

The Brighton Radials

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Photo]

[Locomotive Publishing Co. Ltd.

The first L.B.S.C.R. 0-6-2 tank engine, No. 158, built at Brighton in 1891, in its original condition

THE six-coupled radial, or 0-6-2 type of tank locomotive, made its first appearance on the London, Brighton & South Coast Railway in 1891. During the following years, up to 1905, no less than 134 examples of this type were built at Brighton Works.

The design, which was a natural development of the 0-6-0 tank engine, had the advantage of increased bunker capacity; this allowed for a wider range of duty on the freight and shunting work for which the first examples of this type were built. Also, the use of six coupled wheels allowed for increased adhesion over the 0-4-4 type of tank engine on local passenger work, and therefore it is not surprising that later examples were built solely for the intermediate and suburban passenger traffic which formed the backbone of the Brighton's revenue.

The first radial tank engine to be built at Brighton Works was No. 158, *West Brighton*, which was placed in service during December, 1891. This engine was originally designed by William Stroudley, but because of that great engineer's

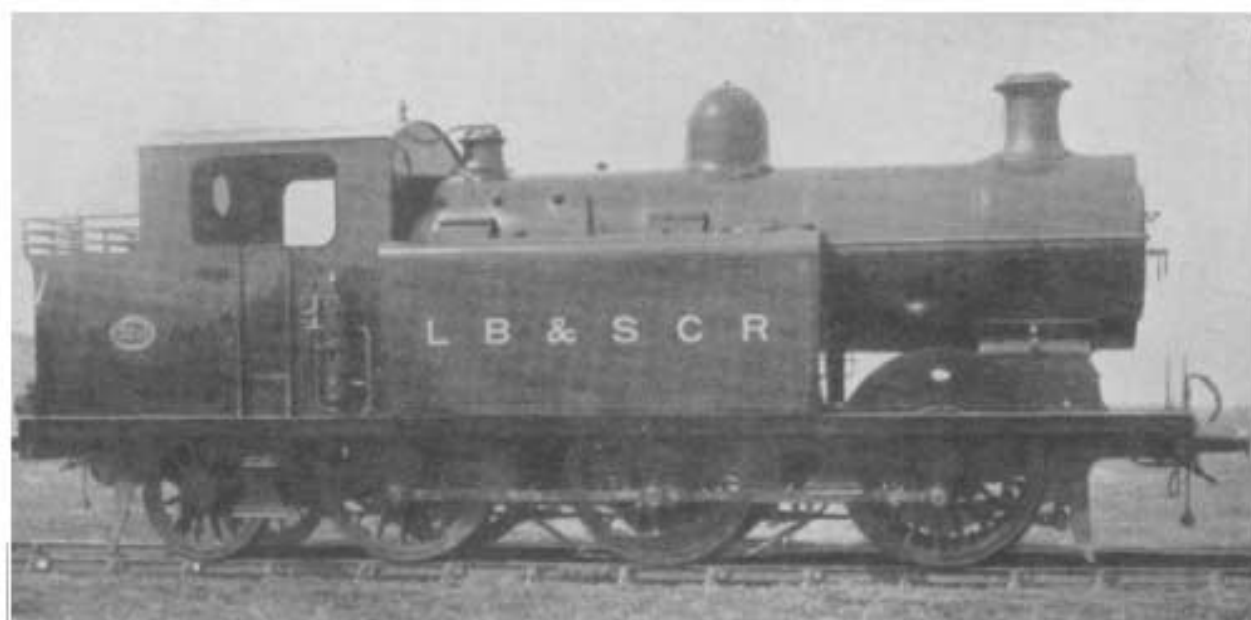
death in 1889 the construction was completed by his successor, R. J. Billinton. No. 158 remained the sole representative of its class until 1894, when Billinton built another six engines, numbered 165 to 170, and a further ten in 1895 numbered 453 to 462. These engines, which were of the same dimensions as No. 158, with 4 ft. 6 in. driving wheels and 18 in. by 26 in. cylinders, proved especially useful on heavy goods work in the London area.

No. 158, although included in the "E3" class, remained in its original condition until 1922, when L. B. Billinton replaced the Stroudley boiler with one of Marsh's "I1" type. The original cab, tank and smokebox were, however, retained, which made the engine an odd one among the class. In 1905, Marsh re-boilered several of the "E3s" with his own type of boiler, while No. 166 was also fitted with an extended smokebox, resting on a saddle.

In 1897, the first of the 5-ft. "E4" class was completed at Brighton. These engines were very similar to the "E3" class, and had the same size cylinders,

but with the slightly larger wheels were intended for mixed-traffic working. Between 1897 and 1903, 75 "E4s," numbered from 463 to 520, 556 to 566, and 577 to 582, were placed in traffic. Nos. 577 to 582 differed from the earlier engines in that they were originally fitted with shorter bell-mouth chimneys. Later, however, these were substituted for the

567 to 576, and 583 to 594, were constructed at Brighton Works. Nos. 570, 576, 586 and 401 were rebuilt by Marsh in 1911 with a larger boiler, and reclassified "E5X." This, and other modifications, including the raising of the cab sides and roof, increased the weight by four tons, making the weight in working order 64 tons 5 cwt.



No. 570, completed by R. J. Billinton in 1902, as rebuilt by Marsh and reclassified "E5X" in 1911

standard pattern. From 1905 onwards, the majority of the "E4s" were re-boilered with an extended smokebox. The last engine to be dealt with was No. 2580, which remained unaltered until 1940.

In 1909, Nos. 466, 478 and 489 were fitted with a Marsh "I2" type boiler and extended smokebox, and as such they were designated "E4X" class. No. 477 was similarly reboilered in 1911. This rebuilding increased the engine's weight from 57 tons 10 cwt. to 59 tons 10 cwt. although the tractive effort and other details remained the same. During the first world war 12 of the "E4" class were sent to France for service with the R.O.D. They were the only L.B.S.C.R. engines to serve overseas and all returned to England in 1919.

In 1902, R. J. Billinton designed a radial tank engine purely for passenger work. These engines, which became known as the "E5" class, had 5 ft.-6 in. driving wheels and 18 by 26 in. cylinders. Between 1902 and 1904, 30 engines of this type, numbered from 399 to 406,

In 1909, many of the "E5s" were converted temporarily to 2-4-2s by having the leading portion of their side rods removed. This experiment lasted only a short time and the engines were soon restored to their original condition. Number 591, *Tillington*, was the last L.B.S.C.R. passenger engine to retain the yellow livery, and was not repainted in Marsh's standard umber livery until early in 1917.

The success of the "E5s," and their general usefulness on all kinds of passenger work, led to the building in 1904 of a similar design, but with 4 ft.-6 in. wheels and intended for goods traffic. These were the "E6" class which comprised 12 engines, numbered from 407 to 418. They were R. J. Billinton's last engines, for he died in November, 1904, and so the class appeared under his successor, D. E. Marsh. Nos. 407 to 414 originally bore names, but the remaining four, under Marsh's new policy, were not named. In 1911, Nos. 407 and 411 were rebuilt with larger boilers and reclassified "E6X."

The "E6" class were the last radial tank engines to be built by the Brighton, and have since proved very capable engines on heavy, short-distance freight traffic in the London area, where the majority of the class are shedded. All the "E" class radials passed into Southern Railway stock in 1923 and, in common with other former L.B.S.C.R. locomotives, had a letter B prefixed to their numbers. Later this was altered and 2000 was added to their original numbers.

The Southern Railway introduced some modifications to the original designs, the most obvious being the fitting of vacuum brake equipment and, in the case of the

Railway (opened in 1925) between Torrington and Halwill, and, except for some shunting and banking duties in the Exeter district, the class has worked there ever since.

The majority of the Brighton radials remained on the Central Section until quite recently, when some "E4s" were transferred to the Eastern and Western sections. Eastleigh depot received a number of "E4s," and in 1950 they were joined by three "E6s," the first engines of that class to work on the Western Section.

One "E4," No. 2510, was tried for a short time, in the Isle of Wight, but



Photo]

[W. A. Camwell

Class "E4" 0-6-2 tank No. 32581 entering Rowfant Station with a Three Bridges to East Grinstead train in 1952

"E3," "E4" and "E5" classes, a reduction in the cylinder diameter from 18 to 17½ in.

In 1927, Maunsell began to rebuild some of the Stroudley "E1" class 0-6-0 tanks into radials. The alterations included a lengthening of the frames at the rear end and substituting a new cab and enlarged bunker of his design, in place of the original Stroudley type. Altogether ten "E1s" were rebuilt between 1927 and 1928, and as such were reclassified "E1R." These engines were primarily intended for use on the North Devon & Cornwall Junction Light

returned to the mainland in June, 1949. In 1950, "E5" No. 32401 emerged from an overhaul fitted with a "C2X" type boiler with two domes. This fitting, which hardly improved the look of a well-proportioned design, was probably necessary because no other suitable boiler was available. At the present time, withdrawal of many of these engines is taking place and, as might be expected on a line which has seen so much electrification, the "E5" passenger engines have suffered more heavily than the goods and mixed-traffic classes, for which plenty of useful work can still be found.