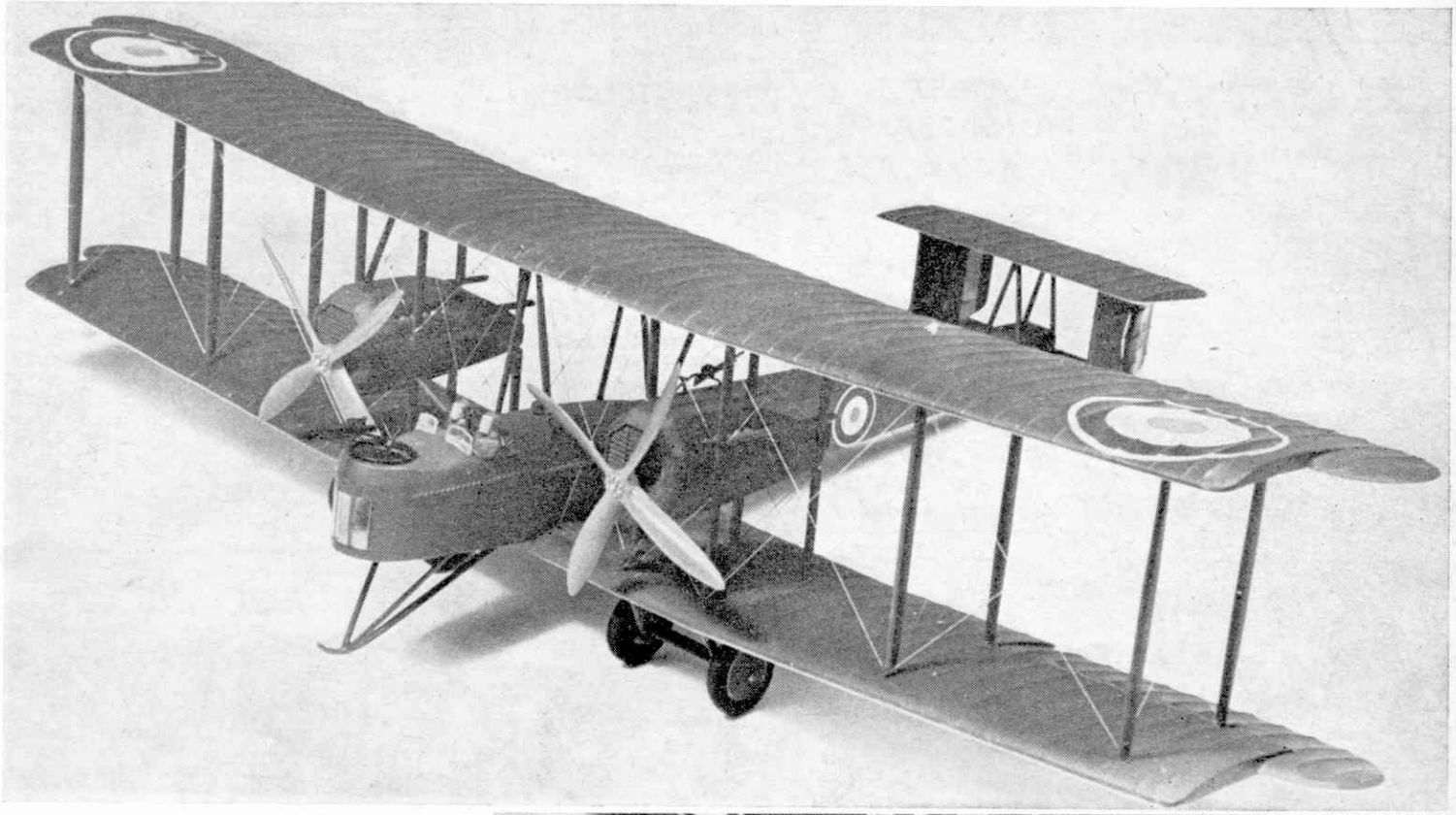
5 When dry, the Plastikard is sanded and filed to blend in with the curve of the upper fuselage and in this photograph you can also see how the guns are positioned.

6 Making the guns is not at all difficult.

BIGGEST model in the Frog Trailblazers series is the Vickers Vimy—the machine in which Alcock and Brown made the first West to East Atlantic crossing back in 1919. The aeroplane they used was a converted World War 1 bomber modified, lightened and fitted with extra fuel tanks beneath an extended fuselage 'turtledeck'.

It is an impressive machine but, of course, it lacks some of the interesting 'bitty' appearance of the original military version. Also the Trans-Atlantic Vimy was finished in clear doped cream coloured fabric—devoid of any markings, whereas the bomber was coloured khaki-green on the upper surfaces and sported colourful roundels and rudder stripes.

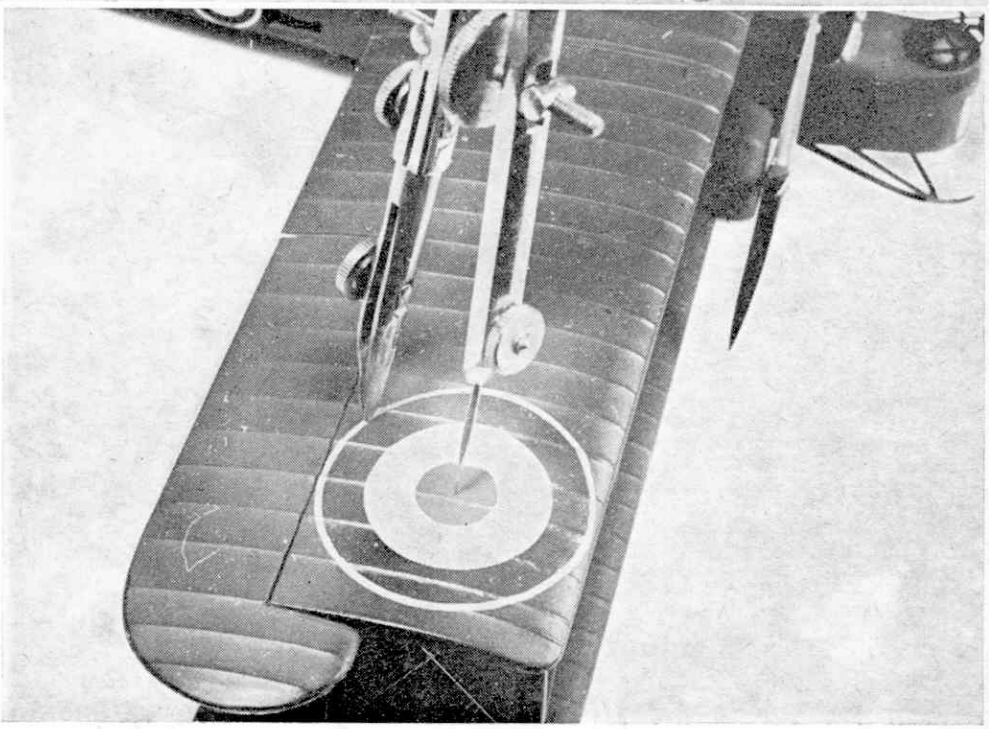
So this month Doug McHard shows you how to turn back the clock and produce a Vimy Bomber. The wings and tail remain unaltered, only the fuselage needs the attention of the plastic surgeon's knife so here goes—



Only seven pieces of heated and stretched plastic sprue are needed for each gun and mount. They are all shown in this photograph together with a complete gun on its Scarff Ring mounting. Use a pair of tweezers to assemble the parts. The Scarff Ring is wound round a small diameter rod such as a paint brush handle—it will spring out to about the right size when the ends can be cemented to form a perfect circle. Make the circular ammunition magazine from a thin 'slice' of plastic moulding sprue. The ruler in the foreground is marked in $\frac{1}{16}$ in. divisions to give you a guide to sizes.

7 You may find it difficult to obtain transfers with the World War 1 white outer ring. Don't let this worry you—it is a simple matter to describe a thin white circle using a pair of ink compasses charged with white enamel. The transfers must be completely dry before carrying out this operation.

8 Here's a close-up of the work on our completed model. The nosewheel supplied in the kit is discarded and in its place a skid is fitted as shown. This, like the guns, is simply made from stretched plastic sprue (as described in our May 1966 issue). The one-piece windshield of the Trans-Atlantic Vimy is divided into two separate units as shown. Rigging (made from Kleintex Invisible Thread) is vital to an old biplane if the true 'atmosphere' of these frail machines is to be achieved. After rigging the thread can be painted grey or silver.



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