

CANADIAN CITY ENGINEERS.

III.

Mr. Henry Norlands Ruttan (member Institution of Civil Engineers, member Canadian Society Civil Engineers), City Engineer of Winnipeg, Man., commenced the study of engineering on the Grand Trunk Railway in 1867.

From 1869 to 1874 he was employed on the engineering staff of the Intercolonial railway—for the latter portion of that time, as engineer in charge of section 6 on the Baie Chaleur.

In the winter of 1873 he made an extensive survey of Shippigan Harbor in connection with the proposed short line across the Atlantic.

In 1874 he was employed on exploratory surveys on the north shore of Lake Superior, on the line now occupied by the Canadian Pacific Railway between the Pic and Nepigon rivers.

In 1875-6, as engineer in charge, he made the connecting surveys and location of the proposed line of the Canadian Pacific Railway between Edmonton and the Yellow Head Pass of the Rocky Mountains.

On the beginning of construction of the Canadian Pacific Railway between the Lake of the Woods and the Red river, Mr. Ruttan was engaged by the contractor of section 15, Mr. Jos. Whitehead, as contractor's engineer, where he remained until the work was practically completed and taken over by the Government in 1880, after which he took up his permanent residence in Winnipeg and practiced his profession as civil engineer and contractor.

The first bridge over the Red river in Canadian territory, at Emerson, was designed and built by him. The first 50 miles of the Manitoba South Western Railway was constructed for the Oregon Transcontinental Company by his firm. The first 45 miles of the Manitoba North-western Railway was constructed by him as engineer and contractor.

In 1885 Mr. Ruttan was appointed City Engineer of Winnipeg. The duties of City Engineer in a new place like Winnipeg are not very well defined; they embrace all ordinary descriptions of engineering and architectural construction, as well as the care and maintenance of all streets and public buildings and other property of the city. The most important works are the sewers. The system now contains about 20 miles, and is being extended at the rate of about 3 to 5 miles per annum. The combined system is used. In the construction the most approved modern practice is followed. All sewer connections and plumbing are regulated by by-law and carefully inspected. Pending the adoption of more permanent pavements, cedar blocks are now used.

The city bridges, two iron and one combination, over the Red and Assiniboine rivers, the city buildings, city hall, fire halls, etc., are maintained by the City Engineer's department.

The importance of a good water system being fully realized by the city council, all matters in connection with the construction and operation of waterworks and their relation to the city have engaged the attention of the council, and exhaustive examinations and reports have been made on the subject. The council has also caused investigations to be made by the City Engineer into the merits of the several systems of electric traction for street railways, and are now endeavoring to have an extensive system established in the city.

Outside the ordinary duties of City Engineer, Mr. Ruttan has made reports and estimates of cost of the drainage and development of the lands surrounding the city; on the improvement of the navigation of the Red river between Lake Winnipeg and the city; and on the utilization of the water power of the Assiniboine river—three projects which, if carried out, will add materially to the wealth and population of the city.

PLAN DESIGNING.

THE best instruction in plan design is that of examining a number of designs for any kind of building, such as we meet with in a competition. By comparing the good and the inferior plans, we begin to discover what the strong points are in the good and the weak points in the mediocre plans. We shall find invariably that the poor plans are distinguished by looseness; that they are rambling and straggling; the corridors are long and crooked; the apartments thrown here and there without any connection. The salient mark of the good plan is invariably compactness and coherency. Again we look further. We find a method in the clever plan. If there are principal rooms or departments they have been consigned to positions having some distinct relation to the site; they are prominently located along some axis, or brought to play an important part in the general design. The inferior plan has no such method or principle apparent. Comparing again the plans, we find a waste of ground in the inferior set. Here there is a large space wasted in a corridor or area; but perhaps the entrance is cramped. If the site is irregular, it is ten chances to one the author has lost space along the curved or oblique boundary; that the blocks are made to follow the boundaries, and that the angles are not at right angles. The expert planner has taken care to make his main frontages, if possible, square, so that the main walls should be parallel, and this he does because he knows the bad effect of crooked roofs and towers if their sides appear so on main facades.

Wasteful arrangements of corridors and offices are common, and so are areas for light. But the principle of economy is only learned after some experience, and depends mainly on the principle of compactness. Much space is lost in dealing with irregular boundaries. The novice is an adept at making crooked corners and leaving spaces. He generally places his blocks parallel to the oblique sides, and in thus disposing of them creates an irregular area in the centre, spoiling the interior of perhaps a hall or some apartment. The contrary process is the course resorted to by the skilful artist. The economical designer boldly makes his main blocks parallel to one principal street or boundary of the site, or assuming an axis, to which they are made parallel. The irregular corners left between the main building and the raking

boundaries are thrown out on a rear or inferior side of the area, are filled up by subordinate offices, and are left simply as areas of triangular form for light and air.

Direct and easy access, well lighted corridors, suitable proportions of apartments, and that architectural finesse which distinguishes the mastery from the crude attempt, are other characteristic elements of a clever plan, to each of which we may refer; but these are details which follow from attention to the foregoing principles.—*Building News.*

The stone for the new Toronto drill hall will come from the Deschambault quarries, near Portneuf, Quebec.

The Toronto Radiator Mfg. Co. have recently opened a branch warehouse at Victoria, B.C., in charge of Messrs. Muir & Boyd.

The Deseronto Company has been incorporated at Montreal with a capital stock of 50,000, to manufacture fire-proofing, fire brick, drain pipes, etc.

Joseph H. Farr and John M. Sparrow, of Toronto, have been granted a patent for a roofing composition consisting of petroleum tar mixed while hot with pine pitch, resin, or any other gummy substance, with or without slaked or powdered lime.

The National Brick Manufacturers' Association of the United States has appointed a committee of five to secure an international exhibition of clayworking machinery for the World's Fair. The committee have issued an address inviting the views of the trade.



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