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THE scientific men of the Aeronautical Society of Great Britain had been pondering the mysteries of flight for more than 40 years by the time of the Wright Brothers' triumph in 1903. But the earliest British aviators were not scientists. Rich young gentlemen such as Tommy Sopwith (Fig 3), and not-so-rich young gentlemen such as Geoffrey De Havilland (Fig 6) or Alliot Verdon Roe (Fig 1), were driven by an enthusiasm for flight and a love of things mechanical. They taught themselves to fly, built aeroplanes, crashed them, improved them and sold them to fellow enthusiasts.

These English gentlemen amateurs could trace their roots back a further century. Sir George Cayley (Fig 9), of Brompton Hall near Scarborough, was the first to understand the principles of flight, as far back as 1799. He made kite-like models, but only as an old man did



1—A. V. Roe and his Avro Mobile

MAGNIFICENT AND THEIR FLYING



(Right) 2—The Sopwith Camel in flight.

(Below) 3—Enthusiast Sir Thomas Sopwith



he put his ideas into practice. A boy from his estate became the first heavier-than-air aviator, when he 'floated off the ground for several yards on descending a hill', aboard a Cayley glider in 1849. A bigger version followed in 1853 which carried Cayley's unwilling coachman, John Appleby, 200yd across the dale at Brompton. He landed safely, but handed in his notice on the spot: 'Sir, I was hired to drive, not to fly.'

The lack of a suitable engine prevented Cayley from exploring powered flight, to the relief, no doubt, of his staff. Steam power, at the time, was the only option. Others pursued the dream with models, and varying degrees of success, but Hiram Maxim, the American inventor and naturalised Briton, did not think on a small scale. He built an enormous aircraft some 104ft across (Fig 8), powered by a remarkably efficient steam engine of his own design, and set it up on rails

at Baldwin's Park, near Bexley. The rails were part of a test rig designed to measure lift while keeping the 8,000lb creature down—for Maxim, at 52, knew that if it flew he would not be able to control it. Several test runs were made during 1894, but then it broke free from its restraints at more than 40mph and took off, 'giving those on board the sensation of being in a boat', Maxim noted. It settled back to earth after a 600ft drifting flight, damaging itself expensively in the process. London County Council soon afterwards took over the land to build a mental institution. 'I had prepared the ground, so all that was necessary was to erect the buildings,' observed the wry inventor.

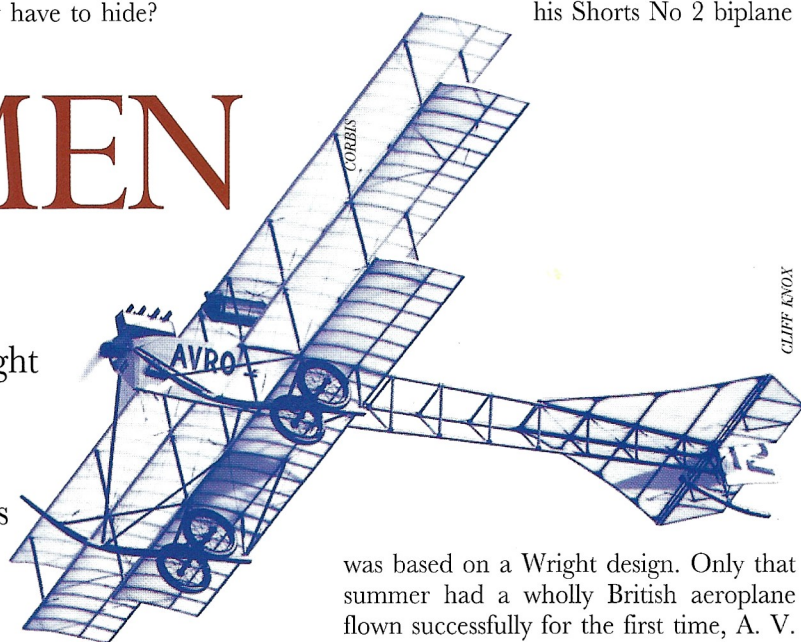
When the Wrights finally achieved controlled, powered flight at Kitty Hawk in December 1903, it was greeted with little fanfare. Europe was sceptical. The Wrights worked alone, kept their cards close to their chests, and waited in vain for signs of commitment from both the US and British governments. Time passed. In Europe dozens of inventors, amateurs, scientists and crackpots were trying their hand at powered flight, with maniacal and often misguided energy. The dapper Brazilian Alberto Santos-Dumont lurched his bizarre 14-bis into the air near Paris in October 1906, to exultant notices. Suspicions grew that the Wrights' claims had been exaggerated: what did they have to hide?

The answer came in August 1908. In a short demonstration at Hunaudières racecourse near Le Mans, Wilbur Wright took off, flew two circuits and landed, showing such mastery and control that pioneer pilot Leon Delagrangé exclaimed: '*Nous sommes battus. Nous n'existons pas.*'

Within a year, however, the Europeans had overtaken the Wright brothers. In October 1909 the future Lord Brabazon (Fig 13), who had just won a £1,000 *Daily Mail* prize for completing the first closed circuit of a mile in a British aeroplane, placed a piglet in a basket and treated it to a 3½-mile cross-country flight. The basket bore a label proclaiming: 'I am the first pig to fly'. Yet his Shorts No 2 biplane

GENTLEMEN MACHINES

This year marks the centenary of the Wright brothers' first flight. ALAN HARPER charts the course of aviation—and the remarkable British contributions—from its kite-like beginnings, to the naval harriers patrolling our skies today.

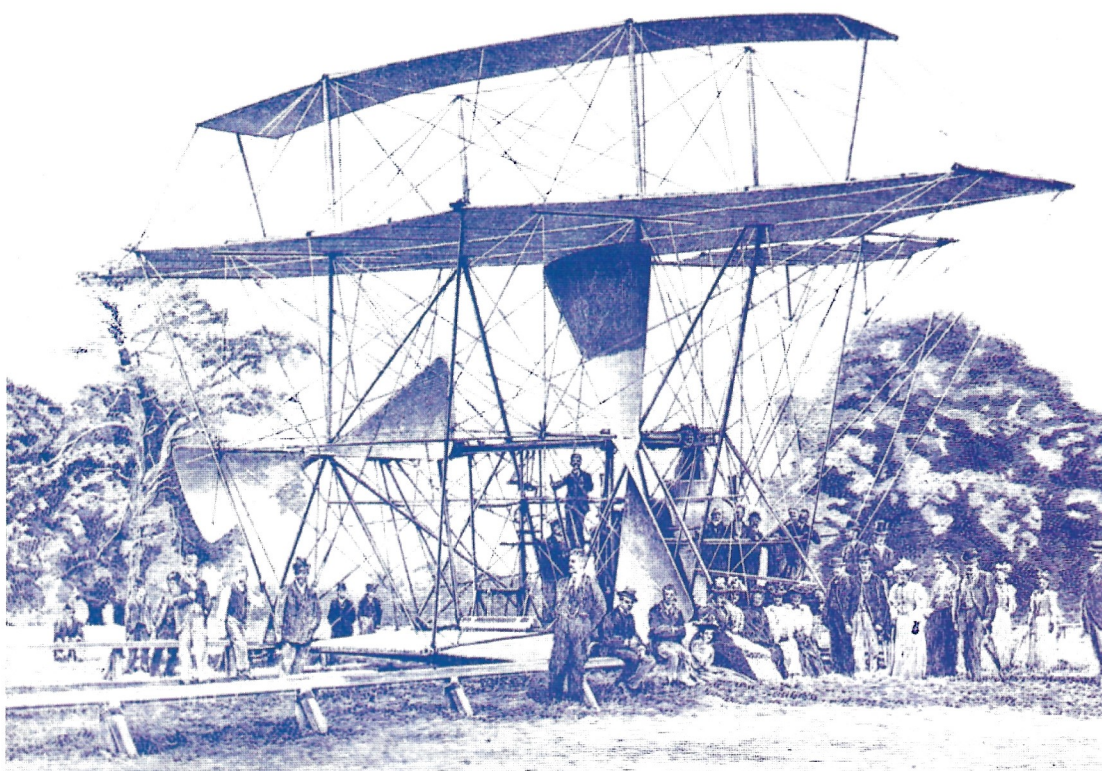


(Left) 4—Legendary test pilot John Cunningham checks the landing equipment on a DH106 Comet, the first jet plane to take to the skies. (Above) 5—A. V. Roe's lightweight triplane was the first wholly British aeroplane to fly successfully. (Below) 6—Sir Geoffrey De Havilland, a pioneer of the jet age

was based on a Wright design. Only that summer had a wholly British aeroplane flown successfully for the first time, A. V. Roe's lightweight triplane (Fig 5). And two days later, on July 25, Blériot flew across the English Channel.

Public amusement at these eccentric pioneers was matched by official indifference. Designers and constructors struggled. De Havilland had to borrow £250 for an engine to put in his No 1 biplane. The War Office temporarily lost faith in aeroplanes and rediscovered an enthusiasm for balloons. In 1911, a press campaign was launched to whip the politicians into action: while Germany was spending £1,500,000 a year developing new aeroplanes, and France had voted in





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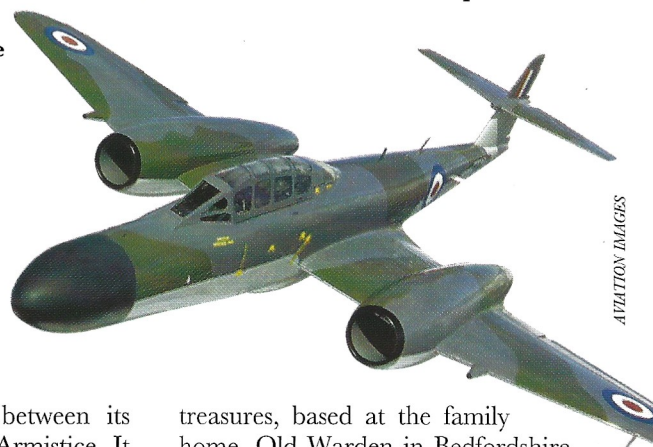
(Left) 8—Hiram Maxim, the American inventor, built an aircraft some 104ft across, and set it on rails. (Above) 9—The first to understand the principles of flight: Sir George Cayley. (Below) 10—A Gloster Meteor NF II, the first jet fighter to equip a front-line squadron

CORBIS

(Below) 7—The Hurricane: owed a debt of gratitude by the British people



RICHARD POWER



AVIATION IMAGES

a £750,000 aviation subsidy, British Army officers were informed that if they wanted to learn to fly they were free to do so at their own expense.

Nevertheless, the gentlemen aviators made progress. The 1911 Boat Race was attended by no fewer than six aircraft, including that of Graham Gilmour, who zoomed up and down in his Bristol Boxkite, entertaining the crowds and annoying the officials. His next exhibition of low-level daring, at Henley Regatta, reached a climax when he dragged his wheels in the water, pulled up over the heads of the crowd and landed in a field next to the course. It was too much for the Royal Aero Club: his certificate was suspended for a month.

De Havilland, Bristol, Avro and other resonant names in British aviation can trace their origins to that madcap pre-war era. Within six years of his learning to fly, aircraft built by Tommy Sopwith were in battle over the Western Front. The Sopwith Camel (Fig 2) alone accounted for more

than 1,200 enemy aircraft between its arrival in July 1917 and the Armistice. It was tricky to fly, but lethal in the hands of an expert: Capt J. L. Trollope of the 43rd Squadron once shot down three German aircraft before lunch—and then another three before tea.

Between the wars, aeroplane development marched at a more leisurely pace. It was still a biplane world in the 1930s, but nevertheless modern aircraft had as much in common with their Edwardian forebears as Chippendale did to the Bauhaus. Fortunately, a wealthy young gentleman named Richard Shuttleworth realised the value of the dwindling numbers of early aircraft and began to collect them, buying and restoring his first, a Bleriot XI, in 1935. He did not live to see what became of his collection—he was killed in a night-flying accident in 1940 as an RAF reservist, aged 31—but his mother, Dorothy, created a trust in his memory and today the Shuttleworth Collection is one of the aviation world's most precious

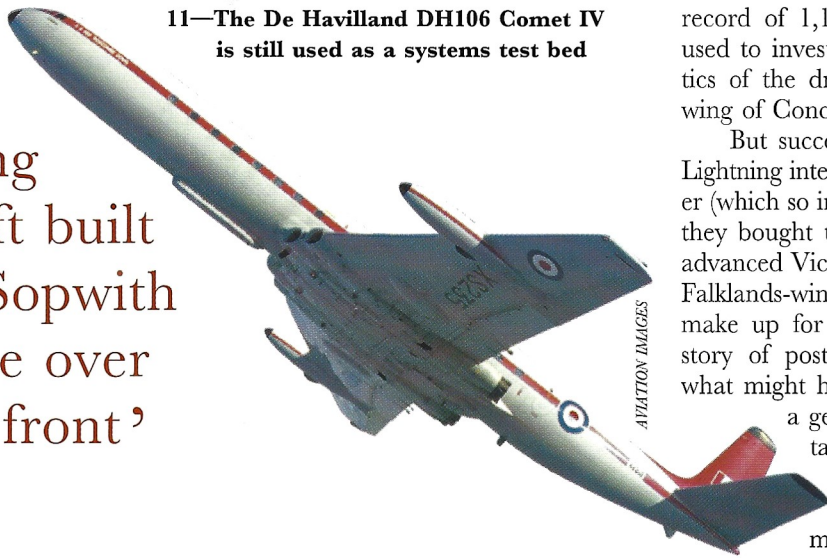
treasures, based at the family home, Old Warden in Bedfordshire.

The peace of its summer flying events, when Edwardian-era machines potted delicately into the sky, is sometimes shattered by a more warlike roar, for the trust has continued to collect: a Supermarine Spitfire, perhaps the prettiest aeroplane ever built, is a regular performer, as is its Hawker contemporary, the Hurricane (Fig 7). Even more than the pugnacious Camel, this aircraft is owed a debt of gratitude by the British people, for its decisive contribution in 1940.

The Royal Air Force only began replacing its silver biplanes with Hurricanes and Spitfires in 1938, but by the end of the Second World War it was entering the jet age. Gloster Meteors (Fig 10) were the first jet fighters in the world to equip a front-line squadron, and in the immediate post-war years, British aviation continued to develop at an extraordinary pace. The De Havilland Comet, the first jet airliner to enter service, took

‘Within six years of his learning to fly, aircraft built by Tommy Sopwith were in battle over the Western front’

11—The De Havilland DH106 Comet IV is still used as a systems test bed

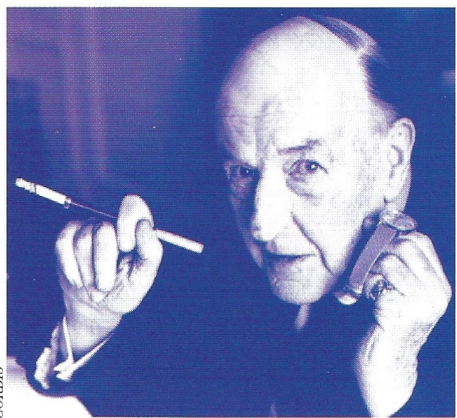
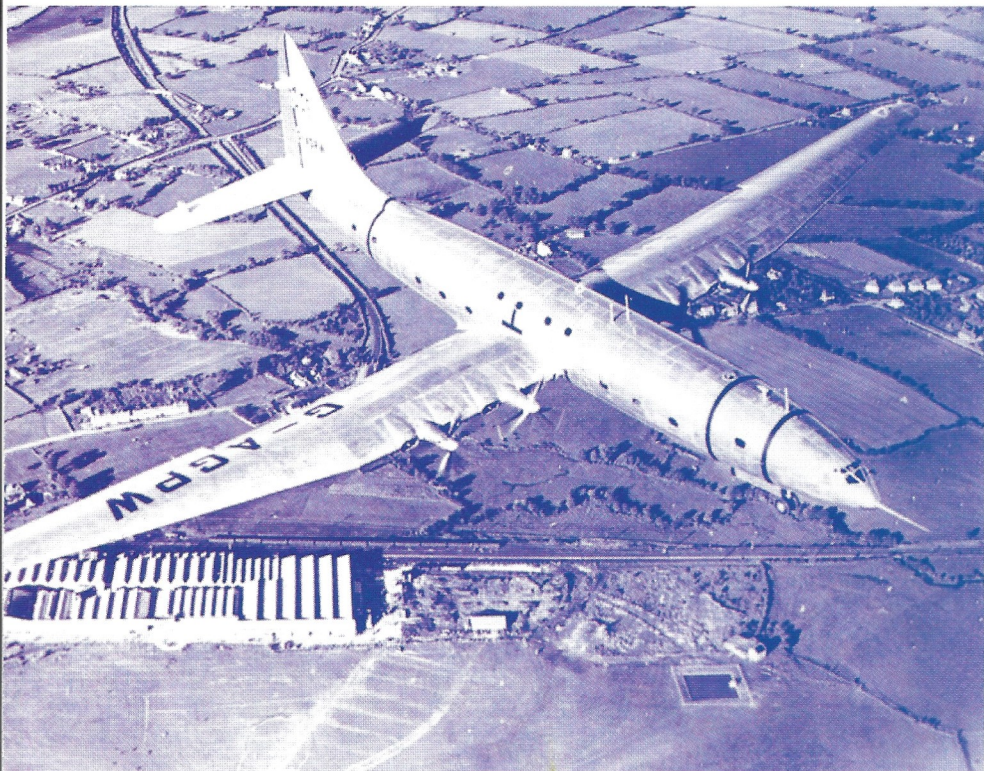


record of 1,132mph. A Delta was later used to investigate the flying characteristics of the droop-nose and curved delta wing of Concorde.

But successes such as the supersonic Lightning interceptor, the Canberra bomber (which so impressed the Americans that they bought the design), the elegant and advanced Vickers VC-10 airliner, and the Falklands-winning Harrier, cannot quite make up for the fact that much of the story of post-war British aviation is of what might have been. The British have a genius for invention, no great talent for business, and terrible luck with choosing politicians. In 1957, defence minister Duncan Sandys announced the end of manned fighter aircraft, and many promising projects were cancelled out of hand. In 1965 it was the turn of a Labour government and the TSR.2 was axed—late and chronically over-budget, but already flying and showing potential as a genuine world-beater. It might still have been in service today.

Aircraft development is so expensive now that any British effort has to be in partnership with Europe or the US. The last all-British fighters are the Royal Navy's battle-hardened Sea Harriers (Fig 14), (the RAF's Harriers are an American development of the original). The wings of the Airbus are British. The RAF's brutally efficient Tornado was a joint effort with Germany and Italy. Eurofighter, late and over-budget in time-honoured fashion, is a project shared with Germany, Italy and Spain. BAE Systems is a junior partner in the American Joint Strike Fighter, which will replace Britain's Harrier and Sea Harrier in 2012.

But there is one corner of a factory which remains for ever British. Volunteers at the Northern Aeroplane Workshops in Pudsey, near Leeds, are working on a replica of the famous Sopwith Camel for the Shuttleworth Collection. When Sopwith's most famous creation arrives in those dark, leather-scented hangars, and its rotary engine joins the chorus in the summer skies, there will be those among the watching crowds who see in it the very spirit of British aviation.



to the skies in July 1949. At the controls was legendary test pilot John Cunningham (Fig 4), who the previous year had set a world altitude record of 59,446ft in a Vampire fighter. While the Americans made great progress in rocket power, Britain built on its lead with the jet engine, and in 1956 Peter Twiss took the Fairey Delta II to a new world speed



(Top) 12—The Brabazon I aircraft in flight (1949). (Above) 13—Lord Brabazon completed the first closed circuit of a mile in a British aeroplane. (Right) 14—A British Royal Navy Harrier jump-jet