Section 3 completes this sewer and comprises a culvert, as before, with an overflow chamber at the existing Garrison Creek sewer. This chamber is shown in Fig. 9. The outlet of the existing sewer is throttled by adjustable stop-logs, so as to prevent any excess of storm water passing down. The sanitary sewage is prevented by the weir from running into the storm overflow sewer. Provision is also made in this chamber for a future sewer, which will parallel the existing one from the north.

Contracts for the whole of this work have been let and work is in progress all along the line. Tunnelling is general throughout, although it is probable that the north end of Section 3 will be executed in open-cut on account of made ground which is revealed by the borings.

Alternative tenders were called for brickwork arch, concrete arch of same dimensions as brick, and reinforced concrete arch. In every case the concrete arch (without reinforcement) was adopted as lowest in cost.

The borings throughout gave indications of good hard clay. In Section 2 water was revealed in small quantities and shale is reached.

The total contract cost of the sewer, which is 6,909 feet long, is $318,000.

Provision of the sum of $125,000 has just been made for the paralleling of the existing Garrison Creek sewer from the north end of the work described here to Bloor Street, completing the necessary relief and connecting up the whole system of storm overflow sewers for this particular drainage area.

CANADA'S MINERALS.

The production of the more important metals and minerals is shown in the following tabulated statement in which the figures are given for the year.

	1912 Quantity.	1912 Value.	Increase or decrease in value.
Copper ....Lbs.	77,775,600	$12,709,311	+$ 5,822,313
Gold ....Ozs.	607,609	12,559,443	+ 2,778,366
Pig iron ....*Tons	1,014,587	14,550,999	+ 2,243,874
Lead ....Lbs.	35,763,476	1,597,554	+ 769,837
Nickel ....Lbs.	44,841,542	13,452,463	+ 3,222,840
Silver ....Ozs.	31,931,710	19,425,656	+ 2,070,384
Other metallic products	....	982,676	+ 571,344
Total.............		$75,578,102	+$17,478,958
Less pig iron credited to imported ores	987,232	14,100,113	+ 2,406,392
Total metallic		$61,177,989	+$15,072,566
Asbestos and asbestic ....Tons	131,260	2,979,384	+ 36,276
Coal ....Tons	14,699,953	36,349,299	+ 9,881,653
Gypsum ....Tons	576,498	1,320,883	+ 327,489
Natural gas	....	2,311,126	+ 393,448
Petroleum ....Brls.	243,336	345,050	— 12,023
Salt ....Tons	95,053	459,582	+ 16,578
Cement ....Brls.	7,120,787	9,083,216	+ 1,438,679
Clay products	....	9,343,321	+ 983,388
Lime ....Bush.	7,992,234	1,717,771	+ 200,172
Stone	....	4,675,851	+ 347,094
Miscellaneous non-metallic	....	3,364,017	+ 1,221,175
Total non-metallic..		$71,949,500	+$14,833,929
Grand total		$133,127,489	+$29,906,495

*Short tons throughout.

CONCRETE IN RAILROAD WORK.

The railways of Canada, in their yearly expansion in road buildings, have had, among other things, to add to each year's expenditures for concrete work. In a paper before the National Association of Cement Users, at Pittsburg, Mr. M. S. Long deals with the use of cement by the railways as follows:—

"Concrete in Railroad Work," is a subject so broad that it is difficult to tell where to begin. Concrete, to this generation, seems a new material, but history tells us that it is a very old one, having been used in the Roman baths and in concrete bridges still in use in Italy, which were built 1,500 years ago.

For many years the secret for making concrete was lost, but concrete is now used probably more than any other building material, and is considered, by some, as being infallible and a substitute for every other building material; but it must be given proper treatment or it will be sure to cause trouble. The railroads, which are, to my mind, the master builders, are using millions of barrels of cement every year, and each succeeding year sees them using concrete for a greater number of structures.

Concrete, properly used, is perhaps the most permanent building material we have in use to-day, but because it is such, and because the railroads are really in their infancy, there are some structures they hesitate to make too permanent. As stated before, we have examples of concrete structures 1,500 years old. Compared to that, the first railroad station in Chicago was built near the junction of the present Canal and Kinzie Streets, in the fall of 1848. That was only 64 years ago, and perhaps that building would be good enough for use to-day, had progress not caused it to be replaced many times by larger structures, better adapted to the handling of the increased business—even in 12 years the depth of our engine houses has increased from 75 feet to 95 feet, and now we are making plans for a house 115 feet deep. And so, in building our railroad structures of concrete, though we feel that they should last even longer than the 64 years referred to, who can say that they can be operated economically even 25 years hence. Therefore, were it not for the demands of progress, I believe that the majority of all buildings would be built of concrete; but the tearing down of concrete is difficult—therefore, expensive and wasteful, because the salvage cannot be re-used to advantage.

For foundation work, concrete plain or reinforced, is almost always used, because for that character of work it is cheaper, stronger, more flexible and can be built in a shorter time than with any other material.

We have used it for coaling stations, where 800 tons of coal is stored over main tracks, and for this character of building it is very satisfactory.

We have used it for water tanks, where a large storage is desired and high pressures are needed. We have built three tanks of 100,000 gallons capacity, and with one of them we had considerable trouble. This tank is 24 feet in diameter, 80 feet high, and not only furnishes water for the engines but is our supply for fire protection. From the base of rail to the water line in the storage compartment is 50 feet. This tank was finished late in December, and was filled to within 4 feet of the top a few days after it was completed, and on the day it was filled the temperature fell to zero. It so happened that orders were not issued for engines to take water at this tank until about two days after it was filled. We found that, in the meantime, a layer of ice had formed—it being about 18 inches thick around the sides but in the centre it was not more than 1 inch thick. The water was