

THE BYSTANDER.

GIVEN the opportunity recently of spending a pleasant hour with Mr. C. H. C. Wright, Lecturer in Architecture at the School of Practical Science, Toronto, the value of a technical course in education was impressively forced upon the Bystander. The high character of the school system of Ontario has long since passed into a proverb. Perhaps, sometimes, because of this excellence, the tendency is to overrate the system, or rather to forget that with its excellent features also come a few defects. Citizens who, like the writer, have little ones at school, are not without opportunity of seeing where these defects exist. However, it is not the intention of the Bystander to write an educational article. One of the encouraging features of the educational system of the present day, confined not alone to Ontario, but embraced by other provinces of the Dominion, is the growing attention given to the practical side of life. In a country where few are born with a silver spoon in their mouth, and work is the lot of the many, there is need that what the boys and girls learn at school should be of service to them in the everyday callings of life, and not something to be learned only to be forgotten. The School of Practical Science, so well domiciled and equipped between its walls of red brick in the Queen's Park, is doing its full share along these lines, as are also the Schools of Manual Training and Technology that have their place in other towns and cities in Ontario, Quebec, and elsewhere.

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The conversation with Mr. Wright took a "shop" turn, and in a direction in which, no doubt, many readers of the ARCHITECT AND BUILDER are interested. The Bystander had recently read with some care, and not without astonishment, an article written by Mr. Cecil B. Smith, one of the teachers in the technical building of McGill College, Montreal, on the question of Portland cements. The increasing uses of Portland cement makes this a subject of importance to architects and contractors. Mr. A. Blue, director of mines for the Ontario government, is authority for the statement that as between the years 1880-81 and 1892-3 the imports into Canada of Portland and Roman cements have shown an increase of nearly 600%, and as between 1880 and 1890 the number of establishments manufacturing cement in Canada have grown from 9 to 19, and on the basis of values the manufactured cement in Canada increased from \$91,658 in 1880 to \$251,175 in 1890. As Mr. Wright remarks, Portland cement is being used for many purposes to-day that would not have been dreamt of so much as a decade ago. Everyone is aware by ordinary observation of the extent to which cements are now used in road building. The intelligent agitation of late years, the country over, for good roads, must receive credit for a large proportion of this increase, though in this respect newer countries are only following the example shown in the construction of Roman roads in Europe 2000 years ago, where it was made an essential of road building that the foundations should be laid good and strong. Not only in roads, but for other purposes, where strong and durable foundations are required, concrete to-day holds a first place. Mr. Wright says that piers of bridges are now being constructed of concrete and are found to possess many advantages over masonry. The price, of course, is one consideration, but with this goes equal strength, and satisfaction to contractors in the work of construction. Taking a forward look from this standpoint it can be readily understood that the future must show a large development in the manufacture of cement, and this is good reason why care and attention should be given to a study of the question Mr. Smith's criticism is to be welcomed on this account, notwithstanding that it is at fault in important particulars.

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Mr. Smith takes the ingenious position of regretting that the Canadian government has recently contracted for 11,000 bbls. of Portland cement of foreign manufacture, intimating in the next sentence, however, that he does not well understand how, under existing conditions, the government could have pursued any other course. He is quite correct in stating that the Canadian output of Portland cement has been a long way short of meeting the demand in Canada, but this does not justify a protection government in deciding squarely against the home manufacturer. In the government specifications English cement is specially called for, a barrier at once to the Canadian manufacturer bringing his cement into competition with that of the

foreign manufacturer in the construction of public works. The Bystander has been pleased to learn, however, that the government is likely, at an early date, to abandon this invidious distinction between the home and foreign article, and that before long in their specifications it will be an open matter, whether the one or the other cement shall be used. This fact of itself will have an influence in meeting the conditions that are bemoaned by Mr. Smith. Of course, it is true that the manufacturers of cement in Canada are yet unable to nearly meet the demand that exists for cements in this country, but time and fair play will remedy the difficulty. This is to be remembered, that the manufacture of Portland cement in the Dominion is of recent origin. The Rathbun Co., the Owen Sound Portland Cement Co., and the English Portland Cement Co., of Milbank, have spared no expense and care to perfect their equipment in order that, first of all they should satisfy themselves that they could manufacture a cement that would compare favorably with the imported article. This, as will be shown, the Bystander believes, further on, despite Mr. Smith's criticism to the contrary, has been accomplished, and the track is clear for a large development in the manufacture of Portland cements in Canada. Further, let it be remembered that Canadian manufacturers have not alone been compelled to meet a very great increase in demand within their own country, but also to keep pace with this demand during the initial days of manufacture.

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The gravamen of complaint from McGill College is that there is a manifest lack of uniformity in grinding and burning in Canadian cements, and Mr. Smith submits certain tests he has made in verification of this statement. He adds as a comment to a test of three samples of a No. 1 brand that had been selected: "That such a tremendous variation should exist is enough to cripple the industry until this is remedied." These, he says, are samples obtained, not from the manufacturer, but from dealers, taken from the article as placed on the market, which he argues is the only satisfactory test that can be applied. A snap verdict, where care has been taken to place the best specimens in the hands of the tester, cannot be accepted as a fair test of the general character of cements. "Let us grant," said Mr. Wright, "in discussing the point, that this is the proper method of arriving at the real character of the cement regularly in use by contractors. But what is the usual practice and experience? Mr. Smith writes as though this 'tremendous variation' was applicable only to Canadian cements, and the inference is that imported cements are not faulty in this respect. Ask some of the contractors and engineers, who have occasion to use the imported Portland cement, what is their experience. It is notoriously true that this variation exists in all cements, there being different conditions that seem to tend to this want of uniformity." It is only two years ago that a single shipment of some 4000 or 5000 bbls. of English cement was sent to this country, which, though bearing the brand of a reputable maker, was found to be of a very indifferent character. What was the history of this particular shipment? English manufacturers had been in the habit of making up large quantities of cement for shipment to South America, where the tests were not so severe. A financial crisis occurred in that country and manufacturers were left with heavy stocks of this grade of cement on hand. They had to dispose of these somehow, and part came to Canada. "Just take another illustration," continued Mr. Wright. "Let me draw your attention to the conditions set forth by an American concern in its specifications where Portland cement is called for." The Bystander was here shown the printed specifications in which it was directly stipulated that the cement to be used should be either White's English Portland cement or a French manufacture, but it was just as clearly stated in the conditions that these cements were not necessarily to be accepted without first undergoing certain tests. Evidently these people had learned that the particular label of a foreign manufacturer did not always insure a cement that was uniform in character. Only within the past month efforts have been made by English manufacturers of Portland cement to adopt means to prevent the placing on the market of certain qualities found to be exceedingly faulty in character.

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So far as Mr. Smith is desirous of having produced in Canada a cement of "uniform fineness and strength, which will answer severe specifications," he will have the support of all who wish