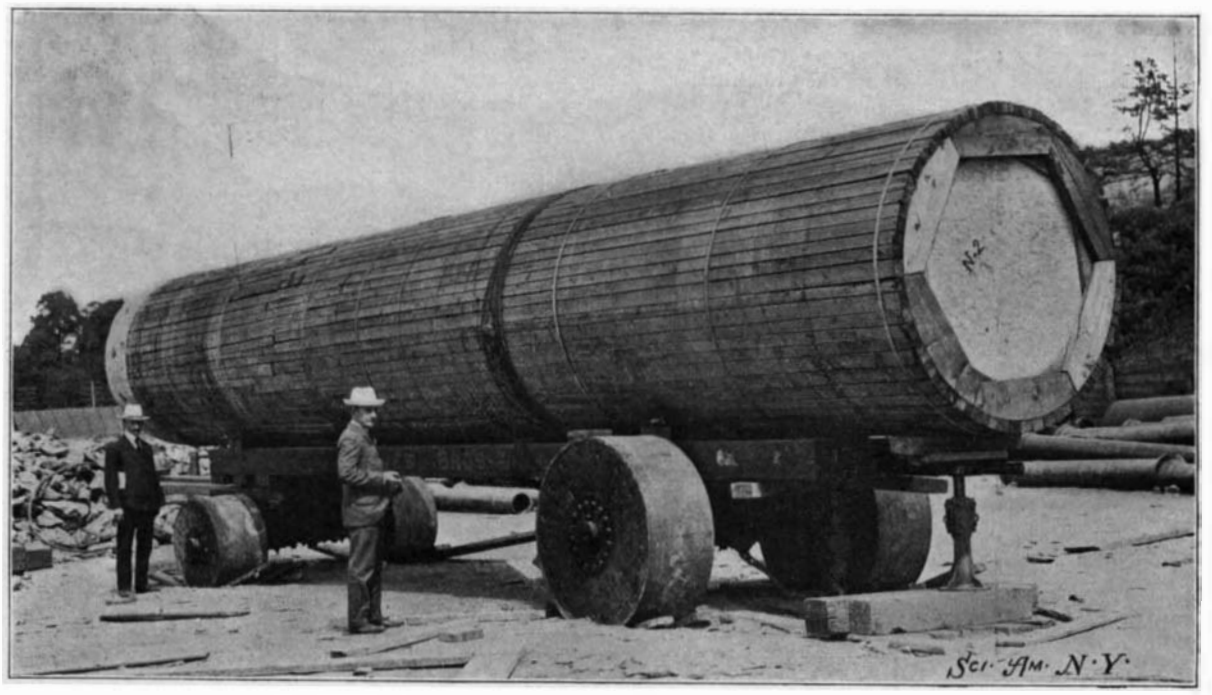
MOVING THE COLUMNS OF ST. JOHN THE DIVINE.

The Cathedral of St. John the Divine, Morningside Heights, New York city, is progressing slowly, largely owing to a lack of funds. Still, if unlimited money was at the control of the trustees, the enormous building could not be constructed in less than fifteen years. The eight great pillars for the choir have been completed and shipped to New York, and they are now being transported from the dock to the cathedral grounds. Each column is a memorial gift, and they cost about $25,000 each. It will be remembered that an enormous lathe was built to turn these columns. Unfortunately, they could not be true monoliths, as they broke in the lathe during the polishing operation, one of them fracturing within a few hours of completion. Therefore it became necessary to make the columns in two pieces. The larger section is 37 feet 6 inches in length by 6 feet in diameter, and weighs 90 tons. The smaller section is 17 feet long, 5 feet in diameter at the smaller end, and weighs from 40 to 45 tons. The material is granite, known as "Fox Island" granite. The columns were transported from Vinalhaven, Me., on the deck of a lighter, two columns being carried at one time; the smaller sections were placed in the hold. No very great difficulty was experienced in unloading the columns, a "timber hitch" and an inclined plane being used. In other words, a rope was roved around each of the larger sections of the columns, and this rope was then unwound by the aid of a powerful engine. As the rope left the columns, a rotary motion was imparted to them.

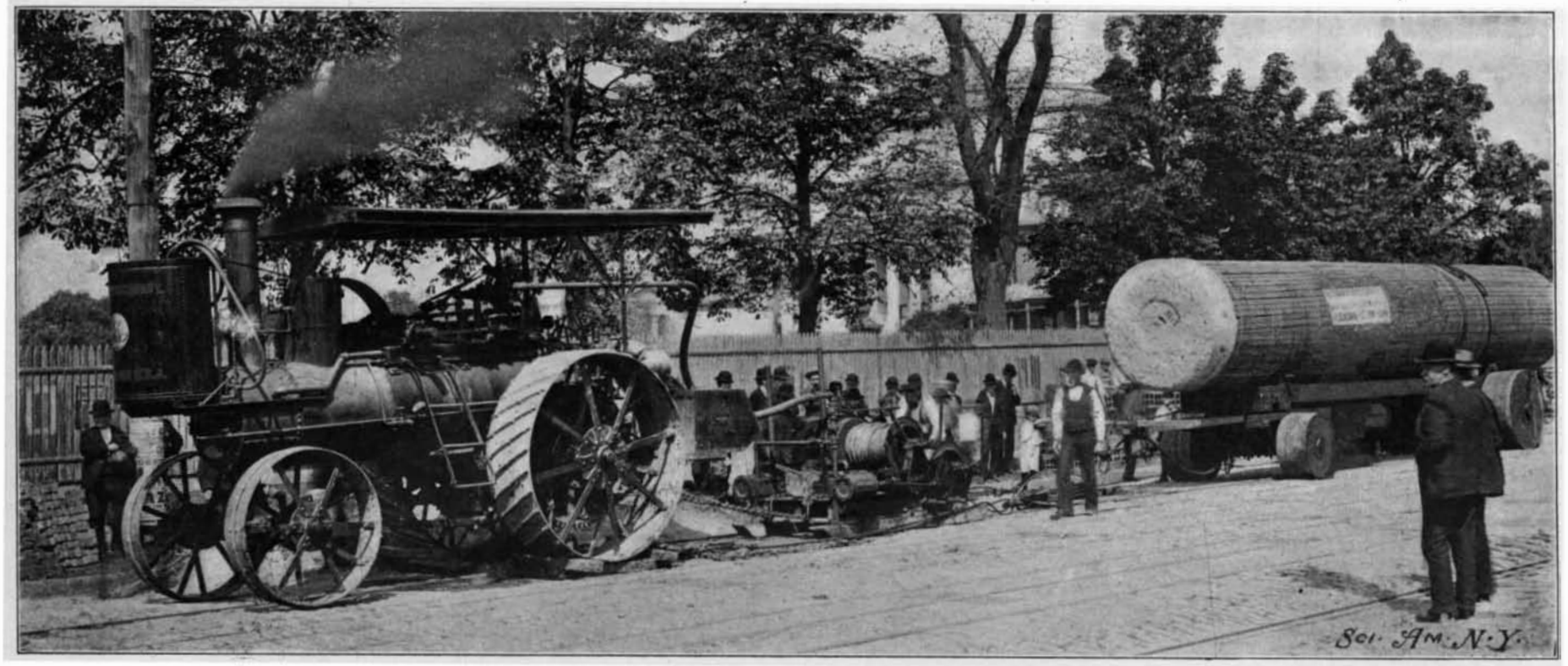
It then became necessary to carry the columns to the Cathedral grounds, which are situated almost two miles from the dock. A special truck was built for the purpose, which is one of the largest ever constructed. The frame of the truck is 30 feet long, and is composed of timbers 1 foot 2 inches by 1 foot and weighs 10 tons. The large wheels are 4 feet 3 inches in diameter; the small wheels are 2 feet 11 inches in diameter. The axles are 7 and 8 inches square and 8 feet 6 inches long, and are made out of cold-rolled steel. The wheels are built up of seven thicknesses of 3-inch white oak plank. There are four 5-inch tires on each wheel.

A 40-horsepower traction engine was used to transport the columns to the Cathedral grounds. The traction engine, however, did not do the actual moving. Some of the paving blocks were removed, and the wheels were allowed to rest in the cavities, taking the place of the usual "deadman" used by house movers. A powerful hoisting engine was connected with the shaft of the truck. This hoisting engine received its steam from the traction engine through a hose. After the column was moved a short distance, the traction engine and the hoisting engine were removed to the next anchorage. Progress was, of course, rather slow. It required nineteen days to carry the first column to the Cathedral. Strange to say, the contractors found that the steep hill which was encountered offered less difficulty than the level. It will be most interesting to watch the raising of the larger section and the superposition of the smaller piece. We are indebted to John Peirce, the general contractor for the columns, for courtesies in connection with the preparation of the present article.

Rear Wheel Embedding Itself in the Ground.



The Larger Section of the Column Jacked up Ready for the Start.



The Engine. The "Deadman." The Steam Winch. The column on its truck.

MOVING THE COLUMNS OF THE CATHEDRAL OF ST. JOHN THE DIVINE.—NINETEEN DAYS FROM WHARF TO CATHEDRAL.

Results of the "Suffren" Tests.

Very complete accounts have been published of the firing tests that were carried out by order of the French Navy Department against the turret of the battleship "Suffren," in the harbor of Brest, on August 18 last. A few additional particulars from an official source will, however, be read with interest. Two rounds were fired at the turret at a distance of 100 meters (328 feet), with the full service charges from a 12-inch gun, the heaviest caliber in use by the French Marine. Both projectiles were broken up against the turret, not only without damaging the armor-plates, but without causing any derangement of the turret mechanism. No serious shock was experienced, as was proved by the fact that the sheep placed within the turret were found to be absolutely uninjured and apparently unalarmed After the second round had been fired, the turret was worked electrically by the ordinary crew. All the movements for training in direction and height, as well as those operating the ammunition hoists, were found to be in absolutely good working order. The amount of current employed for working the turret and its accessories was exactly the same as was required before the experiments, a fact which showed that no derangement had taken place to cause increased friction. This is a very important result and appears to justify the decision of the French Admiralty in equipping all their modern ships with electric power instead of hydraulic. The Navy Department is also well satisfied with the results obtained, as proving the satisfactory form of construction, and excellence of material employed in the turrets, and it is considered that costly as the experiment was, the result obtained fully repaid the outlay. It is a matter of interest to note that the whole of the electrical installations of the "Suffren" turret were manufactured by Messrs. Sautter, Harlé & Cie., of Paris, and that their system is now officially adopted in the French Navy, as well as in the Russian Marine.—Engineer.

A contract has been closed for a new freight steamer for the Wolvin Syndicate, of Duluth, which will be the biggest boat on the lakes. The vessel will be built at the Lorain yard of the American Shipbuilding Company, and will be able to carry 10,000 tons of freight on 22 feet draft. She will be 560 feet long over all, 56 feet beam and 32 feet deep. There will be 33 hatches and it is expected that a full cargo of iron ore can be taken on in one hour and unloaded in four hours. The hull and the bulkheads will be so arranged that the unloaders can reach every part, and no shoveling will be needed. The engines will be quadruple expansion, with cylinders 18½, 23½, 42½ and 66 inches diameter, with 42 inches stroke. The boilers will be built to carry 225 pounds pressure.