

Electrical Features of the C.P.R. Shops.

The C.P.R.'s Angus shops at Montreal are designed and equipped for work which does not vary in character and is adapted for the tools installed. Most of the latter are used for services that vary so little that they can be most economically operated by the constant speed electric motors, which, in most cases, have been installed for them. The work in the machine shop has been divided into different general classes, such as wheel finishing, moving parts, like links, pistons, valves, etc., heavy turning, boring and planing. Brass finishing and other light work is done in the gallery and the erection of heavy parts is done in one of the side aisles. By this arrangement variable-speed-motors have been dispensed with and in a total of about 200 electric motors only 15 are of variable speed. The system adopted is three-phase, 600 volts without transformers. This gives 550 volts at the motors, and has the advantage of requiring about 10 per cent. less copper in the conductors. There are three 500 k.w., three-phase, 600 volt, and one 375 k.w., alternating generators each of them driven by a separate direct-connected 750 h.p. engine of new type Corliss valve gear, making 150 r.p.m. All motors, except those otherwise mentioned, are of from 5 to 50 h.p. of the induction type, three-phase, 550 volt machines. There is a standard three-phase switch-board with 4 generator distributing and exciter panels. Outside wiring is done with over-head construction, bare copper main feeders running from roof to roof. In the building is a mixed system of open porcelain cleats and slow-burning water-proof wire on the ceilings, with conduits and rubber-covered wires on the side walls. Panel boxes are supplied, however, for every 10 k.w. of lighting and for every 100 h.p. of motor wire. There are 110 volt enclosed arc lamps for shop illumination, supplemented by standard 16 c.p. incandescent 110 volt lamps. There are approximately 400 arc lights and 3,800 incandescent lights in the yards and shops. In the passenger car shops the lights are spaced equi-distantly, and low tension arc lamps are installed on account of their economy and better results for general illumination. In the yards there are 50 enclosed series arc lamps of high potential. Yard transportation is provided by the 10-ton 77 ft. span-girder crane in the midway, and the 10-ton, 57 span-girder crane at right angles to it, which distribute materials back and forth between the iron foundry and machine shop, and are each operated by three direct-current 220 volt motors of 25 h.p. for the hoist and 8 h.p. for traversing. There is also a yard transfer table operated by a 20 h.p., 550 volt motor. The shops will be equipped with a complete telephone system. The C.P.R.'s electrical department is installing all of the plant is wired throughout with conduit containing wire running around the oak walls near the ceiling behind oak mouldings, which can be removed and a light connected to it at any point without disturbing the line. In the shops the small machine tools are arranged in groups, which, in most instances, are operated by a motor seated on an overhead platform between the roof trusses. —Canadian Electrical News.

Grain Elevator Notes.

The Ogilvie Flour Mills Co. has let a contract for the erection of a 500,000 bush. elevator at Fort William, Ont., to be ready for use by Sept.

The Montreal Grain Elevating Co. has been fined \$50 for neglecting to remove from the river at Montreal its floating elevator St. Lawrence, which was sunk May 6, 1903.

Application has been made to the Canadian Northern Ry. for sites for the erection of five elevators at Edmonton, Alta. They will have a capacity of from 40,000 to 50,000 bush. each. The C.N.R. will lay sidings to the elevator sites during the summer.

The Fort William, Ont., town council has decided to grant the Canadian Elevator Co. exemption from general taxation for 25 years, for its proposed 1,500,000 bush. elevator. It was stated to the council that the elevator would be erected during the summer.

The Barnett & Record Co., of Minneapolis, has been licensed under the Ontario acts relating to extra-provincial companies, to do a general contracting and engineering business within Ontario, and to employ therein a capital of \$125,000. W. H. Nelson, of Port Arthur, Ont., is attorney for the Company.

The Northwest Grain Dealers' Association was incorporated at the recent session of the Manitoba Legislature with a capital of \$200,000 and power to increase it to \$1,000,000, to carry on a general grain-buying and storage business, and in connection therewith to construct elevators. The provisional directors are: S. P. Clark, J. Love, W. H. McWilliams, A. Reid and W. W. McMillan, of Winnipeg, where the head office is to be located.

The winding-up of the affairs of the Prescott Elevator Co. (Ltd.) has been completed, and a final dividend was paid to the bondholders Feb. 18. The total amount realized by the sale of the elevator, tugs, barges, etc., and from other sources was \$122,039.32, out of which there was paid \$8,462.53 the expenses of the winding-up, \$12,658.23 for preferred and privileged claims, and \$100,918.51 in satisfaction of the Company's bonds which amounted to \$150,000. The bondholders lose \$49,081.49 of their investment, and the unsecured creditors do not realize anything.

The Harbor Commissioners' elevator at Montreal, which, it is expected, will be ready to receive grain May 1, is situated on Commissioner st., opposite the Custom house. The foundations are of special interest, as the total height of steel concrete from pile heads to bin bottom is 46 ft., 23 ft. being below the grade upon which two car tracks pass through the house. This lower concrete story is thoroughly braced by heavy concrete arches running entirely across the building, with buttresses extending out on either side to take the wind pressure. The space between the columns is filled by a concrete curtain wall, with a double window three sashes high in each panel, which makes a very light lower working-floor. The entire outer surface of the concrete is blocked off and bush-hammered to resemble massive masonry. Sixteen thousand barrels of cement were used in this work and 400 tons of steel bars were imbedded to give additional strength to the concrete. The bins are cylindrical in shape and built entirely of steel, being 20 ft. 3 in. in diameter and 85 ft. high. The resulting spaces between the cylindrical bins are likewise used for storage, making the total number of bins 78 and the total storage capacity 1,000,000 bush. In the construction of the bin work more than 1,000 tons of steel plates were required; 600 tons of steel structural work were used in the cupola erected above the bins, which is five stories high, with floors and roof of steel concrete. These floors, while only 4 in. thick, were tested with a load of 300 lbs. per square foot, the result showing a deflection of but 1-64 in. in a span of 7 ft. The elevator is equipped with one portable marine tower, 23 ft. wide, 33 ft. long and 150 ft. high. The tower is mounted on 20 pairs of car wheels running on four steel rails along the dock and is securely attached to the main building by means of rolling anchors. At one end of the building a stair and passenger elevator tower is located. This, like the marine tower and the sides of the cupola, is covered

with galvanized corrugated iron. The principal dimensions of the building are: length, 189 ft. 3 in.; width, 84 ft. 3 in.; and height, from base of rail, 200 ft. 2 in. The general arrangement and equipment of machinery provides for receiving grain either from boats or cars and to ship by car or ocean-going vessels. The handling capacity will be as follows: Receiving from boats 18,000 bush. per hour; receiving from cars, 20 cars per hour; shipping to boats, 80,000 bush. per hour. A second portable marine tower has been provided for, which will double the receiving capacity from boats. The steel garners and scale hoppers have a capacity respectively of 2,000 and 1,600 bush. The machinery is electrically driven, 900 h.p. in motors divided into 14 units being required. All the electric wiring has been installed in steel conduits. In the marine tower, apart from the regular ship shovels, is a second independent set of small, or clean-up shovels. Both sets are operated by compressed air, and with this special equipment it will be possible to do the work with 12 men in a boat which requires from 30 to 35 men with the old system of shovels. The cleaning machines were especially designed and are built entirely of steel. A complete dust collecting system has been provided, with sweeps located on the various floors throughout the elevator, and all the dust will be discharged into a dust house outside of the building. The elevator is equipped with an electric light plant and an independent telephone system, and there are lavatories and special lockers for the employees. —American Elevator and Grain Trade.

SHIPPING MATTERS.

Dominion Marine Association.

The following additions have been made to the membership of the Dominion Marine Association since the list published in our issue of Dec., 1903:

Ottawa Transportation Co. (Ltd.), with a steam tonnage of 178 tons, and 9,464 tons for barges, or sailing vessels; total, 9,642 tons.

J. B. Fairgrieve, Hamilton, Ont.; steam tonnage, 770 tons.

Northern Navigation Co. of Ontario (Ltd.), steam tonnage, 4,880 tons.

Niagara, St. Catharines and Toronto Navigation Co., steam tonnage, 620 tons.

Rat Portage Lumber Co. (Ltd.), steam tonnage, 500-25 tons.

St. Lawrence River Steamboat Co. (Ltd.), steam tonnage, 460 tons.

A committee of the Association was appointed at the conference at Ottawa in May, 1903, to meet the Lake Carriers' Association, and discuss the question of the rules of the road on the Great Lakes and connecting waters, with a view of securing uniformity between the Canadian and the U.S. rules. The committee, consisting of A. W. Wright, Capt. Crangle, Toronto; Capt. T. Donnelley, and F. King, M.A., Secretary, Dominion Marine Association, Kingston, went to Detroit Feb. 2, and met W. Livingstone, of Detroit, President, and H. D. Goulder, of Cleveland, Ohio, General Counsel of the Lake Carriers' Association. The whole matter was fully discussed and the various points of difference in the rules on both sides of the line considered. There was a unanimity of agreement that the rules must be brought into harmony, and there was complete agreement also that, with due regard to the easiest method of assimilation, whatever necessity might arise in the way of give and take would be obeyed in order to bring the rules into complete harmony. The feeling was expressed that the easiest way might be to adopt the U.S. statute known as the White law and put it in force in Canada. In the meantime, however, the Department at Ottawa having formulated rules intended to take effect in Canadian waters, and supposed to be