

A 12-inch tile pipe was laid along, and concreted to, the wall of the box flume. This pipe was offset vertically over the bellmouth inlet and was connected to the old feed pipe to the pond. At low water an eighth-inch iron flare diverted the flow of the creek to this tile pipe.

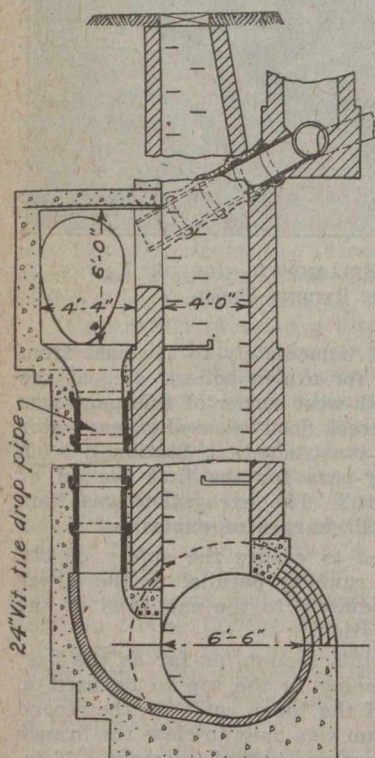
The entire "open cut" and the box flume were carefully backfilled with part of the material removed from the tunnel. The remainder of the material from the tunnel was dumped and spread on private property on Russell Hill Road.

The sewer extension from the bellmouth creek inlet to the corner of Clarendon Ave., a distance of about 2,266 ft., was constructed in tunnel. Five shafts were sunk in addition to the manholes. Work continued at a rapid pace until the ground began to show moisture. The roof and sidewalls were timbered as necessary, and with pumping, this was found to be satisfactory until nearly 1,800 feet had been completed. With 500 lineal feet to finish, the flow of ground water became too great, and the contractor installed an air-compressing plant consisting of a "N.E. 1" steam-driven

Ingersoll-Rand compressor, feeding from 15 to 30 lbs. of air into an 8 ft. x 3 ft. steel receiver. Work on this section is now rapidly nearing completion.

Manhole No. 8, constructed at the corner of Russell Hill Road and Clarendon Ave., possesses some interesting features. The base is 62 ft. 6 ins. below ground. The manhole chamber is rectangular, 4 ft. x 2 ft. 6 ins. Steel platforms were provided by the city and placed by the contractor at a distance apart of about 10 ft., access being gained by the usual step irons (1 1/4 ins. x 1/2 in. galvanized wrought iron flats).

A short section of standard egg-shaped sewer, 5 ft. 9 ins. by 3 ft. 10 ins., is incorporated in this manhole at a depth of 20 ft. below ground, to provide for future extension to St. Clair Ave. Into this egg-section, a 15-ins. tile drains the



ELEVATION OF DROP
MANHOLE No. 8

existing reconstructed manhole of the old Clarendon Ave. system. From this egg connection, a 24-in. vitrified tile drop pipe, concreted to side of the manhole, carries sewage to the extension 60 ft. below ground.

The extension proper, including 7 ft. on the Wye branch (bellmouth), was constructed by the contractor. The box flume for the creek was built by the sewer section of the city's Department of Works.

The Godson Contracting Co., Ltd., Toronto, are the contractors, with H. F. Barker as engineer. *The Canadian Engineer* is indebted to Mr. Barker for much of the above information.

The work is under the direction of R. C. Harris, works commissioner, and of George Powell, first principal deputy city engineer. W. R. Worthington is engineer of sewers; W. G. Cameron, engineer of maintenance and construction.

The annual meeting of the Commission of Conservation of Canada will be held February 17th to 19th at Ottawa.

The annual convention of the American Concrete Pipe Association will be held February 14th and 15th at Hotel La Salle, Chicago.

IRON AND STEEL PROBLEMS

War Has Greatly Altered Position of Industry in Canada—
Relation to Labor and the Tariff

By J. FRATER TAYLOR

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THE present and prospective standing of the iron and steel industry in Canada is something that is of considerable moment to every Canadian. There are certain industries properly classed as basic industries. Such industries furnish the foundational raw materials for other lines of business. This is particularly the case with iron and steel which enters into most things. A brief consideration will demonstrate that this is so. Steel rails, for instance, are required for railways; structural steel, that is beams, angles, channels, for structures such as ships, buildings and bridges; plates for locomotives and boilers; wire for wire products, including nails, and so on. In order to make Canada self-contained from the double point of view of reducing imports and of providing employment in Canada, it is very essential that above all things the basic industries should be protected and developed. Before the war the steel industry, which previously had been fostered to some extent by bounties, was not in a very satisfactory condition. Iron and steel works existed, the foundations for the most part were well laid, but the outlook from a "sales" point of view was not over satisfactory.

Obviously in Canada the demand for iron and steel is not as in the United States. A steel plant in Canada must be elastic to the extent that it can turn out a much more diversified product. This might imply that a steel plant, for instance, would have to be equipped with numerous rolling mills. This is so but mill combinations have been and will probably be devised to cope with this particular feature, it being obviously impracticable and impossible commercially to meet conditions otherwise. A somewhat similar situation exists in the American northwest which it is expected the Minnesota steel plant of the United States Steel Corporation is designed to reach; at all events if our information is correct that particular plant is equipped with what is called a "combination mill" with the express object of rolling as great a variety of product as possible on that particular mill. In Pittsburg, for instance, there is sufficient demand for rails to warrant their being rolled on one mill, i.e., on a mill set apart for rails only, and there would be sufficient demand for heavy structural steel to warrant its being rolled on another mill, but in Canada for the sake of economy and to meet conditions, as many varieties as possible must be produced from one rolling mill.

We have seen that the steel industry prior to the war was developed up to a point. No rolling mills for the manufacture of heavy structural steel existed, yet prior to the war such steel was imported in substantial quantities. During the war period steel plants were developed along lines which made for a heavy output of war materials, particularly of shell steel for munition purposes. To a considerable extent the increased steel making capacity was and is in the right direction but steel must be produced now for other purposes than shells, and it seems to the writer that one of the most important things confronting those who are studying the carrying on of Canada industrially after the war, must be the development of the basic steel industry with the object of insuring that all wheels are kept turning and that imports are lessened. And further—development should be carried deeper down than in the mere installation of such as rolling mills.

Must Use Low Grade Ore

Canada, especially in its central areas, has not so far located much high grade iron ore but there is a vast tonnage of ores of lower grade, which in order to make them marketable or usable must be treated by roasting or some other process. The cost of roasted or treated ore until the treat-