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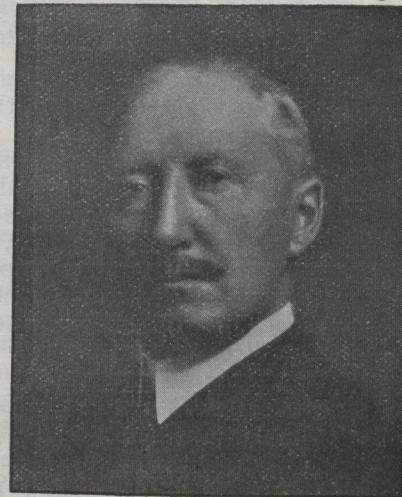
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Engineers—And

Construction of Cities



COL. H. N. RUTTAN, C.E.,
City Engineer, Winnipeg Man.

The Physical Construction of Cities the title covers a very wide field, and it will be necessary to limit this paper to a few of the most important features, namely: Buildings, sewers, waterworks, pavements, street railways, surface traffic and electrical distribution.

Buildings

In regulating the physical development of a city it is necessary to provide laws governing the materials of construction, the location, dimensions and sanitation of buildings. The forms and details of construction being purely architectural need not be considered here. Limits should be fixed in which only fire-proof materials should be used. As the difference in cost between fire-proof material and wood is rapidly lessening, the fire-proof limits should be ample, and should include in addition to business areas, all first and second class residence districts. Nothing could be more conducive to a terrible fire catastrophe than the long lines of closely built wooden residences, which may be seen in almost all North American cities. Few, if any, of the fire departments are equipped with the necessary explosives and apparatus, and the skilled men to use them, to enable them to deal with conflagrations on such streets. It is absolutely inexcusable today to build schools which are not fire-proof. School houses with wooden floors, window and door frames, and furniture, are not in any sense fire-proof.

With regard to the dimensions and locations of buildings with reference to the street lines, owing to the improvements which have taken place in the past 20 years in facilities for passenger traffic in cities, the necessity for extremely congested centres and high buildings no longer exists, particularly in cities where there is no limit to lateral expansion.

It seems, therefore, only reasonable that laws should be enacted to regulate and limit the height of buildings and the distances from the street lines. A simple method is to determine the vertical angle at the centre of the street above which no structure shall project. In residence districts this angle should be sufficiently flat to prevent injury to ordinary dwellings by the erection of high and massive apartment blocks, or tenements which obstruct the sun and interfere with the freshness and spaciousness which should be characteristic of all residence districts.

Sewers

Sewers are generally of either the separate or the combined system. The separate system is intended to take the house drainage only, sometimes including the rain which falls on the roof. As a rule the separate system consists of the sanitary sewers only, the rainfall being left to find its way to the natural water courses, on the surface of the ground, or through surface ditches. Sometimes, however, two systems of sewers are constructed, one for sanitary and the other for surface drainage. This is an expensive method, both in first cost and in operation.