

A vintage model aero engine

by Professor E N Corlett*

A model of a Wolseley-Renault 8-cylinder aero engine of First World War vintage must be rare as a drawing room decoration. One which won a national prize, presented by Alcock and Brown some three weeks after their trans-Atlantic flight, is certainly unique. Some details of the model, and its interesting history, are given below.

One would still more likely expect to see stuffed birds or flowers preserved under a glass dome in a living room than a piece of model engineering. The Vicar of Barnt Green, the Rev Eric Williams, however, does display such an item. It is a small-scale model of an 8-cylinder aero engine encased in the same manner as many displays of fruit or flowers might have been in a Victorian drawing room.

The engine was made by his father, Mr F J Williams, in 1919. He was Chief Inspector of Wolseley Motors in the first World War, during the period when they built the 70 hp Renault aero engine, known as the *Wolseley-Renault*. When production finished and the factory was being converted to civilian purposes, he suggested to the factory manager, Mr Dougall, that a model of the engine should be built. By means unspecified, aluminium castings were made, and he and the manager each set about building a model. Mr Williams reports that the manager did not finish his, so only the one model, shown in the photograph, exists.

As will be seen, it is an 8-cylinder Vee engine, with the two banks of cylinders at 90° to each other. The propeller is 170 mm in diameter and designed for anti-clockwise rotation. The model is 140 mm long overall and weighs 750 grams. Its cylinders are,

overall 30 mm high and 8 mm dia below the fins.

The forward magneto serves the starboard bank of cylinders and the rear the port bank. This may not be authentic because double ignition had been introduced by then. The carburettor is on the forward end of the engine below the crankshaft bearing and the mixture is drawn via copper pipes to the inlet manifolds.

During 1918 a model competition had been announced by Messrs Thos Parsons & Sons. Prizes were to be given for the best models of any war weapon used during the 1914-1918 War. The model which won first prize was to be presented to Queen Alexandra, which must have deterred some entrants! Mr Williams, however, submitted his model, which had not, of course, been made specifically for this competition, on condition that it was *not* awarded first prize! In the event, it gained the third prize of £15. The prizes were presented by Alcock and Whitten-Brown, who had recently completed their trans-Atlantic flight and had, deservedly, become famous. Even twelve months earlier, in the *Who's Who* and *Directory of The Flying Book* for 1918, neither aviator is

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The Great Model-Making Competition

WAS INAUGURATED by Messrs THOS. PARSONS & SONS
TO FURTHER THEIR EFFORTS ON BEHALF OF
THE WAR SEAL FOUNDATION

H.M. QUEEN ALEXANDRA has kindly consented to accept the First Prize Model in the Senior Section, and
H.R.H. THE PRINCE OF WALES the First Prize Model in Junior Section.

THE PRIZES offered were:	
SENIOR SECTION—	
FIRST PRIZE	£50
SECOND PRIZE	£30
THIRD PRIZE	£15
JUNIOR SECTION—	
FIRST PRIZE	£25
SECOND PRIZE	£10
THIRD PRIZE	£10
FIVE CONSOLATION PRIZES OF £5 EACH	

THE JUDGING took place on Tuesday, June 3rd,
the judges being
Sir WILFRID STOKES and Sir ROBERT HADFIELD.

PRIZE WINNERS are:

SENIOR SECTION—	
1st. Model—H.M.S. "PRINCESS ROYAL"	Mr. L. P. Roper, 2, Up-Croft Road, Birmingham.
2nd. Model—HIGH-SPEED HORIZONTAL ENGINE	Mr. H. C. Duffield, 3, Wetherby Terrace, Earl's Court.
3rd. Model—RENAULT AIR-COOLED ENGINE	Mr. F. Williams, 16, Rogers Road, Ward End, Birmingham.
JUNIOR SECTION—	
1st. Model—HANDLEY-PAGE AEROPLANE	Mr. J. R. Barnes, 1, Whitfield Street, Tottenham Court Road.
2nd. Model—HOSPITAL SHIP	Mr. E. J. Tamsie, 18, Devonshire Place, Brighton.
3rd. Model—POKKEH AEROPLANE	Mr. G. H. S. MacCallum, Hillcroft, St. Peter's Hill, Caversham.
CONSOLATION PRIZES—	
Mr. P. Capon, 35, Duntun Road, E.	AEROPLANE
Mr. J. K. Bindlay, 34, Waverley Avenue, Weymouth	TANK
Mr. D. Lysons, 18, Talgarth Mansions, Portman Square	SOPWITH AEROPLANE
Mr. A. W. L. MacCallum, Hillcroft, St. Peter's Hill, Caversham	PORTER FLYING BOAT
Mr. R. E. Wilcock, 13, Heath Hurst Road, Hampton, N.W.3	AEROPLANE

Fig 1. The competition programme.

mentioned, although many military pilots are listed.

The competition was devised to further a charity known as The War Seal Foundation, which had built the War Seal Mansions in Fulham. This complex of 72 flats and rehabilitation facilities for totally disabled servicemen was initiated by Sir Oswald Stoll. Over £11 000 was contributed to this charity by the exhibition of the winning models. The unlucky winner, who got £60 but lost his model of *HMS Princess Royal*, was Mr L F Rudd of Bermondsey whilst Mr J R Baker of Tottenham Court Rd lost his junior prizewinning Handley Page aeroplane to the Prince of Wales, in exchange for £25! The prizes were distributed on July 10, 1919 at 315-317 Oxford St. Capt Sir John Alcock and Lieut Sir A Whitten Brown had landed from their historic flight only 25 days earlier so the occasion must have been of some significance.

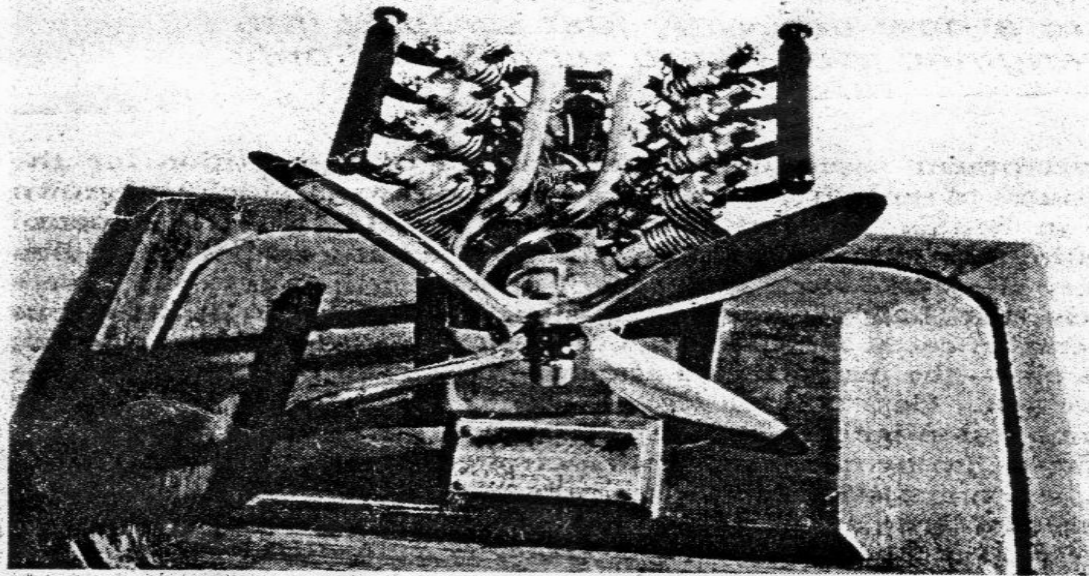


Fig 2. The Wolseley-Renault model aero engine.

There are, no doubt, a few of these engines still in museums, perhaps even in working order. It is likely, however, that this is the only model and its uniqueness lies also in its having been built by a man very familiar with the original machine. It was not easy to find the specification of the original engine so I am grateful to the Arvona Gallery, St John's Place in that Mecca of all second-hand book browsers, Hay-on-Wye, for some more details of it. It was there that the *Aviation World's 1918 Flying Book* (published by Longmans Green and The Aviation World) was unearthed. Opposite p129 it gave a photograph of the *Wolseley-Renault* engine, showing it with two pairs of horizontal mounting tubes exactly as in the model, but equipped with an arched cowling over the centre of the Vee, tapering down towards the rear of the engine. The valves were pushrod operated, being a side inlet and overhead exhaust. The exhaust pushrod was on the left when viewed from inside the Vee, ie on the right bank of cylinders the exhaust pushrods were forward of the inlet rods. Each cylinder and head was held in place via a spider across the top of the cylinder head and four long rods screwed into the crankcase at each corner of the cylinder to which the spider was locked down with nuts. These are not shown on the model.

The specification of the 70 hp Renault engine, as given on p142 of *The Flying Book*, notes that Renault were at Billancourt, where they are still located today. The 8-cylinder Vee motor was of 96 mm bore $\times$ 140 mm stroke and ran at 1800 rev/min, with a 2:1 reduction to permit the propeller to run at 900 rev/min. Air cooling was provided by centrifugal fan, although it is not evident, from either model or photograph where this was located. The carburettor was of Renault design and ignition was by HT magnetos. Total weight of the engine was 397 lb, a power/weight ratio of $5\frac{1}{2}$ lb/hp. Overall dimensions were given as 4 ft 3 in long, 2 ft $1\frac{1}{2}$ in high and 2 ft $2\frac{1}{2}$ in wide.

The final photograph shows the programme for the presentation, which had been autographed by both the famous airmen for the prizewinners. As we approach the Diamond Jubilee of the event, this tiny model, which must have powered aircraft which people still living have flown, demonstrates the enormous strides by aviation technology. From the first Atlantic flight to *Concorde* is less than a lifetime. What is ahead for the next sixty years?