



Robert Stephenson's "John Bull"

ness the result of his years of study and experiment. The engine was mounted on a platform with ordinary wagon wheels which were geared to the track by casters placed at the end of vertical posts on each corner of the frame. The fire was built, the water connected with the tubes from a barrel, steam generated by confinement, just as the steam had been generated in the kettle in Greenock, the throttle opened and the wheels of the "steam waggon" turned, gripped the wooden rails. Around and around at twelve miles an hour traveled the first locomotive built and operated in this country. The boiler and steam valve used that momentous day are now in the Smithsonian Institute.

John Stevens was seventy-six years old when he accomplished this marvel and in the nature of things could not hope to see come true his dream of wide railroad development. But he had made the initial step and his sons would carry on for him.

In 1830 the two sons, Robert Livingston and Edwin, were made President and Treasurer respectively of the Camden and Amboy R.R., chartered by the New Jersey Legislature. The cars were to be horse-drawn and primarily used for freight. Despite the successful performance in England of a locomotive made by George Stephenson called the "Rocket," few people considered steam locomotives seriously. Nevertheless, Robert L. Stevens, following in the path laid out by his father, sailed for England to investigate the new engine, authorized to order one should it appear practicable.

Stevens had been studying the problem of rails and on the way over whittled out in wood the model of a design for T-rails, which are the standard rails in use on all American railroads today. Arriving in England, he had considerable difficulty in finding a firm that would manufacture the iron rails according to his specifications. Finally, by placing a generous deposit against the possible breakdown of the machinery, he persuaded a mill operator to undertake the job.

An improvement on the "Rocket" called the "Planet" gave so satisfactory a demonstration that Stevens decided to order one engine for the new American railroad. Pending the arrival of the new engine, Robert and Edwin Stevens had the roadbed laid at Bordentown. Rock was transported from the quarries at Sing Sing, N.Y., and laid much as a cobblestone road would be spread, the spikes to hold the rails down being driven between the stones. But the failure of a shipment of rock caused the road builders to try wooden ties, which were found to be far more satisfactory.

The "John Bull," as the locomotive was called, with all its component parts and the $6\frac{1}{2}$ miles of rail which were to carry it, reached Bordentown in 24 shiploads during 1831. The arrival caused considerable excitement; but to young Isaac Dripps, the mechanic who had undertaken to assemble the engine, it