batteries, which had been allowed to become non-operational in November, 1944, were finally disbanded.

23. This bald statement of the progressive reduction in the country's anti-aircraft defences gives no idea of the intensity of the problem which it presented. The men suitable for an infantry or an R.A.S.C. rôle were to be found in every unit under my command and these had to be extracted to meet the urgent requirements of the field force and had to be replaced by less fit men from disbanding units in such a way as to minimise the effect upon the batteries which were at the time heavily engaged in the flying bomb battle.

24. Nor were reductions in the defences the only manpower problems of those difficult years. I have already mentioned that the general labour shortage caused the building of A.T.S. accommodation to fall behind schedule and as the number of mixed batteries increased and redeployments of Heavy guns became more necessary, so the acuteness of the difficulty increased. Finally, we concluded that we must have within Anti-Aircraft Command a labour force which could be applied exclusively to our own needs and early in 1943 certain batteries were withdrawn from their operational rôle for this purpose.

These were reconstituted as Construction Batteries and 1,800 men were finally employed in this manner. In this unspectacular rôle the Construction Batteries made a most valuable contribution to the defence of the country.

Supplemented by 7,500 unskilled workers from disbanding Light Batteries, they were largely responsible for the success of a vast building operation during the flying bomb battle to which I shall refer later.

New Equipment.

25. Concurrently the equipment problem became easier. The 3.7-inch gun on a static mounting remained the standard Heavy equipment with a number of similar guns on mobile mountings as a supplement. A special 3.7-inch barrel was designed for the 4.5-inch guns and the conversion of these weapons began at the end of October, 1943; the work was still proceeding at the end of the war but all the 72 4.5-inch guns in the London area were modified by the end of November, 1943; this gun, which was known as the 3.7-inch Mark 6, was remarkable for its high muzzle velocity. A still more effective Heavy gun of 5.25-inch calibre also began to come from production during this period. The first guns of this calibre to go into action were of naval design with twin barrels and these operated from April, 1942. A model with a single barrel, designed especially for anti-aircraft work, began to appear in May, 1943.

The chief Light anti-aircraft weapon continued to be the 40-mm Bofors but it was supplemented by increasing numbers of 20-mm equipment, largely Oerlikon or Polsten guns, and from the beginning of 1944 by an increasing number of twin 0.5 inch Brownings in power-operated turrets.

There was also a steady flow of new radar designs intended to give greater accuracy than the earlier models. These later designs were able to work successfully at high angles of sight. Auto-following was introduced by which the sets were kept on the target, once it had been located, by an automatic electric control; this auto-follow system first operated in action on the American SCR 584 sets during the flying bomb battle.

Though the numbers of the various equipments in action were, until the closing stages of the war, always below the totals regarded as necessary, there was generally a steady and progressive improvement throughout the period covered by this part of my despatch. The only serious setback occurred when war broke out in the Far East. Anti-Aircraft Command gave up 66 Heavy and 216 Light guns for the new theatres of war and for six months afterwards received practically no fresh equipments from production.

26. At the outbreak of war with Japan in December, 1941, the Heavy guns which were available to me totalled 1,960, made of up 935 static and 465 mobile 3.7-inch guns, 416 4.5-inch guns and 144 of the obsolete 3-inch guns.

At the end of 1942 the total was 2,100, made up of 3 twin 5.25-inch guns, 1,200 static and 475 mobile 3.7-inch, 406 4.5-inch guns and 16 3-inch guns.

In June, 1944, at the beginning of the flying bomb battle, I had 2,635 guns, made up of 3 twin 5.25-inch and 25 single 5.25-inch guns, 1,672 static, 527 mobile and 149 Mark 6 3.7-inch guns and 259 still unconverted 4.5-inch guns.

The position with the Light anti-aircraft weapons when Japan entered the war was that I had a total of 1,197, made up of 1,056 40-mm Bofors, 8 obsolete 3-inch guns, 71 miscellaneous types of 2-pounders and 62 20-mm Hispanos.

At the end of 1942 the total had increased to 1,814, of which 1,717 were 40-mm Bofors, 6 3-inch guns, 5 2-pounders and 86 20-mm Hispano and Oerlikon guns.

In June, 1944, the total had risen sharply to 4,589, made up of 2,681 40-mm Bofors, 1,257 20-mm Hispanos and Oerlikons and 651 twin 0.5-inch Brownings.

Rocket projectors in action numbered 4,481 at the end of 1942 and 6,372 at the end of 1943.

In addition to the increase in the numbers of equipments and to the introduction of new types, certain important inventions were made for use with the older types. The first important one appeared in 1943 and was the Automatic Fuze-Setter for the 3.7-inch gun; the earliest designs had the effect of increasing the rate of fire of those guns to which it was fitted by about 50 per cent. while later designs increased it by over 250 per cent. and greatly improved the accuracy of the fuze-setting.

The second invention was the proximity fuze which did away with the need for fuze-setting altogether and was extensively used in the flying bomb battle. With these fuzes the explosion was controlled automatically by their proximity to the flying body; the rapid loading by means of Automatic Fuze-setters was continued with the new fuzes.

Tactical Employment.

27. The tactical plans for the employment of guns in Gun Defended Areas did not change during this period but considerable changes were made in the tactical employment of searchlights.

The scheme for using searchlights in clusters which had been introduced in the autumn of