well to the manufacturing interests of the Dominion. "For my part," said Mr. Wright, "I am of one mind with my Montreal congener in this matter." But where does the fault in grinding rest to-day? Chiefly with the consumers, who are satisfied with a low grade of grinding, and in no inconsiderable degree the engineers of the country are blameworthy. The truth would seem to be, from the fact, perhaps, that Portland cement has only come into extensive use within a few years, that Canadian engineers have not any more than commenced to give this matter the study and care that it merits. Consumers are satisfied, in many cases, with a cement that will stand no higher than a 20% test of a No. 50 sieve. Nothing more than this is frequently called for in specifications from contractors and others. When the consumer is satisfied, the engineer is not likely to insist on a higher standard. Here it is that Mr. Smith and Mr. Wright believe that reform is necessary. And in this regard Canadian cement really takes a higher place than the imported article, perhaps sometimes to the prejudice of Canadian trade. Canadian manufacturers are ambitious to produce a good article, and will not, as is the case with some imported cements that come to this country, be satisfied with anything less than a high class test. A large proportion of English cements will not average a 10% test, where, from data of tests shown the Bystander by Mr. Wright, he is able to say that Canadian cements seldom fall below a 5% test, whilst he has seen those that have run as high as one per cent. and others 2½% and 3%. In a paper on concrete construction, read at the annual convention of the American Institute of Architects, and published in this month's ARCHITECT AND BUILDER, a similar view of the grinding of cements is held. The manufacturers of Canadian cements are evidently holding up the true ideal and it remains for the engineers, rather than the manufacturers, to see that the severer test is insisted upon in all cases.

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Many people are influenced by their environments and the Bystander has thought that, perhaps, the natural habit of the good people of Montreal of taking an English view of matters has colored Mr. Smith's diagnosis of Canadian cements and caused him to write in a severer tone than would otherwise have been the case. Then from a Montreal point of view there is the local influence that comes from the desire to maintain at its best the shipping interests of the metropolis, and it is well known that these obtain no inconsiderable share of trade through the importation of foreign cements. Let Canadians occupy the home field as manufacturers of cement, and this line of traffic will suffer. However this may be, it may be expected, as the subject is more fully entered into that Mr. Smith will see that there is little, if any, material difference between English and Canadian cements, while the advantage is really on the side of the former. Rapid strides have been made within the past ten years in this branch of manufacture in the Dominion and continued progress during the decade ahead is to be expected. Readers will be pleased to know that at the forthcoming annual meeting of the Ontario Association of Architects Mr. Wright will read a paper on cements and submit several tests.

BUILDING IN THE NORTHWEST.

IN a lecture delivered recently at the Y. M. C. A., Winnipeg, entitled "Architecture, or the Art and Science of Building." Mr. Geo. Browne, architect, of that city, thus refers to the improvement which is taking place in architecture and building methods in the Northwest:

"When I came to Manitoba in the spring of 1879, there were no buildings of any importance, and the wigwam of the Indian, and the log house of the pioneer were seen on every side, while the frame buildings were not numerous off Main street, and when I returned to the city in December, 1881, to reside, architecture was still in a primitive state. Architects and builders seemed to have little or no knowledge of the proper methods to pursue in order to erect buildings suitable for their purpose, the climate and the place. Since then, however, considerable knowledge has been gained, and progress made, both as to the proper methods of construction and design. Time and experience have taught the necessity of avoiding many things which in the early days were considered quite correct, or, to use the old phrase of the boom days, "good enough."

The now historical boom period did more than anything else to retard the erection here of improved and substantial buildings. Money flowed so freely that men lost their heads, and in the excitement of the hour gave no attention to their comfort or to the proper improvement of their habitations, imagining that their residence here would be brief, and as soon as they digested the numerous flies then buzzing around anxious to walk into their parlor, they would reverse the advice of Horace Greeley and go east. But when the boom burst they awoke to the fact that the flies had gone east instead of themselves, and left nothing but mortages to be paid off, and old, ricketty buildings to fix or pull down. The impression became general that a reform would have to be made in the methods of building then followed, and the result has been that the objectionable plan of setting large timbers on the ground for a foundation to receive the superstructure has been abandoned for the common sense stone foundation. At one time it was considered necessary for the safety of the building to build the foundations on piles, or two or three thicknesses of 2-inch plank laid cross ways or diagonally, and spiked together, but both have been found unnecessary and expensive, and only on rare occasions are resorted to, concrete and broad footing stones having been found quite sufficient to carry our heaviest buildings on the blue clay, provided the latter is properly drained. Footings of broad stones without concrete are sufficient enough to carry an ordinary building. Stone foundations should be coated well on the outside below the ground line with hot tar and pitch or Portland cement to keep the damp out of the wall and cellar, and where expense is not an object, the foundation wall should be lined on the inside with 4-inch brick with 2-inch air space.

I am frequently asked which I consider to be the warmest, a house of solid brick, a frame house or a brick-veneer house. I believe that the three kinds are equally warm if properly built and attention is paid to details, which seem but trifles to the average workman, but which play a very important part in adding to the comfort of the inmates. One is to build in properly the door and window frames so that when the wood of which they are constructed shrinks, they will be air-tight. Another one is, in the case of a veneer house, to fill in the space between the boarding and brickwork, solid with mortar, and in all houses to have two air spaces in the exterior walls, formed by putting on the inside of the walls 1 by 2 inch strapping, lathing and plastering one coat, commonly called back-plastering, which should go, in every case, from the ground floor joints up the walls and rafters and between the joints, practically making an air-tight jacket of plaster for the building.

If the house is to be heated with hot air, the cellar should not be less than 7 feet 6 inches in the clear, to allow the pipes to have a good incline. The furnace should be placed so that the pipes will be of equal length and as short as possible. Long pipes interfere with the proper working of the apparatus and are of little or no benefit to the rooms to which they lead. Return pipes are necessary to draw off the cold air from the rooms and create a vacuum for the hot air to fill.

People complain of the shrinkage that takes place in the woodwork of their houses, and attribute its cause to its not having been properly seasoned before being fixed in position, and while in some cases this may be the correct reason, in others it is owing to the wood absorbing the moisture from the plaster, for the wood finish is, as a rule, rushed on before the latter is dry, and by that time the chilly weather has set in, the furnaces started and a hot blast thrown on the wood work and severely testing it.

The unusual dryness of our climate is also responsible to a certain extent. I have known wood works, after having been in for two years in the east, to fall to pieces after being here only a short time.

Owing to this defect, which we cannot easily overcome, I never paint my interior work more than two coats the first year, leaving the third coat to be applied the following year, after the work has been rubbed down and the cracks and open points puttied up.

The architecture of our city is now in a transition state; the wood, brick-veneer and galvanized iron age is passing away, and is being succeeded by the stone, brick and copper age, our capitalists recognizing that it is poor economy not to build for the future as well as the present. As an illustration I will point to the building in course of erection for Wesley College, which shows a greater advance in architecture than any building yet erected in Manitoba. The college board are to be congratulated that their building can be viewed from every side with pleasure, and that they have avoided the common error of making the building Queen Ann in front and Mary Ann behind.

I sincerely trust that many months may not elapse before I shall have the pleasure of congratulating you on the completion of your new and permanent home. I think that citizens of Winnipeg, aud also their country cousins, should do their utmost to reward your efforts with a building worthy of the noble cause in which you are co-workers.

What is termed a "ventilating window" is now being adopted in some of the barracks and other public buildings in France. It consists in employing two panes of glass for one, with a space between them, and their length so curtailed, one on the lower side, the other on the upper, that the air comes from the outside, passes between the panes, and enters the room. Such a window is, of course, only required in one part of a room, preferably near the ceiling.