## CANADIAN CONTRACT RECORD



## NOTES ON BRIDGE CONSTRUCTION.

Attention is directed by the Engineering Times to the enormous labor and expense connected with the widening of the Blackfriars Bridge now in course of operation in old London. When this work is completed the width between the parapets will be 105 feet, the roadway will be 73 feet and the footpaths will each be 16 feet wide, making the structure the widest road bridge over the Thames. Electricity is the motive power of the cranes used for hauling the excavated material, and note is made of the increasing popularity of this power in such work. Steam until quite recently was considered both more expeditious and more economical. The widening of a bridge of this magnitude, continues the writer, presents many difficulties to the engineer. One of the greatest difficulties arises in the construction of the foundations, especially when a portion of the existing work has to be cut away to form a bond for the new. This has frequently to be done in the case of widening river bridges. In the case of a tidal river like the Thames, where there is constantly a heavy flow of water, the difficulty of obtaining a water-tight connection between the dam surrounding the site of the new pier and the existing work, becomes considerable. Sometimes a dam consisting of stout sheet piling is found advantageous, but more frequently a steel caisson, large enough to contain the new pier, and sunk on its site, is found to give better results. In the latter case, of course, the new work cannot be attached to the old until the pier is above low water level, when an arch can be turned, connecting up the new with the old. The engineers who have built bridges over the Thames have, in the majority of cases, been particularly fortunate with their foundations, and this may be explained by the fact of these being, within a few feet of the bed of the river, an extremely thick layer of blue clay of great density and compactness. This forms a reliable foundation upon which any structure may be permitted to rest with certainty of its safety and non-settlement. The sinking of the caissons or cylinders, however, for