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“System of Unloading and Storing Coals at the Beckton Station of The Gas Light and Coke Company.”

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BECKTON Pier is a T-shaped structure, built of iron; it is situated at the lower end of Gallions reach on the River Thames, and is parallel to the Essex shore.

It is provided with berthing accommodation and lifting machinery for five steam colliers of the largest type, viz., two inner berths between the back of the pier and the foreshore, and three outer berths at the head or front of the pier facing the stream. The head of the pier is 750 feet long, and its depth from the front to the foreshore is 405 feet, affording a depth of water at high tide of from 25 to 30 feet.

A fleet of steamers, specially constructed to meet the requirements of this trade, plies between Beckton and the northern coaling ports, with an average tonnage per steamer of 1,800 tons. In mid-winter (the busiest season) twelve steamers per week, equivalent to about 20,000 tons of coal, discharge their freights at Beckton. The unloading is performed by both steam- and hydraulic machinery. The two upper or S.W. berths of the pier are fitted with three fixed steam gib-cranes, and one portable crane to each berth. The central and two lower, or N.E. berths, have each three hydraulic cranes. All these cranes are calculated to hoist and swing a load of 1 ton gross in less than three quarters of a minute. This load of 1 ton is represented by an iron cage (or skip, as it is technically termed), weighing 7 cwt. net, capable of holding from $12\frac{1}{2}$ to 13 cwt. of common coal, or $10\frac{1}{2}$ cwt. of cannel. The cages are cylindrical, measuring 3 feet in depth by 3 feet in diameter. The skips are lowered into the steamer's hold and filled by manual labour. On this being done, they are hoisted up and tipped into iron trucks on the deck or top of the pier, at an elevation of 28 feet above high-water mark.

The iron coal-trucks are rectangular, weighing about 2 tons 15 cwt. (tare); they are designed to carry seven skips of coal, or 4 tons 10 cwt. The time occupied in loading a truck by hydraulic machinery is about two minutes, more than one crane being employed, filling the truck as it is drawn along. One hydraulic

crane is capable of loading twelve trucks per hour. A steamer of 1,800 tons can be unloaded in from nine and a half to ten hours.

Upon the deck of the pier, and parallel to the ships' berths, there are three lines of railway. Along these lines the trucks are distributed to the different cranes, and when loaded they are shunted and made up into trains of sixteen wagons each, and drawn by locomotives from the pier along the high level route to the various retort-houses to which they are apportioned as required.

The pier is connected with the viaduct, or high-level railway, by a double line of rails, which run midway between the twelve retort-houses throughout their whole length, a distance of 1 mile. There are four additional high-level railways through the retort-houses themselves, namely a line of rails above each coal stage at a height of 14 feet, making two lines of rails to each house parallel to themselves and to the aforesaid viaduct. They are joined to the viaduct at the approach to the pier, and also about $\frac{3}{4}$ mile down.

As a ready means for facilitating the delivery of coals to the retort-houses, each wagon has an opening in the bottom, similar to a hopper provided with a door. In connection with this opening, there is a spindle and lever arrangement accessible from the side of the truck, so that, when the trucks are hauled into the retort-houses by the high-level route to a position ready for unloading, on the spindle and lever being turned the door is withdrawn, and the coal discharged on to the stage beneath.

The space beneath the central viaduct between the retort-houses is utilised as a coal-store, and is capable of housing many thousand tons. The coals are dropped down into it in the same manner as described above.

The annual importation of coals at Beckton is nearly 600,000 tons.

The Paper is accompanied by a plan, from which Plate 5 has been prepared.

UNLOADING AND STORING COAL. AT BECKTON STATION OF THE GAS LIGHT & COKE CO.

PLATE . 5 .