

# EXHIBITION

1914

but with the increase in the proportion of, as well as the actual, useful load capable of being carried, combined with the natural tendency towards greater reliability, the possibilities of aerial transport have been brought much nearer. At the present exhibition there are no less than eight machines that are capable of carry over 800 lbs., and sixteen have a useful load of 600 lbs. or over, the corresponding figures being 3 and 10 only twelve months ago, and four of the makes of machines then exhibited are not now being shown.

In steel construction there has not been the extensive use one might have been led to imagine would have been the case, having in view the extent to which it is adopted in some Continental machines, although a greater tendency is exhibited to employ this material largely for the landing gear, as is shown by the table given in FLIGHT last week.

The methods of construction used in assembling the various members of all-steel machines, are shown on the Vickers, the Clement-Bayard and the Nieuport stands, and are worthy of close study.

In regard to the engines exhibited, we have long passed that stage when lightness was the all-important factor, and now complete immunity from mechanical breakdown is demanded as an essential quality. Concerning those manufacturers who have been represented at previous exhibitions, we need say no more than this—that every make of engine has seen extensive employment on actual machines, not only in this country, but abroad also. And as regards the newcomers, the Sunbeam has already been proved on the M. Farman at Brooklands and in tests conducted at the R.A.F.; the Argyll is built by a firm of motor manufacturers who have a big reputation behind them; and the Stitax presents a novel construction that would appear to have great possibilities. There is, therefore, at the present exhibition a number of different types of engines of British manufacture and of tried design, and although in the past they have not been the commercial success that one would have liked, great hopes are entertained that the Military Aeroplane Engine Competition will do much to stimulate this branch of the aeronautical industry.

## THE EXHIBITS.

### AVRO (A. V. ROE AND CO.). (64.)

THREE machines of different types, all representing considerable departures in design from previous models, whilst at the same time retaining the good qualities that have established such an enviable reputation for this enterprising firm. Keenly alive to the various requirements of the Army and Navy, Mr. A. V. Roe has designed three entirely different types, each for a different purpose, one being a military biplane of the pusher type, and built with a view to meeting the demand for a machine affording the observer an unrestricted view, and also possessing facilities for the mounting of a gun if desired. The second machine is a small, fast, single-seater, designed for scouting purposes, whilst the third and last is a hydro-biplane. All three machines are fitted with 80 h.p. Gnome engines.

The 80-h.p. Military Biplane is of more or less standard design for this type of machine, as regards the general disposition of its component parts, but its designer has managed to incorporate in it numerous detail innovations. The nacelle, which is very wide and deep, is built up in the usual way of four ash longerons, connected by struts and cross-members of spruce, strengthened in places by steel tubes. Inside this nacelle are arranged the pilot's and passenger's seats, tandem fashion, the pilot occupying the rear seat, so that the observer has a clear view, while it is possible to have a gun mounted on the nose of the nacelle. The controls are of the usual Avro type, consisting of a vertical lever mounted on a transverse rocking shaft, from which cables are taken to the various control



General view of the Avro stand.

"Flight" Copyright.