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History Brief, by Johan Visschedijk

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A.V. Roe

Alliot Verdon Roe built his first aircraft at Brooklands, near Weybridge, first short flights were made on June 8, 1908, and soon thereafter Roe moved to Hackney Marshes for a short period.

On January 1, 1910 **A.V. Roe & Company** was founded (the first company to be registered as an aircraft manufacturer) and moved to Wembley Park, Middlesex.

The company established a factory in Manchester in 1911 and from then the company products were marketed under the trade name **Avro**.

In January 1913 the company was registered as **A.V.Roe & Company, Limited** and kept using the trade name **Avro**.

On March 23, 1916 A.V.Roe & Co., Ltd. was one of 40 companies forming the **Society of British Aircraft Constructors** (SBAC).

In 1920 **Crossley Motors** bought 60% of the shares.

In 1928 control passed to the **Armstrong Siddeley Development Co., Ltd.**, the company continued to operate under the name **A.V. Roe & Co., Ltd.** and kept using the trade name **Avro**.

Alliot left the company and with S.E. Saunders formed Saunders Roe Limited of Cowes, Isle of Wight.

In 1935 A.V.Roe & Co., Ltd., became part of the **Hawker Siddeley Aircraft Co., Ltd.**, after the amalgamation of the Armstrong Siddeley Development Co., Ltd., and the Hawker Aircraft Co., Ltd., but continued operating as **A.V. Roe & Co., Ltd.** with the trade name **Avro**.

In July 1945 A.V.Roe & Co., Ltd. bought the **Victory Aircraft, Ltd.**, from the Canadian Government and the new **A.V. Roe Canada, Ltd.** company operated under the trade name **Avro Canada**.

In 1955 A.V. Roe Canada, Ltd. became member of the **Hawker Siddeley Group**.

In 1962 A.V. Roe Canada, Ltd. was purchased by the **de Havilland of Canada, Ltd.**, and the names **A.V. Roe Canada, Ltd.** and **Avro Canada** disappeared.

On July 1, 1963 the A.V. Roe & Co., Ltd. company name (and the trade name Avro) disappeared as it, together with the **Sir W.G. Armstrong Whitworth Aircraft, Ltd.**, became part of the **Avro Withworth Division of Hawker Siddeley Aviation, Ltd.** Subsequently all aircraft in production, known previously under the individual company names, became Hawker Siddeley products.

The name Avro reappeared in 1993 when British Aerospace (into which Hawker Siddeley merged in 1977) centered its Regional-jet manufacturing at Woodford, UK (a site in use by A.V. Roe since 1925), under the name of **BAe Regional Aircraft Ltd., Avro International Aerospace Division**, to manufacture the Avro RJ range (sometimes referred to as the Avroliner), upgraded versions of the British Aerospace BAe 146 series. The name Avro International disappeared on January 1, 2001.

The tables below show only the flown aircraft in chronological order.

DECEMBER 7, 1911.

The Aeroplane.

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A VISIT TO THE AVRO WORKS.

By "A MERE WOMAN."

I naturally expected the Avro Works at Manchester to be a factory, instead of which I found them located in a baronial castle. There are frowning, blackened turrets, towers, and bastions, spiral stone staircases, dungeons and a moat. The portcullis and drawbridge have been removed, but there was a scenschal, family retainers, and a dog; and I feel convinced that somewhere upon the premises they secrete a man-at-arms with an arquebuse. In the courtyard of the castle, at the foot of the keep, I saw three rough wooden coffins. They were rather above the ordinary size. Two were long and narrow, suitable for giants Chang or O'Brian; the other was about the proportions that Daniel Lambert would have needed. They were not really coffins, of course, but light packing-cases—most innocent-looking boxes that even the most rabid railway company would be kind to; and yet, when the lids were lifted, I saw with amazement that within their narrow bounds they held a complete Avroplane, folded down, and packed in the neatest manner imaginable. Verily, no biplane in existence can compress itself into smaller space.

Half-way up the eastern turret, in his comfortable office, sat Mr. H. V. Roe reading (of course) the current *AEROPLANE*. After a little enthusiastic discussion on the merits of that machless periodical, he favoured me with a brief *résumé* of the recent work of the firm. He enumerated some of the well-known triumphs of the Avroplane, and pointed out that over three-quarters of the prize-winning flying at Brooklands this summer was accomplished by Roe pupils—not all on Roe machines, but by men trained in the Roe school. Pixton, Raynham, Kemp, and Noel; these are names to conjure with.

Next he showed me pictures of the work at Barrow-in-Furness, where Commander Schwann and Lieut. Boothby are experimenting with an Avroplane (the one that Pixton flew to Brighton) fitted with floats to rise from the water. These officers are experiencing the usual difficulties of the pioneer, but ultimate success is assured, and there is little doubt that Lieut. Boothby will attain his great desire—the winning of his "ticket" on an aeroplane that has lifted itself from the surface of the water.

Then, rising, Mr. Roe conducted me to a large and lofty chamber (the banqueting hall of the castle I think it must have been)—an animated scene where, at bench and vice and table, many busy workmen were engaged in every variety of task that belongs to aeroplane construction. But that which immediately caught my eye was a huge and wondrous bird standing at one end of the room: an object of most graceful curves and striking appearance—the very last word in Avroplanes, the new 1912 model.

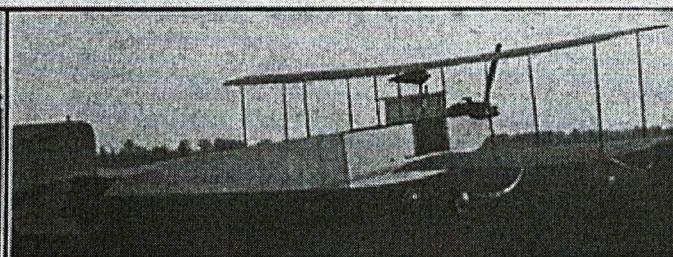
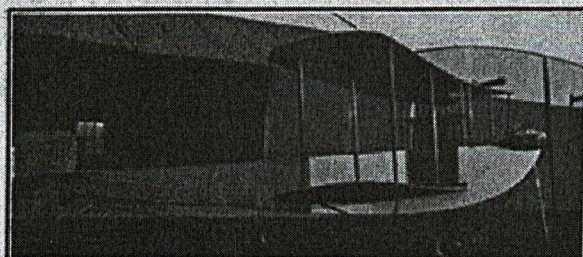
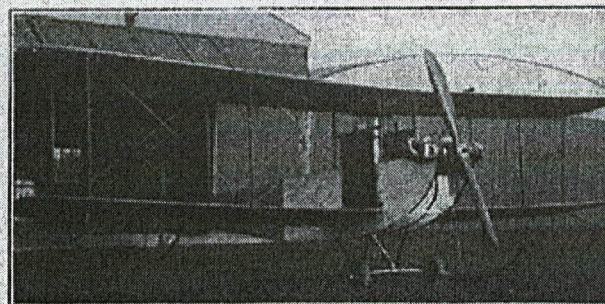
The new Roe machine is a wonderful advance upon its predecessors. The entirely covered-in fuselage, following careful stream-line form, now assumes the exact sweeping outline of a bird's body. The well-developed "crop" is of aluminium sheathing, with a great depth of flank to prevent "side-slip." Every line is carefully thought out, every detail smoothed down, and, as a result, the head resistance is cut down to a mere nothing. The feet of the graceful bird are represented by two small and extremely plump pneumatic wheels—at least, that is the hopeless way the Mere Woman phrased it, but Mr. Parrott, chief of the staff, worded it a little better. "The machine," he said, "is mounted on a cross laminated spring fitted with two small wheels with metal discs, as on the 1906 pattern. This spring is attached to the fuselage by short steel struts, which also carry a single centre skid, which is hinged in the centre. A certain amount of movement is allowed at the nose of the skid by a stout compressed spring fitted to a strut mounted under the engine."

The passenger's seat is in front of the pilot, between him and the engine; and when I saw the provision made for that passenger I could immediately have told, even if I had not already known, that Mr. A. V. Roe is now a married man! The Avroplane is the machine, par excellence, for carrying a lady, for the feminine idiosyncracies are so carefully studied. The seat is placed deep down in the body of the machine, so that only the head appears over the covered-in fuselage. This means that toes and hands are cosily sheltered, and feminine skirts not disarranged. Moreover, the two radiators are erected on each side of the passenger's head; thereby not only warming her, but keeping her hair and hat tidy and allowing of a quite becoming headgear. Was anything ever more kindly and thoughtfully planned? The aviator's head also only just rises clear above the carefully-padded rim of the elliptical opening in the fuselage; and it must be a great comfort to him, also, that all his controls are well down inside and sheltered.

The framework of the cross-shaped empennage is all of steel, and the wires are all inside. The drum-like fabric of the rudder and elevator is of English material treated with Emaillite. The rudder-mast forms also the support of the rear skid. By the knocking out of a couple of pins the rudder is immediately detachable, the elevator the same, the fuselage comes in halves in the middle, and the great planes come into convenient pieces, which are, moreover, interchangeable in case of a smash. The planes are of 4 ft. 6 in. chord and 34 ft. span, and the engine of this particular machine is a 40 h.p. Alvaston. This splendid craft, I was told, is bound for Australia after trial at Huntingdon, but it is to be the future standard. The 1912 Avroplane has a great future before it without doubt.

I was shown, in another corner of the room, the careful and beautiful fitting together of the framework of the planes; the ribs all of poplar, the spars of English ash, the curving outside edges of the wing-tips of bent rattan cane. I saw the making of the efficient and yet inexpensive Roe propellers, cut out all in a piece of Kauri pine. I was likewise given an exhibition of the wonderful process of the oxy-acetylene welding of steel plates, and shown how no amount of hammering will make the welded plate break at the join.

Then Mr. Roe led me to other chambers of the fortress. I saw another huge room where the planes of different machines were being put together. I was taken down to the erstwhile baronial kitchen where a party of girls were covering the framework of the planes with material. I was shown a great dungeon occupied mainly by a big horizontal boiler, and great piles of ash and poplar planks, as also the huge steam pipe whereby the wood is steamed and bent as required. All this, and much more I saw in that busy hive, and I came away with the feeling England need not lag behind.



The Wright Stuff

Eddy Rhead looks at Manchester's own flight pioneer, A V Roe, and the contribution of his lesser known brother Humphrey.



take wings. On long sea journeys to South Africa, he began to study the flight behaviour of birds following in the wake of the ship.

Determined to become involved in the embryonic aviation industry he went to America with little success, but on his return he was more convinced than ever of the future of powered flight. His big problem was money.

Think of the pioneers of powered flight and you think of the Wright Brothers. But what about a local man who built and flew the first UK 'plane and was the first to register as an aircraft manufacturer, in premises that still exist, in Manchester? There are no roads named after him, no statues raised, no parks in his honour and yet, not only was Edwin Alliott Verdon Roe, a pioneer in aviation, but the company he created has had a factory in Manchester in one form or another for nearly a century. With aviation so important to the international economy it's perhaps time to ask why he is forgotten in his home city.

AV Roe (as he is better known) was born in Patricroft in 1877, the fourth child of respected physician, Dr Edwin Roe, and his wife Sofia Verdon. Whilst his father was keen for him to become a doctor, Alliott had other ideas and at the age of 14 left for Canada to work in engineering. Later the young man had spells as an apprentice with the Lancashire and Yorkshire Railway Company and as a student of marine engineering at Kings College. It was whilst working for the African Royal Mail Company that a growing passion for aviation seemed to

were no official observers on hand to record the event and the official honour still lies with Lord Brabazon, who was officially observed taking flight on 2 May 1909.

During 1909, whilst Humphrey carried on with the business of webbing and braces manufacturer, AV was at work in the basement of Brownsfield Mill. This might not have been the perfect environment but it did offer a pleasing paradox. The 1825 mill – an important surviving mill – was fitted with a steam beam

It was at Brooklands racing circuit in Surrey that on 8 June 1908 A V Roe succeeded in making the first powered flight in Britain

engine which powered a workshop where a new and exciting technology was taking shape. Still by the end of 1909 Humphrey, perhaps frustrated by any tangible signs of progress, insisted the brothers' partnership was formalised and on 1 January 1910 the world's first aircraft manufacturing company was created under the name the A V Roe Aircraft Company.

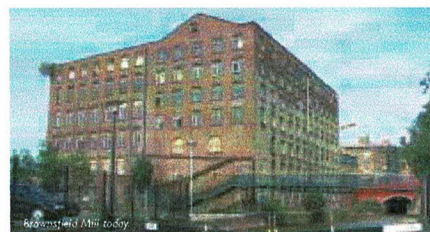
The early years were not without their troubles as backers were still difficult to find and a series

of crashes, fires and mishaps destroyed many of AV's early machines. But there were early signs of success. AV would spend most of his time at Brooklands where the planes were tested, but would return to Manchester once a week to oversee production. The factory was staffed by enthusiastic and skilled craftsmen with a contingent of volunteers who would help to produce the aircraft in return for free flight time in the finished planes.

Meanwhile, Humphrey, keen to capitalise on his investments, saw a gap in the market and made money from supplying bespoke parts to the small but growing band of other aeroplane builders throughout the country.

He called this venture The Aviator's Storehouse and he was able to supply everything from small components to complete machines, as well as offering flying lessons in AVRO planes. The Aviator's Storehouse was able to shore up the rest of the business as AV attempted to continually improve his machines. Financial security was eventually ensured when James Grimble Groves, the chairman of the large brewery Groves and Whitall, took an almost paternal interest in the young Roe brothers and on 1 January 1913 invested in the company.

Brownsfield Mill was now far too small to accommodate the



growing business and a move was made to Clifton Street, Miles Platting. The First World War meant a massive increase in business and AVRO moved again, this time to new premises at Chadderton. Throughout the

First and Second World Wars and beyond the company produced famous aircraft such as the Lancaster and the Vulcan. Today, despite recent job cuts, the AVRO legacy is continued by BAe on the same site.

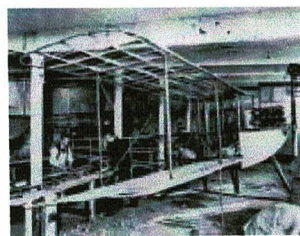
Reach for the skies?

Since its humble beginnings in the basement of Brownsfield mill, AVRO, and its descendants, have had a presence in Manchester. As the centenary of the first flight in 1908 approaches some of Alliott and Humphrey's descendants are eager to see the milestone marked.

After serving in WWI Humphrey returned to Manchester and married Marie Stopes, the pioneering family planning campaigner. Their son Harry Stopes-Roe, and Alliott's grandson Eric Verdon Roe, are the driving force behind a campaign to mark this pioneering moment in Manchester and Britain's history.

Brownsfield Mill, off Tarriff Street in the Northern Quarter, is presently being converted into the apartments. Initial contacts with the developers have been positive and they are now aware of the building's historical significance. The Museum of Science and Industry, where a copy of an early AVRO plane can be seen, have also shown an interest in helping to stage an event.

What form the commemoration will take is still open to ideas. An appropriate piece of public art may be fitting. Any suggestions from Forum readers would be very welcome.



The Arts and Crafts Movement in the North West of England

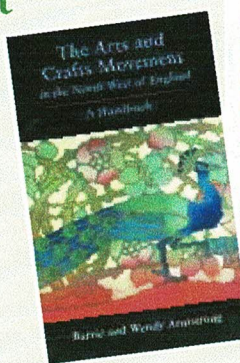
In many ways the period at the end of the 19th and the beginning of the 20th centuries was the most interesting period of UK architectural history. Arts and Crafts (and its maverick step child Art Nouveau) was the best kind of architectural liberation, one which respected the achievements of the past, pushed ahead into new areas of expression but generally drew back from malign individualism and rampant ego. It was also arguably the last time that British architecture and design styles led those in Europe and the US. As a simple definition Arts and Crafts is a movement characterized by simplicity, hand-crafted objects, and use of relevant, usually local materials. But it became much more than this, almost a sensibility of how life could be distanced from the inevitable brutality of mass production.

The North West (taken in this book to include Lancashire, Cheshire, Greater Manchester, Merseyside, Cumbria, and peripherally, north Staffordshire) is a fertile hunting ground for Arts and Crafts' lovers. This is because for the wealthy of the north west a hundred years ago, a fine way of showing what you were made of was by forking out for buildings and sculpture.

The indefatigable Barrie and Wendy Armstrong have shown what they are made of by crisscrossing the region viewing 800 sites over seven years, 600 of which appear in this book. Happily the authors have played fast and easy with the title by including a great deal of material which pre-figures Arts and Crafts and an equal amount which follows it. This not only gives us more to read but also helps illuminate the joys of the core subject and its elusive character.

The book features all the anticipated sites such as Blackwell House in Cumbria, the peerless second home of Manchester brewer Edward Holt, designed by Baillie Scott, and Edgar Wood's First Church of Christ Scientist in Victoria Park, but there are countless surprises too. It's especially rewarding to read of and view the work of James Medland Taylor: those who don't know buildings such as St Anne's in Houghton, near Denton, are in for a treat. It's equally good to see represented D Gibson and A Simpson's woodwork in St Margaret's, Prestwich, as well as more minor but no less captivating art such as Vernon March's saucy angel from the Whitefield War Memorial. The latter might have been fashioned by Alfred Gilbert of Eros fame in wee London town.

Of course there are some omissions but not many.

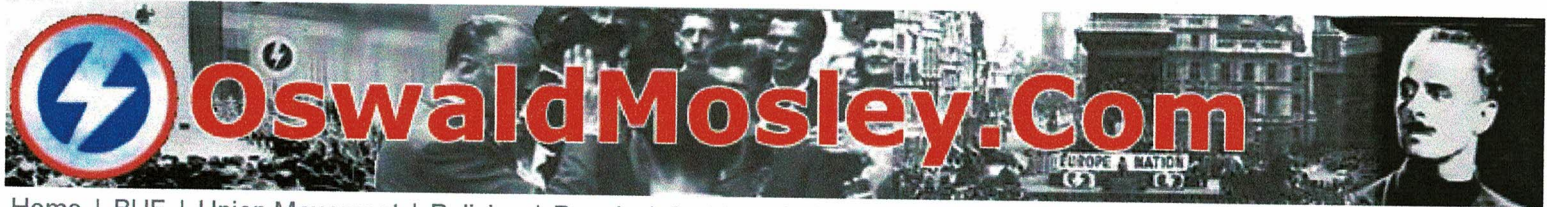


Chorltonville should have been included but to quibble is to be mean-spirited, especially when the book provides an excuse to discover parts of the North West we might not otherwise visit and learn of works we never knew existed. An added bonus is the invaluable Who's Who of Arts and Crafts' designers, sculptors and artists which these considerate authors also provide.

Barrie and Wendy Armstrong
Oblong Press 2005

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Aviation Pioneer A.V.Roe



Alliot Verdon Roe was born in 1877 in Patricroft, Manchester. His father was a Doctor and his mother was later famous for her work in organising and setting standards for day nurseries.

His father had hoped that his son would follow in his profession but the boy was more keenly interested in engineering. When he was fourteen he set off to Canada to work in a civil engineering firm, but the job did not last long. The young Alliot then engaged in an apprenticeship in Portsmouth dockyard which he duly completed. After studying marine engineering at Kings College, London as well as the dockyard the young man joined the ship S.S.Inchanga as fifth engineer. It was during this time that Alliot first turned his mind to the possibility of actually building a flying machine.

He began with small models and in this he was quite successful. When the Wright brothers made the very first flight in a heavier than air machine at Kittyhawk, U.S.A. he was almost immediately in correspondence with them. He applied for and took a job with the Royal Aero Club. Then found a job in the U.S.A. with a firm trying to build a gyrocopter. The machine was a failure and Alliot was back in Britain. But not discouraged.

It was in 1906 that he patented the first aircraft control column, as previously two levers were required. It was as well he patented the idea as many years later a Frenchman tried to claim copyright and £1,000,000 damages.

When Lord Northcliffe of the Daily Mail offered a prize of £250 for a model capable of sustained flight Alliot took the prize. Thus encouraged he designed and built his own real aircraft. He set up shop at Brooklands, near Weybridge. On the 8th June, 1908 A.V. Roe actually flew for the first time, but his short flights were not registered officially by the Royal Aero Club and Lord Brabazon took the honour of registering first. Roe pressed on regardless. It was a challenging time as he had to learn so much. Designing, building and flying all at once! It was dangerous because things kept breaking. Controls were not correctly understood and engines were unreliable. On the plus side the aircraft of those days could glide and crashes were often not fatal.

After being evicted from Brooklands, and then Hackney Marshes Alliot Roe set up his flying operations at Wembley Park, Middlesex, as it then was. Alliot's brother, Humphrey, who was later to marry Marie Stoppes, came into the business and on New Years Day 1910 A.V. Roe became the first company ever to be registered as an airplane manufacturer.. The learning curve was so fast, that hardly ever were two aircraft built that were exactly the same. Improvements came along at a breathtaking pace.

Manufacturing moved to Manchester and with Brooklands under new management an Avro flying school was set up there, later moving to Shoreham. Other money-earning ventures were the founding of an aircraft spares warehouse and the invention and marketing of a turnbuckle for tightening the bracing wires used on aircraft in those days.

With the coming of the First World War, A.V. Roe and Co. had a first rate aircraft for the forces. It was the Avro 504. A good basic design that leant itself to a variety of engines. So good was it that

it became a standard trainer after the war and soldiered on until 1940 during the Second World War.

After the First World War military orders dried up to a trickle and even with new designs orders were small. The civil market was hotly contested and Avro's most successful aircraft was the Avro Avian. Even before this a considerable financial investment had been made in the company by the Groves family of Groves and Whitnall Ltd. the Manchester brewers. In 1920 Crossley Motors bought three fifths of the shares in the company.



In 1928 control of the company passed to the Armstrong Siddley Development Group. As a result both of the Avro brothers, Alliott and Humpfrey, left to join S.E. Saunders Limited of Cowes, Isle of Wight. Saunders were exponents of the flying boat. The company became known as Saunders Roe and they produced a series of well know aircraft culminating with the "Saro Princess". They also produced the very successful "Skeeter" helicopter and the experimental rocket fighter, the SR-53.

Alliott was Knighted in the New Year Honours list of 1929. AV, as he was known, became a strong supporter of Oswald Mosley during the 1930's, and continued his support after the war with Union Movement. He was a great believer in monetary reform and thought it was wrong that banks should be able to create money by "book entry" and charge interest on it when they lent it out. In this respect he shared the same enthusiasm for reform as the American poet [Ezra Pound](#), who also wrote for the Mosley press.

To sum up the attributes of this man, one can say that he was strong willed, brave, adventurous, inventive, enterprising and politically astute. In all, a very great Englishman.

Keith Thompson

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