

the result of increasing wealth and intelligence in our large cities. I give the precedence to wealth, as intelligence is useless without it. It is money and men with us, while with the ancients men were plentiful and a little money went a long way. In fact the men had to do the work where the money was forthcoming or not. The knights of those days were not knights of labor. Our priests had to be viceroy of the grand surface with a shallow coating of stone or wood, as well—(or otherwise) (and sometimes otherwise) as the money would warrant; but, chiefly for want of a proper foundation (which is the expensive part) there was no durability. A temporary system is in fact the only one applicable to growing towns. The constant breaking up of streets for gas, water, drainage, tramways, etc., is the great drawback to a permanent system. The wooden block pavements were no sooner completed than they were chopped through for these purposes and the same quo could not be restored in the necessarily hasty refilling of the trench. There is apparently no limit to this—larger gas and water pipes may be required, and telegraph, telephone, and electric light wires must yet go under ground, and it must go on until we can afford permanent subways as in Paris, and then all connections can be made without breaking through our pavements. All street work for all purposes should be under one city control. Where two or more parties have the right to open the streets, there is no remedy for injury done but the unsatisfactory one of litigation.

#### TRAMWAYS

Electricity as a means of propulsion for city railways is making great strides in the United States to the south and west of us, where it dispenses with stables, but in our climate it is only available about seven months in the year. It is more efficient and in some cases more economical than horse power, but whether it will prove so for our season only will depend on the traffic. The horse stock and stables must be retained, and the former must either go to other work or be sent to grass.

The cable system for the same reason is shut out from Eastern Canada, but both it and the electric are available when they can be afforded on our Pacific Coast. An elevated railway is the only one upon which continuous car traffic can be maintained on our streets throughout the year. This city is forced by the mountain to extend chiefly along the river, and I think that an elevated road between Cote St. Paul and Hochelaga will become a practicable enterprise in the near future.

### CANADA AND THE PANAMA CANAL.

By R. BOURNE, C. E.

NOW that De Lesseps' great work is within two years time of completion, and that all nations are witnessing, as the audience in a Roman theatre, his resolute struggle—desperate as that of any gladiator of classic times—against huge natural and financial difficulties, and preparing to take their proper parts in using an undertaking of such world-wide advantage as it is, it behooves Canada to consider carefully her relation to the scheme, and to make the needed preparations for using this notable water highway at the earliest moment.

Ever since the discovery of the two continents of America, the Isthmus of Panama has been seen to be an important commercial centre by many thoughtful observers, and efforts have been made to gain a footing there with a view to founding on it a trading emporium for the world. Situated as it is, where the continents meet together, and offering the prospect, which De Lesseps has been grasping, of shortening vastly the route for the many vessels trading between one coast of the Americas and the other, and to busy ports in Australia and the East, these attempts are not to be surprised at.

Of the latter, one of the first and most worthy of note was made by one of whom all the true Scotchman may be justly proud—well known as "Willie" Patterson, who in the reign of William of Orange tried to plant a colony of his countrymen on the Isthmus of Darien (as it has once been named) and to found the city of New Edinburgh. Having traded for some years in Central America, and been an untried officer of a buccanier ship for a length of time, he had become fully versed in the capabilities of the place. After being granted a charter by the King, he was much hindered by the jealousy of English and Dutch merchants; and, having made an heroic effort to hold his ground, was forced by the unlikelihood of the site chosen by him, and other misfortunes, to abandon his enterprise. Returning by Jamaica, he was refused help for his now few disesteemed colonists; by Williams, governor of the Island—the ex-buccanier chief, Henry Morgan.

This historic digression is needed to show that, if thought of so much moment by one of the most far-seeing and able men of his time, (Patterson originated the Bank of England and the use of bank notes) the commercial use of the Isthmus deserves more earnest attention at this time, when the trade passing it, and the number of ports to be benefited by its being opened up, are so much increased. After the above effort, attention has from time to time been directed to the Isthmus (the U. S. government in particular, having through its Presidents given such projects as the present is warm support) culminating in the founding of the towns of Aspinwall and Panama, and the building of the railway crossing it.

A few points need to be touched on to prove that the Panama Canal may be a channel of profitable carriage to Canada. First, a glance at the map shows that the ports of Eastern Canada will be brought much nearer to such places as San Francisco, Valparaiso, Melbourne and Shanghai, being much farther from them than eastern ports in the United States—a few hundred miles being of great moment in trade competition now-a-days. Secondly, Canada may find it much to her advantage to gain a traffic by sea between her own eastern and western ports, particularly in articles that cannot readily be carried by the C. P. R. Thirdly, Canada's grain, superior to any other on these continents, her excellent lumber, valuable metals (either crude or turned into machinery), and various manufactures of goods needed by the people of the lands more nearly reached by the new route, may be sold, on utilizing it, to much greater advantage than they can possibly be sold now.

The next question, and that a most vital one, to be raised is: Can Canada, particularly central Canada, have a more direct and cheaper access to the canal than at present? Most undoubtedly she can, and that by a route which should have been opened up long ago, viz, by way of Lake Michigan and the Mississippi. It must be known to many of the readers of this journal, that the subject of a water junction between the above has gained the attention of not a few thinking men in the United States for some years past, and that the different movements in favor of this project are now about being culminated by its taking a national form. One of the means for effecting this object is the cutting of a canal to join the lake with the Illinois River, a scheme which the map will show to involve no lengthened distance, and will point out the route plainly provided by nature for supplying not only the majority of the Central States, but all of Canada within reach of the great lakes, with a cheap and easy outlet to the South. And, so evident is nature's provision in the matter, that the wonder is how the people of the United States, so forward and enterprising as they usually are in such matters, should have allowed all these years to slip by without effecting this much needed purpose.

The next operation for the completion of the scheme will be the improvement of the channel of the Mississippi by removing a number of the obstacles to navigation in it, such as sandbars, snags, wrecks, &c. Of the last named, it has been proved in evidence before a Committee of the United States Senate that no less than 5000 have been sunk in the river between St. Louis and Cairo alone—a distance of from 200 to 300 miles—and seldom removed; any of the worst of the natural obstructions named have been caused by the standing of a log which the labor of a few men would have cut away in a short time. For removing these obstacles, a sum of money beyond the reach of almost any private company must be expended; but if this great enterprise be undertaken by the U. S. Government, there should be no difficulty of this sort.

Now that this undertaking, so momentous in its relations to Canada, is under way among our neighbors, it is high time that Canadian statesmen and writers should strengthen their hands, by urging on the rapid beginning of the work, and by strongly advocating it in the press of Canada.

#### MONTREAL.

(Correspondence of THE CANADIAN ARCHITECT AND BUILDER.)

Montreal is at last awakening to the fact that something must be done to keep pace with the requirements of a metropolis, and much is being said and done concerning immediate improvements.

The City Improvement Association has been inaugurated by the leading business men of the city, and judging by the amount of money and influence offered, a Montreal "boom" of considerable extent is certain. Definite plans for the general improvement of the whole city are being adopted, and steps will be taken to immediately develop them.

It is the purpose of the Association to open boulevards east and west, to widen the principal thoroughfares and plant trees on residential streets, to make good roads and even sidewalks, and to reorganize the system of drainage. These and many other needed improvements are promised and will no doubt be carried out.

Another very important matter under consideration is the enlargement of Montreal's harbor. Plans showing the enlargement ordered by the Harbour Commissioners have been prepared by the Chief Engineer. It is proposed to build a series of large pier wharves at such an angle as to afford easy access to vessels from the strong current outside. If these plans are carried out the capacity would be: Deep water wharfage, 27½ feet at low water, 45,000 feet; deep water wharfage, 30 feet at low water, 1,450 feet; shallow water wharfage, 20 to 30 feet at low water, 4,350 feet. Total, \$50,550 feet.

Railway matters, with reference to the Canadian Pacific Railway's new depot and their entrance into the west end of the city, are receiving considerable notice. It is proposed to cross the streets by handsome one-span segmental arches of stone, from which there will be no droppings, and hardly any noise.

The Mount Royal Elevated Railway Co., are about to submit full plans and specifications of their scheme to the City Council, and will ask permission to erect a double track on Craig, St. James and Notre Dame streets. They propose two columns in the middle of the road, leaving space between for the tracks of the street cars to run.

The Grand Trunk Railway Co., are about to make improvements in the way of subways and bridges in this city which will cost in the neighborhood of half a million dollars.

The Governors and Committee of the new Protestant Insane Asylum have approved of the plans submitted by J. W. and G. C. Hopkins, architects. The estimated cost for a building to accommodate 200 patients, will be about \$125,000.

Mr. J. Keenan, of New York, has just completed the contract for eight magnificent new houses to be built on Sherbrooke street. The buildings will be three stories in height, with a basement, and will be finished in November. They will cost about \$10,000 each. Messrs. Hutchison & Steele are the architects.

### BUILDING PROSPECTS FOR 1888 IN HAMILTON.

(Correspondence of THE CANADIAN ARCHITECT AND BUILDER.)

THE building prospects for the coming season are very good, and architects have already a fair share of work in hand in preparing plans for commencing operations. There is the new city hall to be built, which will engage a number of hands during the year, and the erection of other large buildings are also in contemplation, among which may be mentioned a new factory for the manufacture of desiccated cocoanut. Then there are quite a number of renting or tenement houses in contemplation, the plans for which are in course of preparation.

But it must be borne in mind just here—and this is the matter which most concerns architects and master builders (and the workmen as well if they can, and will only see the point)—that all the speculative works, such as houses to rent, and which are of course expected to pay a fair interest on the capital invested, may

be checked in the start, and the contemplated extent of work stayed, by any of the inopportune strikes among the workmen that are so likely to take place, and which should be so universally dreaded, more especially by the workmen themselves, who generally have the largest share in the disastrous consequences. But although there is some talk of a claim for an increase of wages in the building trades, it is hoped that the unions, profiting by past experience, will wisely order matters so as not to awaken discussion of the matter of a strike in the public prints, because, even if the parties intending to build should have their plans prepared ready for tendering on, they will surely hesitate in letting the contract, being generally under the impression that it is wise to wait until matters quiet down to their normal condition when they feel that the work may be done at a lower cost; and moreover, contractors cannot possibly make a safe estimate of work, in contemplation of a possible strike during the progress of it. It is to be hoped that those most interested will take this matter into their deep consideration, and take immediate action to prevent the difficulties of past seasons. Of course this matter concerns every city in the province as much as Hamilton, and if care is taken to prevent disputes between employers and employees, the prospects of a successful and profitable season's work are very satisfactory and at the close of the year you will have a fair record to make of the new buildings erected in this ambitious city during the year 1888.

I am glad to see that the CANADIAN ARCHITECT AND BUILDER is working its way well among the architects and building fraternity who will without doubt soon recognize and appreciate it as the best medium of profitable communication and enlightenment on all matters connected with the building interests. It is especially noteworthy that the students and apprentices are ingeniously seeing into and prospecting on the advantages to be gained by them by reading the articles that appear in this journal from time to time, and which they know they are at liberty to comment upon whenever they may feel disposed to do so.

#### HINTS TO BUILDERS.

DON'T enclose the sink—no place in a kitchen is so much neglected. Porch floors should be of narrow stuff and the joints laid in white lead.

Lime-water is fire-proof protection for shingles or any light wood-work.

Common brick absorb a pint of water each, and make a very damp house.

The lowest priced builder is not always the cheapest as poor work will testify.

A closet finished with red cedar shelves and drawers is death to moths and insects.

Do not locate a furnace register next to a mantle, that is, if you wish to utilize the heat.

Terra cotta tile linings are a great improvement over the old roughly plastered chimney.

For basement flooring, oak is preferred to maple because it will stand dampness better.

To properly select the colors applicable to the proper place, consult an educated painter.

A ventilating flue from the kitchen into the chimney often does away with atmospheric smells.

Stops to doors and windows should be luted with roundhead screws, so as to be easily moved.

It is better to oil floors than to paint them—a monthly rubbing will make them as good as new.

Do not use one chimney-flue for two stove pipes—the draught of one will counteract that of the other.

Do not finish windows to the floor—the circulation across the floor is one of the causes of cold houses.

Ash pits in cellars under fire places and mantels save taking up ashes, for they may be raked down through a hopper.

Do not construct solid doors of two kinds of hard wood—the action of the atmosphere on one or the other will cause the door to warp.—*California Architect and Building News.*

Stimford is counting on a building boom in the spring.

Building operations will be very brisk in Exeter, Ont., next season.

Architects Kennedy & Holland are erecting a new drill shed at Barrie, Ont.

Building operations promise to be brisk at West Toronto Junction next spring.

The total cost of the new Government buildings at St. Thomas is \$56,667.30.

The building outlook for the coming season at Peterboro', Ont., is very promising.

A new public school building costing \$74,000 was opened at Wallaceburg last month.

Building operations will be conducted on an extensive scale in Milverton, Ont., and vicinity during the coming season.

The City Council of Belleville will probably take \$30,000 worth of stock in the proposed bridge across the Bay of Quinte.

The C. P. R. authorities deny that the recent railway accident near Jackfish Bay was caused by weakness of the trestle-work.

In the new G. T. R. engine shops in course of erection at Lindsay, Ont., there are 33 large double windows holding 3,500 panes of glass.

The appointment of two inspectors to superintend building operations in the interests of the Toronto Public School Board, is talked of.

Reports from London, Ont., indicate that the prospects for builders and contractors for the coming season are all that could be desired.

Since the C. P. R. reached Arr. Ont., the town has commenced to grow rapidly, and many building enterprises are projected and under way.