A NOTE ON A.V. ROE AND THE BROWNSFIELD MILL, ANCOATS

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The popular view of the Ancoats' economy remains dominated by those large cotton and engineering concerns which developed there in the industrial revolution. Understandably, historians have been attracted towards the activities of firms such as McConnel and Kennedy, and Fairbairn's. In contrast little attention has been paid to the district's economy during the twentieth century when King Cotton and its associated industries were experiencing terminal decline. In the absence of a detailed study of the changing structure and character of Ancoats' economy in this century, this short paper draws attention to one small but noteworthy episode in the district's industrial history, when, for a short period of time, Ancoats became the location of the country's first private aeroplane manufacturing works. It was a pioneer venture which perhaps not surprisingly was created by the region's most successful pioneer flyer, aeroplane designer and builder: A.V.Roe.

Alliot Verdon Roe was born in 1877, the fourth child of Dr. E.H. Roe of Patricroft and Annie Sophia Roe (née Verdon). The house, which contained his father's surgery is now known as A.V. Roe House and stands on Liverpool Road, Patricroft. Roe was educated in London and subsequently apprenticed at the Lancashire and Yorkshire Railway Locomotive works at Horwich (1892-7), later serving as a marine engineer and as a designer with a firm of motor engineers.[1] However, it was to be an even more novel form of transport — the aeroplane — that made Roe an international name.

In the Britain of the early 1900s Roe had only a handful of rivals and competitors. Most, if not all the aeroplanes flown by British pilots were imported form France where a number of constructors such as Farman and Bleriot were established. There was scarcely any aeroplane building industry in Britain at this time. Pioneer constructors had to make do, working in inadequate premises and struggling to find working capital. Geoffrey De Havilland was compelled to build his first machine in a room over a builder's yard. The Short brothers, although they had a contract to build six Wright-Type 'flyers,', had to make do with wooden sheds on the Isle of Sheppey. S.F. Cody, having built and flown one plane at the Royal Balloon Factory at Farnborough, found himself paid off during budget cuts. Roe financed his early efforts to build powered aeroplanes with prize money he won on the cycle track.

Erecting a biplane in the Brownsfield Mill, c.1910-15.

A.V. Roe and his triplane — possibly at White City Aero Club Show, 1910. Roe is holding the bouquet.

About 1908, staying temporarily at his brother's house in Wandsworth, Roe rented space in two railway arches on the Lea Marshes near Hackney to build and test designs for a triplane. There was a small team of helpers and employees, an an abortive business partnership with J.A. Prestwich who designed the motor cycle engines Roe used in his early machines. After a successful flight in the summer of 1909, Roe sought the help and financial backing of his brother Humphrey [2] who was the owner-manager of Everard's Webbing factory located at the Brownsfield Mill, Great Ancoats Street in Manchester. Humphrey Roe invested a total of £10,000 in a new partnership named AVRO, and the firm moved into the mill early in 1910. The second triplane built there was nicknamed 'The Bullseye' after a brand of gentlemen's braces manufactured by Everards (Fig.1).[3]

The Brownsfield Mill was to become possibly Britain's first private enterprise aircraft factory.[4] The mill had been built alongside the Rochdale Canal in about 1825 (Fig.2). It was L-shaped and built as two separate wings; sometime after alterations in 1849, a stairtower was added to the West wing. This wing was eight storeys high as compared with the seven storeys of the long twelve bay section. Stone steps were needed for access to it from the tower, or doors knocked through in other places. Both wings were of timber floored construction with timber transverse beams supported on slender cast-iron columns. There were brick-headed windows with stone sills. An internal engine house for a 60 h.p. beam engine is still indicated by tall windows at the western corner. Completed about 1831, the whole building was known originally as Gerrard's Mill.

In 1837-50, the mill was occupied by Binns and Co and was large enough to accommodate the bleaching and dyeing of yarn as well as spinning. In 1861 it was still a cotton factory run by Fairweather and Williams. By 1870 however, the rate books indicate sundry tenants in occupation. As was often the case in Manchester mills, as a result of the Cotton Famine of the 1860s, firms had been forced out of business and the owners had resorted to letting off floors to a variety of new users (Fig.3).

In 1880 the owners were H.W. Everard and there were 28 occupiers including Everards who were described as clothing manufacturers. Clearly, there was a marked trend at this time for Ancoats cotton factories to be turned over to new uses. Garment manufacturers had come to occupy some floor (the sewing machine was developed by Singer and others between 1867 and 1875). Such firms sometimes added warehouses and showrooms as at John Noble's Neptune Mill near the Garrat. Another example of this process was the mill in Laystall Street which was converted to a wire works by Richard Johnson and Nephew.

However, this early aeroplane works in Manchester had a closer connection with the cotton industry than simply occupying a former cotton mill. It is my contention that early aeroplane construction had much in common with the textile industry as well as with engineering practice.[5] To meet the component needs of the new industry a mill was a most convenient location. Indeed, Roe's triplanes were covered with Manchester cotton fabric stitched by hand. Other components were cycle spokes, piano wire and timber — all

possibly obtainable from firms in the mill or around Ancoats at the many stores and canal depots. A suitable aero engine was more of a problem since the break with Prestwich, but Roe remembered the engineer Maurice Edwards whom he had encountered in Bolton and who could supply a suitable V-twin.[6] Later the firm was to obtain supplies of Major Green's aero engine and the more powerful rotary Gnome engine which came to be manufactured under licence in Britain.[7]

The first planes manufactured in Manchester by AVRO at the Brownsfield Mill were further designs of the triplane for testing at Brooklands and prototypes of a tractor biplane for military trials. These activities employed a workforce of 34 people and occupied the ground floor where a workbench and a handful of small machine tools were available. (Fig.4). There had been two rows of cast-iron columns on this floor but the planemakers appear to have removed one row to allow more space for erecting the wings and fuselage. Aircraft were transported, wings folded, on a horse-drawn cart to the railway station.[8] The attic space in the mill was probably used for storage from the evidence of wooden panelling and a floor subsequently removed in the west wing, as noted in the recent survey.

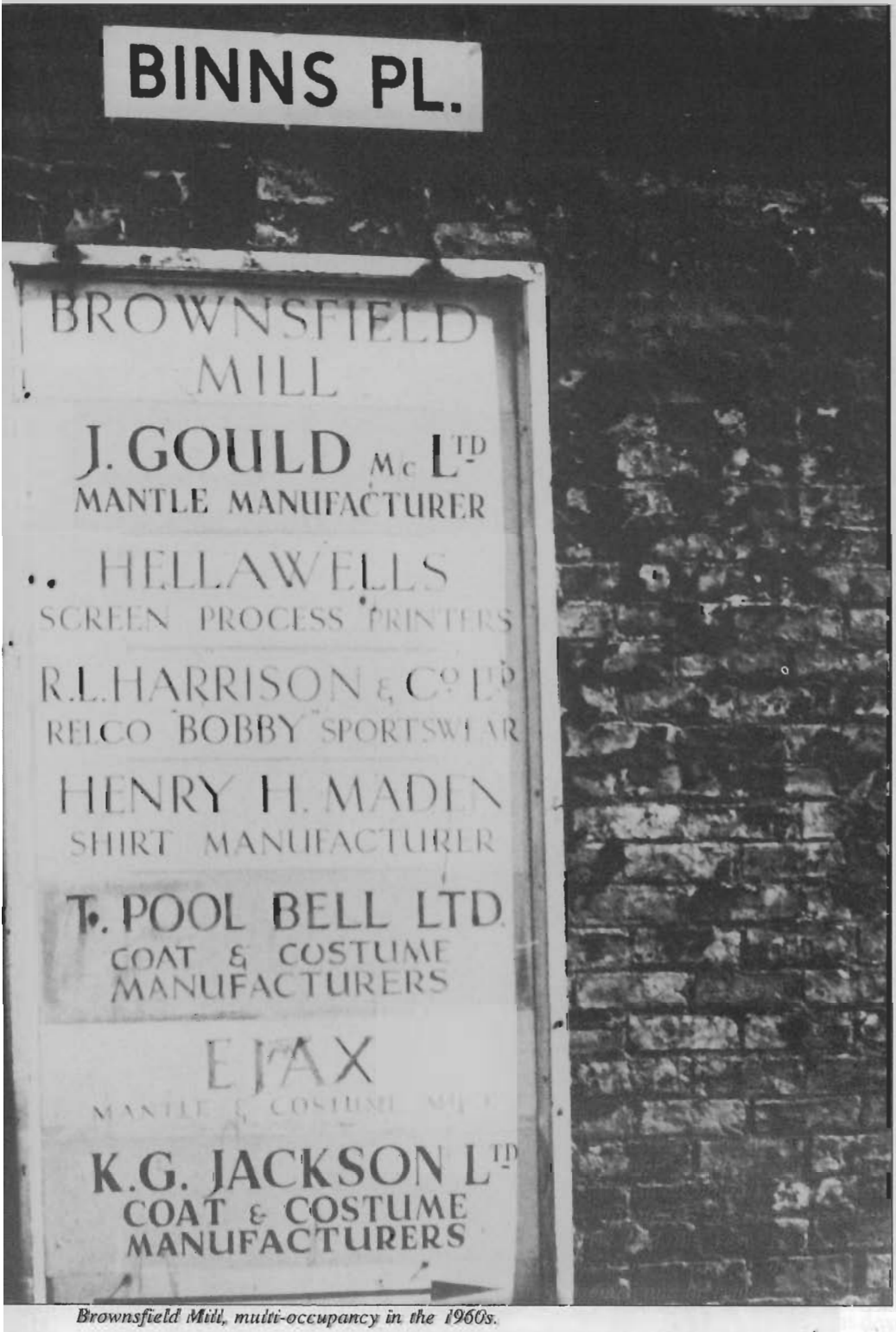
In 1924, the remains of a triplane were discovered in the attic. This was restored, and now is exhibited in the Science Museum, London. A replica constructed by British Aerospace apprentices at Woodford is on display at the Manchester Air and Space Gallery.

When business was slack, AVRO advertised their mill premises as 'The Aviator's Storehouse' and undertook to supply everything from struts to wheels. A mocking assertion which was true in more than one sense at the time was 'that AVRO planes are held up by Bullseye Braces', as the webbing factory continued in business, John Lord having taken over the management. Certainly the pilots' seats on the triplane were braced with webbing straps.

On the outbreak of the First World War, Humphrey Roe, who had once held a commission in the Manchester Regiment, enlisted in the Royal Flying Corps. The Central Flying School subsequently placed an order with AVRO for a series of Gnome-engined biplanes. The award of military contracts however meant a programme of more rigorous calculations and testing and taking on more technical personnel such as graduates in mathematics and engineering from Manchester College of Technology. The shortcomings of the Ancoats building and location became more evident, and the search for larger and more suitable premises intensified.

In 1913, some production operations had been transferred to former railway wagon sheds in Clifton Street, Miles Platting where there was also space to park planes. Additional finance from Groves the Manchester brewers and a limited company capitalised at £30,000[9] assisted this move. Gradually, the Brownsfield Mill became redundant particularly after two workshops were rented from Mather and Platt at Newton Health later in the war. All wood working was now concentrated at Clifton Street where over one hundred persons were employed. Assembly of what had become the firm's standard product — the AVRO 504 biplane — was completed at Platts.[10] They also came to prefer linen covering for the planes and were less tied to cotton mills.

Brownsfield Mill, entrance to yard, showing stairtower.



Brownsfield Mill, multi-occupancy in the 1960s.

So ended the brief career of the Brownsfield Mill as an aeroplane works unless — and this is purely supposition — it was brought back into use during the Second World War. It was the policy of the Ministry of Aircraft Production to disperse the production and storage of aircraft parts to textile mills and other premises away from the main factories as an insurance against bomb damage. The whole of the Brownsfield Mill was given an external cement rendering, as were Ministry-contracted mills occupied by De Havilland in the Bolton area. We know that AVRO certainly used a number of different mills in and around Manchester[11], it may be that Brownsfield Mill was one of them?

NOTES

1. For further details of Roe's early career see my paper in *Manchester Memoirs*, 2 n.s. (1981-2) pp.70-72.
2. A brief biography of H.V. Roe is contained in A.V's autobiography *The World of Wings and Things* (London 1939), pp.65-6.
3. These developments are described by Roe in a paper he wrote for the Air Ministry Historical Branch in 1924 (PRO/AIR/1/2310/218/1).
4. This section is derived from G.M.A.U.'s report for the N.M.R. file No53327 (8/88) by M. Williams et al.
5. The ancestors of the aeroplane were the inexpensive kites and manpowered gliders of the experimenters such as Cody's.
6. See note by D. O'Connor in *Bolton Industrial History Newsletter*, June 1984.
7. *Business Archives — Sources and History*, No.56 (1988) p.42, reference to Peter Hooker.
8. This is all illustrated in Penrose's biography of Chadwick (Roe's design draughtsman) *Architect of Wings* (Shrewsbury 1985), pp.10-12.
9. Penrose, p.21.
10. For figures of AVRO's wartime production see *Manchester Memoirs*, 125 (1985-6), pp.90-92.
11. See the list in C.E. Fielding, *The Pioneering Years* 1918-1961 (Burnley 1982), pp.79-82.