POWER STATIONS
CAR HOUSES
ROLLING STOCK
CONSTRUCTION
OVERHEAD LINES
CONDUITS
ROADBED

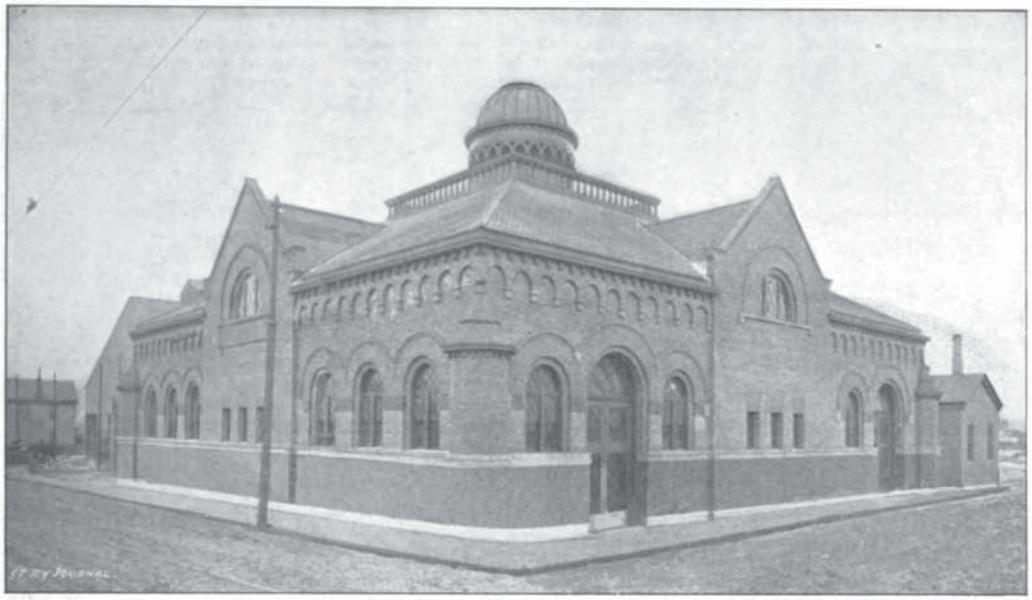
Novel Power House Construction in Columbus, O.

We present on this page an engraving of the power house of the Columbus Central Railway Company, a new line which has just been completed in Columbus, O.

The station is located at the corner of Cleveland and First Avenues, in a district which, though at some distance from the center of the city, is rapidly being built up, and promises to be one of the most attractive residential portions of the city. For this reason especial attention was paid to the architectural features of the proposed station, so as to have a building as much in harmony with the expected surroundings as possible, and one which would not depreciate the value of the neighboring real estate by any resemblance to a manufactory.

The power plant consists of four Westinghouse compound, non-condensing engines with cylinder dimensions 18 and 30 ins. × 16 ins. stroke, each of which is directly connected to a 200 K. W. Westinghouse generator. The boilers are of the Stirling type equipped with Murphy smokeless stokers, and coal handling machinery manufactured by the Jeffrey Manufacturing Company is employed. National feedwater heaters are used.

The engine room measures, inside dimensions, 58 × 96 ft., and is of most tasteful and artistic construction. It is lined with white glazed and cream colored bricks, which are surmounted by a row of arched corbels. The floor is of concrete and cement surface and the switchboard of marbleized slate and mahogany. All lighting of the building and the car house adjoining is supplied by a small, direct coupled generator placed in the center of the engine room between the large engines. This allows of the latter being shut down without interfering with the lights.



POWER HOUSE WITH CENTRAL STACK—COLUMBUS CENTRAL RAILWAY, COLUMBUS, O.

The use of a tall stack with guys, it was thought, would be objectionable for the reasons outlined, and the architects and management finally determined upon the building shown in the engraving, which, in external appearance, does not look unlike a public library, pumping station or even an observatory.

It is square in plan, measuring 100 × 100 ft. outside dimensions, and is of brick, with stone trimmings. The roof is pyramidal in shape, is supported on steel trusses, and rises to a central gallery whose floor constitutes a large skylight. Monastery tiling is used. The peculiar feature of the building, however, consists in the arrangement of the stack. This is eight feet in diameter, and seventy feet in height, mechanical draught being employed. It is in the center of the station, and terminates in the dome shown in the engraving. This makes a most attractive and artistic construction, and while the general appearance of solidity appropriate to the purposes to which the building is devoted is retained, the features already alluded to as objectionable in a residential district have been eliminated. The architects of the station were Yost & Packard, and the engineers were Barry & McTighe, of New York.

The company's lines aggregate forty-two miles in length, and of these fourteen are double track. In the roadbed construction seven inch, seventy pound T rail is employed in the city and fifty-six pound T rail in the country lines. The ties are of white oak 6 × 8 ins. × 7 ft. 6 ins., and are laid two feet between centers. The joint connections are made by heavy splice plates and Samson and Heath joint bridges. The method of bonding adopted consists of employing at each joint two No. 0000 copper wires of the Benedict & Burnham type, cross bonding every 120 ft., and connecting all the rails of the double track in addition about every 125 ft. The line appliances were supplied by the New York Electrical Works and both steel and wooden poles are used.

The car house, which is shown in the engraving, is located close to the power station and measures 88 × 360 ft. It is of brick with steel roof and concrete and cement floor, and contains eight parallel tracks, each having a separate entrance. A transfer table is located at the rear of the building out of doors.

The rolling stock consists of sixty Brownell accelerators, with twenty foot car bodies, and mounted on the latest type of Brownell truck. The cars are exceedingly handsome, both in the interior and on the exterior, and are finished in solid mahogany. Each truck is equipped with two Westinghouse No. 12 motors. The car equipment also includes Nuttall trolleys, Meaker registers and Consolidated Car Heating Company's heaters. No advertising racks are permitted on the cars.

An especially interesting feature of this line is the fact that Pintsch gas has been employed for the illumination of the cars. Columbus is the first city, so far as we know, in which the electric cars are lighted by gas, and the success attained on the Columbus Consolidated Street Railway was so great as to dictate its use on the lines of the Columbus Central Railway. The Pintsch gas is generated in a small building shown at the right of the station in the engraving, and consists of a small generating plant. This is usually not necessary in the large cities, as all the steam railroad companies which use Pintsch gas are obliged to install generating stations from which the street railway companies can procure their supply.

The selection of gas was made with the wish to give the best possible service, and it has proved most popular with the public.

The officers of the company are: President, John J. Shipherd, of Cleveland, president of the Cincinnati, Newport & Covington Street Railway Company; vice-president, M. H. Neil; secretary, E. W. Radder; assistant secretary, G. W. Meeker; superintendent, Chas. L. Fitch.

The Lamm Francq fireless locomotives seem to be giving good results in France. The cities in which these locomotives are in use in that country for street railway purposes are: Lille, nineteen locomotives; Lyons, thirty-eight locomotives; Paris (Courbevoie line), twenty locomotives; Marseilles, eight locomotives. The Lamm Francq Company has also fireless locomotives in use at Batavia, Java, and on several industrial lines in Germany and Belgium.

The boilers are charged with water heated to a high temperature under pressure at a central station, and the steam generated by a reduction of pressure operates the locomotives. No fire is required under the boilers.

The Compagnie du Chemin de fer de l'Est of Marseilles, which is the latest to have adopted the system, reports that during the ten months ending October 31, 1894, with eight locomotives 1,994,711 passengers have been transported. During this time the receipts were 264,683.60 francs, and expenses of all kinds for operation 144,115.84 francs.

Recent Construction at Norfolk, Va.

On October 10, last, the Norfolk Street Railway Company of Norfolk, Va., put about thirty-five miles of electric railway into operation. The system covers the principal streets of Norfolk, and is largely owned by Murry A. Verner of Pittsburgh, who purchased the original plant about two years ago. At that time the road was seven miles in length, and was operated by horse power. Norfolk has a population of 45,000 inhabitants, and with the suburbs of Berkeley and Portsmouth about 80,000. The railway will probably be extended to these towns in the near future.

The power station is of corrugated iron supported on a steel framework. It is of 1,000 H. P., and is designed for a capacity of 1,500 H. P. The foundations are piling capped with 12 × 12 in. timber. The stack is 120 ft. in height by 72 ins. in diameter, and is of steel. The station is located near the Norfolk & Western Railroad, from which coal is received direct. The power plant consists of two single expansion Providence-Corliss engines

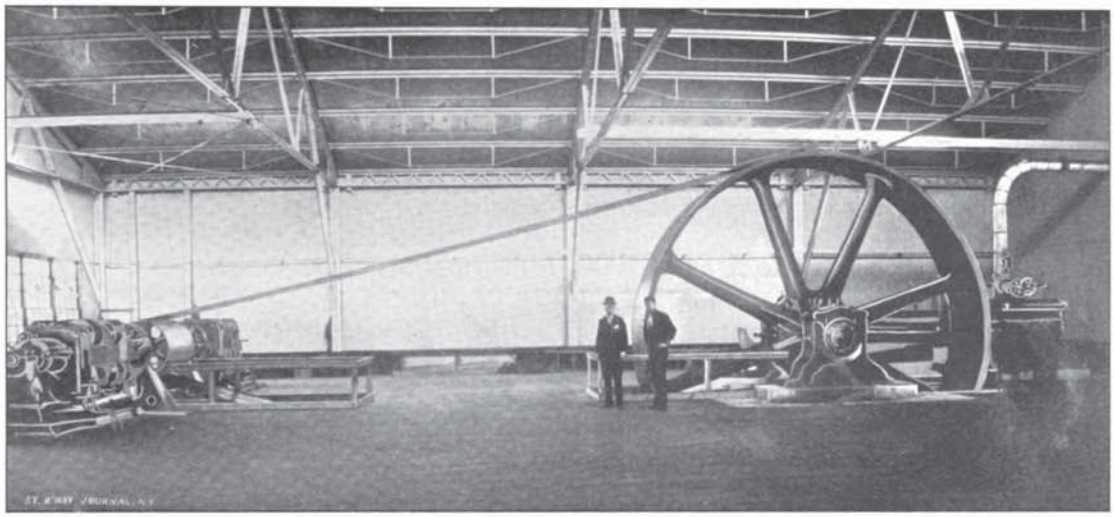


FIG. 1.—INTERIOR OF POWER STATION—NORFOLK STREET RAILWAY CO., NORFOLK, VA.

of 500 I. H. P. each. Each of these is belted directly to two 200 K. W. Short generators by means of an intermediate pulley mounted in line with the armature shafts and connected thereto by Hill clutches. The flywheels of these engines are specially heavy, twenty-four feet in diameter, and operate at a speed of seventy-two revolutions per minute. The belting has a fifty inch face, and was supplied by the Charles Munson Belting Company, of Chicago.

The boilers are of the Heine type, and consist of three batteries of 350 H. P. each. The piping was supplied by the Shook, Anderson Manufacturing Company, of Pittsburgh, and is covered with asbestos. Snow pumps are used. The railroad can be operated at present with one engine, the second being held in reserve.

The switchboard is of the General Electric panel type, and Westinghouse automatic circuit breakers are used. The line is divided into four sections.

The overhead line is carried on octagonal, long leaf, hard pine poles nine inches top and twelve inches butt and thirty feet in length. The trolley and feed wires were from the John A. Roebling's Sons Company, and are No. 0 and No. 0000 in size. The line appliances were supplied by the Mason Electric Company, and are largely of the Medbery type. The rails are bonded with two No. 0000 copper bonds, and are cross bonded every sixty feet. The ground is low and sandy, and owing to the fact that salt water is reached at a depth of eight feet or less, a system of ground plates is used to supplement the rail return. Sections of rail six feet in length are buried to a depth of eight feet, at intervals of about 300 ft., and are connected to both