

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 smeschal, 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 banquet 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 Emailite. 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. Alveston. 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.