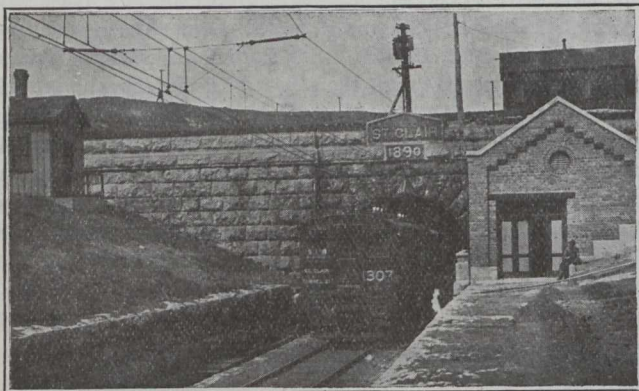


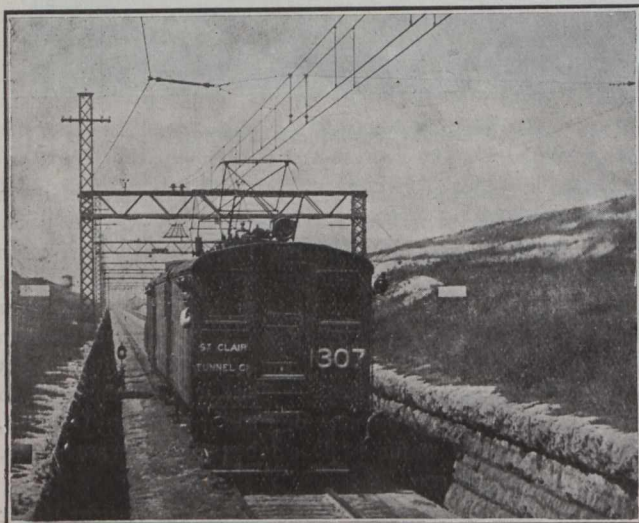
in the world, was 200,000 pounds; the weight of the two electrical engines in use is 270,000 pounds each. The electrical engines have a normal motor capacity of 1,500 horsepower and a normal draw-bar pull of 50,000 pounds. A maximum speed of 35 miles per hour, and a minimum speed of 10 miles an hour up a two per cent. grade with a 1,000-ton train.

The tunnel has been a paying proposition, as the train service now operated through the St. Clair tunnel is very



Entrance to Eastern Portal.

heavy. It is now lighted throughout, and presents the appearance of a well-lighted street instead of a tunnel sunk underneath a river, where the annual tonnage of vessels passing through is about twice as great as that passing through the Suez Canal.



Approach Grade and Engine.

In comparing the tunnel before and after electrification, one soon arrives at the conclusion that the correct method of operating a tunnel of any length is by electricity, as the evil-smelling and damp tunnel of before cannot be compared with the well-lighted, dry, and novel appearing passageway which the St. Clair tunnel now presents.

It is expected that New York's state barge canal will be ready as a whole in 1915. Locks are being built for 3,000-ton barges. An important percentage of the state's population lives within twenty miles of the canal on either side, and the motor truck will give farmers and manufacturers easy access.

THE INTERNATIONAL WATERWAYS COMMISSION.

In regard to the work now being carried on by the International Water Commission, Mr. L. J. Burpea recently stated that three important questions were being investigated by the commission.

The first of these relates to the levels of the Lake of the Woods and its tributary waters. This to some may seem a comparatively small matter, but in reality it involves very large interests, as far apart as Winnipeg and Duluth. The investigation is the outcome of complaints as to damage to lands along these waterways by flooding. The farming communities would like the level of the lake lowered. On the other hand, navigation interests complain that the water in the lake and its connecting rivers is already too low for their purposes. There are the fishing and lumbering interests to be considered, and the very important interests of power development. To reach a decision which will be fair to all these interests, on both sides of the boundary, the commission cannot afford to act hastily, or without having the fullest possible information on the subject. It now has survey parties representing both countries, obtaining technical data upon which it may base its conclusions. It has already held hearings at International Falls and Warroad on the American, and at Kenora on the Canadian side, at which everyone interested in the question, from any point of view, was given full opportunity to present his views. With this evidence and the engineering data, the commission will be in a position to recommend to the Canadian and American governments a solution of what has become a very intricate and troublesome problem.

The second question that the commission is investigating, and in which connection it recently held a meeting in Detroit, is the building of a dam in the Detroit River, in connection with the Livingstone Channel. This dam is intended to be built partly in Canadian waters, and is designed to protect the interests of navigation. At the Detroit hearing, however, a considerable difference of opinion developed among engineers and shipmasters as to the advantages of the proposed work; the town of Amherstburg complained that it would injure their waterfront, and counsel on behalf of the Dominion Government argued that one of the principal objects of the dam (to raise the level of the water) would be nullified by the unauthorized diversion of water at Chicago for the drainage canal, that a simpler and cheaper remedy would be to prevent this diversion, and that it would be preferable to deal with the dam, not as an isolated work, but a part and parcel of a comprehensive scheme of development of all these international waters for the benefit of the people of both countries. On the other hand, the American interests urged the necessity of the dam to safeguard the enormous traffic up and down the Detroit River. Here, again, the commission has a difficult and intricate problem to solve, and one that must be approached with the utmost care and absolute impartiality. Incidentally the evidence brought out threw light upon the amazing development of the shipping industry on the Great Lakes, the tonnage on the Detroit River in 1912 reaching the tremendous total of 95,000,000 tons, or over four times the tonnage passing through the Suez Canal; and the value of these shipments aggregated \$800,000,000.

The third question the commission is investigating on behalf of the two governments is the exceedingly important one of the pollution of boundary waters. If the commission never succeeded in accomplishing anything more than helping to safeguard Canadians and Americans living along the international boundary, it would more than justify its ex-