

MODERN TUNNEL BUILDING

Methods to Be Employed in Boring Under Two Rivers and Manhattan Island.

LATEST DEVICES FOR SAFETY OF WORKMEN

An Engineering Task of Vast Proportions, Involving an Outlay of \$50,000,000—Great Railroad Enterprise.

Details of the methods to be employed by the New York, New Jersey and Long Island Railroad company in building the Pennsylvania railroad tunnel under the North and East rivers and Manhattan island were made public last week by Alfred Noble, chief engineer in charge of the East river work and one of the six consulting engineers who drew up the plans and specifications for the whole undertaking.

The tunnel as far as it runs beneath the city is to be pierced through shale by methods approximately the same as those employed in the deep underground sections of the rapid transit subway—for instance, those under Washington Heights and Central park. The walls will be of masonry, the arched roof of concrete or brick, according to the lay of the land.

Over the contractor the railroad's engineer is a supreme boss. The contract leaves in his hands control of all the builder's operations, including the care of the men employed to do the compressed air work, the hospital staff and medical supplies in each shaft, the directing of safeguards for property and the ground conduits in danger of being damaged in the city, and the general maintenance of plants of all kinds.

The distinguishing feature of the book of specifications is the rigidity with which the contractor is to be tied down in every respect. As an example of this, the contractor is to be left in any permanent structure "must be of oak, yellow or Norway white pine, hemlock or black spruce cut from live timber, not more than one year previous to driving in the work; free from windshakes, rotten knots or any kind of decay."

Not only has every precaution for the safety of passengers in the tunnel been considered, but the contract will provide all safeguards possible for those doing the work of construction. "The contractor," says the announcement, "must provide at each shaft an adequate plant, including boilers, air compressors, hydraulic machinery, dynamo and all other necessary plant, with a reasonable duplication to meet unanticipated emergencies."

When a shield has been driven 500 feet at least two bulkheads must be in use and another is to be removed until a third is in place. Small charges of dynamite must be used to blast in advance of the shield where rock is being excavated and enough of the material is to be removed to permit of the shield being shoved ahead without touching the rock.

From every heading a telephone will be run to the compressed air plant near the shaft. At each bulkhead will be an air-pressure gauge and a four arm vent pipe at each shield. Every shaft will be equipped with enough elevators for men and materials, and the hospital arrangements in the shafts, although they are not based upon any lay steel rails upon which to slide the shield and adequate supports must be used in every case to prevent possible injury from loose earth that comes in the way of the excavators.

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LAST CHANCE FOR CITY PLAN

Final Opportunity for Municipal Electric Light Comes Tuesday.

MAYOR'S ORDINANCE MAY COME UP

Nicholson Announces Intention to Call Up Measure and Force Council to Submit It to Voters.

The last opportunity that the council will have to act on the mayor's suggestion and submit the municipal electric light proposition to the vote of the people November 3 will be at the next meeting, Tuesday night. The ordinance was presented by Mayor Moore and introduced by President Zimman two weeks ago and has since been in the hands of the street lighting committee. The vote on first and third readings stood with Zimman, Nicholson, and O'Brien in favor, and Schroeder, Evans, and Back against it.

"I propose to at least get an expression from the other councilmen," he said. "I am anxious to have the proposition go before the people. Should an electric light plant be established by the city it will employ in the deep underground sections of the rapid transit subway—for instance, those under Washington Heights and Central park. The walls will be of masonry, the arched roof of concrete or brick, according to the lay of the land."

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Schmoller & Mueller advertisement for pianos and organs. Features '1813 Farnam Street', 'The Big Piano House', 'Fall Showing of Exquisite New Designs', 'Special Artistic Pianos', 'In Rare Natural Wood Cases', 'In Exclusive New Models', 'The Finest Instruments Money Can Buy', 'Bargains in Used Pianos', 'Bargains in Used Organs', 'Schmoller & Mueller Pianos', 'Lincoln, Neb. Co. Bluffs, Ia.', '130 S. 11th St.', '202 Broadway', 'Tel. 743'.

AT PRIVATE SALE LOU ALLEN advertisement. Details the sale of a bay mare, a chestnut stallion, and a brown stallion. Includes details about their pedigrees, colors, and features.

The Bee Building advertisement. Describes a corner suite facing Farnam Street, suitable for a waiting room and two private offices. Includes details about the building's location, features, and contact information for R. C. Peters & Co., Rental Agents.

Is the joy of the household, for without it no happiness can be complete. How sweet the picture of mother and babe, angels smile at and commend the thoughts and aspirations of the mother bending over the cradle. The ordeal through which the expectant mother must pass, however, is so full of danger and suffering that she looks forward to the hour when she shall feel the exquisite thrill of motherhood with indescribable dread and fear. Every woman should know that the danger, pain and horror of child-birth can be entirely avoided by the use of Mother's Friend, a scientific liniment for external use only, which toughens and renders pliable all the parts, and assists nature in its sublime work. By its aid thousands of women have passed this great crisis in perfect safety and without pain. Sold at \$1.00 per bottle by druggists. Our book of priceless value to all women sent free. Address BRANFORD REGULATORS CO., 112 N. 10th St., Omaha, Neb.