above the Lachine Rapids, to the water wheels at Gregory's, are-twenty feet width on bottom, forty feet wide at the water surface, and eight feet depth of water. The wetted perimeter of the canal is to be faced with stone and gravel, and the profile of the bottom to have an inclination of about 21 inches per mile. The capacity ensured by the above specifications is greater than would be required for passing the requisite quantity required by the wheels and pumps, but a considerable margin is provided to guard against a diminished flow in winter, when the ice will occupy a large per centage of the sectional area; and also to cover all losses from evaporation, leakage and filtration. The cost of an open channel does not increase proportionally with the sectional area; and, as great additional capacity is to be attained at slight increase of first cost, it is better to provide against any necessity for early enlargement,-as well as against the filling up of the channel by gradual depositions. Lastly, the volume of water thus secured is too great to be influenced by any ordinary impurities to which it will be exposed.

As some objections have been urged to an open conduit, I will mention them here.

The distinguishing feature of the present plan, as compared with Aqueducts generally, is, that it is proposed to conduct not only the quantity required for the consumption, but the very much larger volume which is needed to supply two hundred horse power under the given head. Now, the great advantage possessed by an open canal over every enclosed form of conduit, is, that it will deliver the greatest quantity with the least loss of head—a consideration of the first importance when a water power is in question. If iron mains or brick culverts of reasonable number or dimensions be substituted, nearly the whole available head and fall would be required to overcome the friction, and the water would