A considerable reduction is obtainable in the labor because anglesmiths, platers, and rivetters are practically dispensed with.

Taking the hull complete and comparing with steel and wood construction, even if the steel is obtainable at £11 15s. per ton, concrete vessels of the same deadweight should, if standardized, be constructed at 20 per cent. less cost than a steel vessel, and 10 per cent. less cost than a wooden vessel.

The machinery for propulsion will, of course, cost more because of the extra displacement.

With regard to the time for construction after, say, three building berths have been prepared: with ample labor available, and after the first vessel has been cast, the one set of shuttering, so long as it lasts, should enable a barge of 130 tons deadweight to be completed and launched every ten weeks, a 300-ton deadweight coaster every sixteen weeks, and a 1,000-ton deadweight coaster every twenty weeks.

Insurance

Insurance may be a little expensive until these vessels prove their reliability, and until the classification societies are able to give them a full class.

Reinforced concrete ships will no doubt in time prove their reliability and safety, their capability of making ocean voyages, and of withstanding shocks due to seagoing conditions, and show that damage by collision will not be more serious than in steel vessels.

If so, they have a future for at least some years to come, and for river and harbor work for a much longer period in spite of the great disadvantage of the extra weight that will always be with them.

Generally, the immediate future for vessels in reinforced concrete seems substantial and most hopeful, and as a result of the many experiments and constructions now being made throughout the world, particularly in the British Isles, great improvements will be made as experience is gained; the excessive weight will be reduced, and the utility and earning power of the vessels increased.

The limitations imposed on this paper prevent a description of the features of special types of reinforced concrete vessels that are urgently wanted in this country, such as seagoing and river tugs, swim and river barges, channel and coastwise vessels, etc., and the problems that have to be dealt with in their design and construction.

Perhaps an opportunity will be given to discuss these vessels and the various specialized problems which they present in a later paper.

York Township Water Supply

Description of the Work Involved and Particulars of Contracts Let—Brief Outline of Scheme to Supply Municipality With Water

ACTIVE operations for the supply of water in districts situated to the north and west of the city limits of Toronto have been in progress since the month of May, 1917, and water was officially turned on over a limited area by Thomas Griffith, Reeve of York township, on July 13th, 1918. York township, situated north and west of the city of Toronto, occupies an area of about 54,725 acres, and has an estimated population of about 34,000. The portions contiguous to the north and west city limits, covering an area of approximately 5,500 acres, and constituting the water supply sections, have a population of about 25,000, and this is rapidly increasing. The total taxable assessment of the township in 1917 amounted to $24,204,934, of which about $11,000,000 was on property included in the water supply areas, extending from the vicinity of Avenue Road on the west to the River Humber, and from Weston to the lake front. York township has the greatest assessable value of any township in Ontario, and a very small debt for works of public utility.

As there was no municipal water supply available in the urban parts of the township, excepting for a short distance on a few streets adjoining the city of Toronto, house owners had to sink wells. The large number of such wells, more or less shallow in depth, and the location of cesspools in a populous district, caused the sanitary conditions to be unsatisfactory and a menace to the inhabitants of the township. Furthermore, there is an intimate intercommunication between the township and the city by virtue of the fact that a large number of work-people who dwell in the township are employed in the city, and, moreover, many are engaged in munition works, or in different vocations allied to munitions.

As there was a danger of contamination due to the proximity of cesspools to the water wells, and, owing to the serious handicap and expense of having to dig wells which often proved to be inadequate and had to be abandoned, the inhabitants during the last three or four years became most insistent that a comprehensive scheme of waterworks should be installed by the township. The council gave this matter every consideration, and endeavored to find a satisfactory and economic solution. They succeeded, by negotiations with the Toronto city corporation, in obtaining the necessary supply from the city system. Terms were agreed upon, and special legislative powers from the Provincial Parliament were applied for and obtained in 1916 and 1917.

After receiving the necessary authority, plans and specifications were prepared by the engineer, Mr. Frank Barber, 40 Jarvis Street, Toronto, for the more essential trunk mains, which were approved by the Provincial Board of Health, the Ontario Railway and Municipal Board, and the Commissioner of Works, Toronto. The city authorities have the right to inspect the works as they progress, as it is anticipated that some day the limits of the city of Toronto may be extended to include parts of these areas.

Contracts were let, and the following mains were laid in 1917 and 1918:—

	Diameter, Inches.	Feet.
Eglinton Avenue (part)	24	13,800
Oakwood Avenue	12	6,510
Vaughan Road	12	4,524
Wychwood Avenue	12	2,115
Weston Road	12	8,735
St. Clair Avenue	12	4,400
Jane Street and Baby Point	12	2,345
Windermere Avenue	12	2,066
Rogers Road	12	1,114
St. John's Road	12	2,750
Lambton Avenue	12	3,815
Dufferin Street	12	4,155
		56,329

(About 10½ miles)