



# England's "Fours"

First British four-engined bomber, the Handley Page V/1500, appeared in May, 1918. It cruised at 75 m.p.h. and carried a military load of 6,500 lbs.

*Twenty-four Years' Experience in the Design, Construction and Operation of Four-engined Aircraft : Military Load Increased from 6,000 lb. to 18,000 lb. : Range from 600 to 2,000 Miles*

FOR certain military operations, that bomber is the most effective which will carry the greatest bomb load over the longest distance at the highest speed. One might, in fact, employ as a figure of effectiveness a simple formula in which these three factors were multiplied together. Applied to modern high-speed, long-range bombers carrying a heavy bomb load, the actual figure thus derived would, however, be somewhat cumbersome. The late Anthony Fokker used a formula somewhat of this nature to denote the efficiency of commercial aircraft, and in order to introduce the efficiency factor (as distinct from effectiveness factor) he divided the product by the horse-power figure. Mathematicians may argue about how the different items should be treated; some will say that they should be multiplied together, others that they should be added, or that some of them should be added and the sum multiplied and divided by the remainder. That does not concern us here, since we are only interested in the best

way to carry the bomb or other load as far and as fast as possible.

Closely connected with this problem is the total horse-power available, the results of which are reflected in speed and load-carrying capacity. Early aircraft were of the single-engined type. Then, as it became desirable to lift greater loads, two engines were used, and as the combined power of two engines was insufficient for the ever-increasing loads, three and four engines were fitted. It is obvious that no designer would use four engines if he could get two to do the required work, especially nowadays when aircraft engines have become so amazingly reliable. It was rather different in the early days of flying. Engines

The Armstrong Whitworth Atalanta (A.W.XV) was the first British four-engined cantilever monoplane. It was produced in 1931 and, with four 340 h.p. Serval engines and a loaded weight of 21,000 lb., had a top speed of 156 m.p.h.

"Flight" photograph.

