

Editorial

MY DESIGN—YOUR GUARANTEE.

When city engineers design pavements, and inspectors strictly enforce the specifications, should contractors be required to guarantee the pavements?

The contractor's experience may convince him that under certain conditions, he should deviate from the specifications laid down by the engineer. He may have made a careful study of the street, its traffic, sunshine, grade, and other influencing conditions. He may feel certain that the street requires certain modification of the specifications that apply to other streets. But unless he can persuade the engineer to adopt that view, he must lay the street according to the engineer's design and the inspector's commands, but he must guarantee it for from two to ten years.

That hardly seems fair. The contractor who signs a city paving contract mortgages his birthright. He stakes his own reputation and his own money on a design laid down by someone with whom he may disagree.

A city should either exact a long guarantee from the contractor and then give him an entirely free hand, or else it should lay down rigid specifications, cause them to be carried out to the letter by means of close inspection, and not expect or require any guarantee from the contractor.

It is almost absurd to say, "This is my design, but you guarantee it. Lay it our way, but you be responsible for it."

CLASSIFICATION OF SOILS.

A proper classification of soils is highly important in earthwork construction. The following is given by the United States Department of Agriculture, prepared by Messrs. Fletcher and Bryan. A list of screens to be used in making classifications by mechanical analysis is also given:

Material	Size.		Screens.	
	mm.	mm.	Pass through.	Retain on.
Fine gravel	2.	1.	No. 10	No. 18
Coarse sand	1.	0.5	" 18	" 32
Medium sand	0.5	0.25	" 32	" 70
Fine sand	0.25	0.10	" 70	" 160
Very fine sand	0.10	0.05	" 160	" 230
Silt	0.05	0.005
Clay	0.005	0.0000

By the number of sieve is meant the number of meshes per lineal inch of wire cloth, woven from brass wire, having the following diameters for

	Diameters.
Sieves Nos. 10 and 18	0.0165 inches.
Sieve No. 32	0.0112 "
Sieve No. 70	0.0045 "
Sieves Nos. 160 and 230	0.0024 "

The mesh should be regular in spacing, and the cloth should be mounted on the frame without twisting. The last two sub-divisions, silt and clay, are more difficult to

determine, but the method is fully set forth in Bulletin No. 84, Bureau of Soils, United States Department of Agriculture, above referred to. If the above subdivisions are adopted, various soils can then be classified by giving the percentage of the materials contained. The percentage of water contained in each sample of soil should also be determined by weighing, drying and re-weighing, as the moisture content has a decided influence on the bearing power of many soils.

SIR WILLIAM VAN HORNE.

With the development of the Canadian Pacific Railway no name has been more closely associated than that of Sir William Cornelius Van Horne. Under his direction as general manager the line was pushed across the prairie provinces and through the Rockies with marvellous speed and vindictive judgment. When the last spike was driven at Craigellachie by Lord Strathcona in 1885, the problem of creating traffic returns began. Subsequently, the gradual removal of temporary structures and erection of permanent ones, the reduction of grades and elimination of curvature, the substitution of heavier rolling stock, and the development of foreign trade were problems met and solved by him as president of the road. Many tales are told of his fortitude, his optimism and his magnetic indomitable will, in the face of defeat and discouragement. He accomplished his great task, one effecting to an unmeasurable extent the development of the Dominion.

"To have built the C.P.R. was a greater achievement than the building of any other railway had ever been; a greater achievement than any future railway on this continent can be. For he built through an unknown, untried land; he had to be prophet as well as pioneer; seer as well as general."

THE TRACKLESS TROLLEY IN CITY TRANSPORTATION.

The trackless trolley is in general use in the cities of Leeds, Bradford and Rotherham, in Yorkshire, and in several other English cities, also in various parts of the British possessions, notably, in one or two cities in South Africa. It is employed in certain communities, where, on account of sparsely settled districts, the construction of a special roadbed is deemed inadvisable, to serve as a feeder to the main system. Results from Leeds and Rotherham are, so far as the ratio of operating expenses to gross income is concerned, but very little less than the corresponding ratio of regular street railway operation.

There is one trackless trolley operating in the United States, which gives no foundation for recommendations to electric railways that this means of transportation has yet passed the experimental stage.

The situation with reference to the operation of the motor bus has been materially changed during the past year, owing to the advent of the "jitney."