

**MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.**

bricks, it was in the construction of the walk.

The brick that will wear out, disintegrate under the heels of pedestrians or by the elements of frost and water, should never be put in the sidewalk. The one bad brick in the midst of the hundred good ones condemns the whole lot.

In many places, towns and villages are built on hilly or rolling ground. The grading of streets leaves many of the town lots from one foot to five or more feet above the grade. The surface water from these lots falls down and is scattered over the sidewalks and is a source of much annoyance, unless precautions are taken to carry this water away or under the sidewalk.

We will suppose your street is brought to proper grade, and curbed. Measure back from the curbing the width of the walk adding six inches, remove the earth, soil or clay eight inches below the top of curb line and make the bottom leaver and solid.

The excavation should now be filled in with five inches of fine crushed rock, coarse gravel, cinders or coal ashes, or any other good hard material that will answer the purpose of drainage. This should be leveled and made solid; on top of this put two inches of sand, spread evenly about the concrete and give it one and a half inches to fall to the curbstone, bringing it to the grade with a trowel. The bricks which should be good and hard, well burned, are now laid on the sand foundation, but down to a line, or straight-edge frequently applied. As fast as the bricks are put in place, scatter clean sharp sand over them, and with an old broom sweep it well into the spaces between bricks, which would be as small as possible. Leave a good coat of sand on the walk until the bricks are firmly bedded, then sweep clean. A row of bricks on end or on edge on the outside of the walk, next to the fence or wall acts as a protection to the walk and assists in keeping surface water from flowing over it.—*The Clayworker.*

**A ROAD EXHIBIT AT CHICAGO.**

A memorial has been presented to Congress urging that a comprehensive exhibit of roads and their construction and maintenance be made at the World's Fair at Chicago. The author of the memorial, Mr. Albert A. Pope, directs attention to the fact that the classification adopted by the commissioners does not provide for such an exhibit. He refers to the language of the act of Congress providing for the celebration at Chicago, which declares among other things that it is fit that there should be an exhibit of the progress of civilization in the New World, and he insists that the provisions of the act will not be complied with in letter or in spirit if there be no proper exhibit of the civilization of the country as illustrated by its roads, their construction and maintenance.

The substance of the proposition contained in the memorial is that a building be erected to contain an exhibit of examples of road making and maintenance; that publicity be given to the subject throughout the United States and Europe so as to attract the attention of road engi-

neers and builders of road machinery everywhere, and that a large amount of literature on the subject of road making should be distributed gratuitously to those who may visit the department. It is suggested that exhibits of sections of the best road construction throughout the world should be shown; particularly that there should be exhibited sections illustrating the best and cheapest methods of constructing the common country roads in the various states; that competent road engineers and geologists should be employed in arranging this exhibit, and that expert chemists who have made a study of constructing artificial stone and cement should be engaged in the work, the great object in view being the education of the people how to use to the best advantage, under the existing circumstances and environments, whatever money may be spent in the construction of good highways. This exhibit, the memorial says, will not be for this nation alone, but for all the nations of the earth whose representatives may be gathered at the World's Fair.

**THOROLD CEMENT**

WELLAND CANAL ENLARGEMENT,  
RESIDENT ENGINEER'S OFFICE,  
WELLAND, April 17th, 1884.

JOHN BATTLE, Esq., Thorold:

Dear Sir,—Yours of yesterday, relative to Thorold Hydraulic Cement, is received. In reply, I beg to say that my tests of the Thorold Hydraulic Cement have extended over a period of twenty-eight years, and have been on a large scale, as exemplified in the locks, bridges, culverts and other masonry on the Welland Canal and Welland Railway, and that the record, which has been invariably satisfactory, is to be found in examination of the structures. The necessary tearing down of masonry and concrete, during the Welland Canal Enlargement, has afforded abundant evidence of the reliability of the Thorold Hydraulic Cement, both in masonry and concrete, and above and under water. I desire no better cement for the class of work referred to.

I am, dear Sir, yours truly,  
W. G. THOMPSON,  
Resident Engineer.

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