13 The Railway Workshops in Two World Wars

The main works are not always associated with their war-time record, yet their collective achievements had no equal in non-governmental establishments throughout the two world wars. The works provided the railways with the means to transport troops, evacuees and war materials under difficult and often – in the second world war – dangerous conditions. They also manufactured huge quantities of war products of all kinds, which greatly furthered the war effort of the country. The challenge of those international crises demonstrates the adaptability and skills of Britain’s railway engineers.

At the outbreak of the first world war in 1914 the network of 120 railway companies was taken over by the Government under the Regulation of the Forces Act 1871, and was managed as a single system under the instructions of a newly-appointed Railway Executive Committee. Throughout the war the various independent railway companies undertook to assist the war effort to the limit of their capacities. With new building of locomotives, carriages and wagons reduced to a minimum, workshop staff became available to undertake war contracts of many types. Additional staff, including many hundreds of women, were employed. The extensive workshops of the leading railway companies, equipped on a scale to meet most of their normal requirements, gave employment to skilled artisans and other workers totalling over 78 000.

The co-ordination of the railway workshop activity to aid war production became the responsibility, under the Railway Executive Committee, of the Railway War Production Sub-Committee, whose members were the CMEs of a number of the larger railways. The first indication that the railway works should be used for the production of military requirements had come within a month of the declaration of war. In September 1914 the War Office asked the Railway Executive Committee whether the companies could urgently supply 12 250 ambulance stretchers of standard War Office pattern. A meeting of Carriage and Wagon Superintendents was convened and 11 railway companies agreed to divide the work between them. The first deliveries were made within 10 days and each company continued to supply a stipulated number per week, ranging from 100 to 500 until the whole 12 000 had been delivered. General service artillery wagons for the Artillery Section of the War Office were supplied at a rate of at least 400 per week from the beginning of December 1914 until the end of January 1915, a total of 9300 from 22 railway companies. The companies also converted 500 railway vans for Government use, and the total number of ambulance stretchers was raised to 25 195. The type of work involved was similar to some of the normal activities of a carriage and wagon works.

More unfamiliar requirements were nevertheless undertaken almost from
the very commencement of hostilities, the earliest consisting of gun carriages for 8-inch howitzers, with the guns supplied by ordnance factories and the wheels by contract firms. Even by the end of December 1914, 12 finished howitzers had been turned out by Swindon and 11 by Derby. A wide range of forgings and stampings were made and machined, together with components for guns of various calibres and also rifles. A few works even had lathes with a long bed length where gun barrels could be rough-turned before they were sent to the specialised ordnance factories for finish-turning and rifling. Numerous contracts were accepted for Admiralty work, including mines and parts of paravanes, the latter being towed on steel-wire ropes from the bows of a ship and designed to deflect enemy mines out of a ship’s path so that they could be cut loose from their anchorages and destroyed.

There was some demand for trains of special rail vehicles, partly for home defence and partly for overseas service. A number of carriage works built ambulance trains composed of vehicles adapted from standard passenger carriages and parcel vans, and these saw service at home and in France. Five trains were supplied to the US Army for use on the continent, and a special ambulance train was constructed of carriages converted to a gauge suitable for operation in Egypt. A few armoured trains were built in locomotive works; the locomotive and hauled vehicles were protected above the waistline by armour plate.

The contribution of the railway works in the production of shells formed an impressive part of their record of performance. The initial demand was for 6-inch high-explosive shells at the rate of 1000 per week, and by the end of 1917 a record output in one week of 5796 had been achieved. In all a total of 614 769 6-inch shells were produced. The works were also able to produce 62 141 forgings for other firms to machine and finish. At Darlington a plant was installed for the production of 18-pounder shrapnel shells, of which 1 064 665 were supplied. Additionally 26 654 shells of 4·5-inch calibre and 9500 bombs of various sizes were manufactured.

A vast number of component parts associated with shells were undertaken and supplied to the shell-filling and -arming factories. These consisted of some 3½ million fuses, 4½ million adapters, nearly 5 million copper driving bands and about 1½ million gaines. At one stage the demand for the last was so great that each day’s production in the railway workshops was sent off to Woolwich the same night by special messenger. Initially these components were produced using the normal railway workshop machine tools and equipment, but as the demand grew certain shops were cleared and equipped specifically for the special requirement. For example, Derby Locomotive Works, which could produce 3000 fuses per week on pre-war machines, assembled an exceptionally fine plant of automatic lathes and other machines to produce 30 000 complete fuses per week. This provided employment for 550 women and girls, reflecting part of the great contribution made by girls and women who during the war took on all sorts of tasks normally undertaken by men.