

MORTAR AS A BUILDING MATERIAL.

A good deal has been said and written latterly, and even adjudicated upon, about the ingredients and composition of mortar for housebuilding, it being, in fact, very generally complained of when as not unfrequently happens, we hear of a new house, tumbling down, as it were, of their own accord, and without waiting for the suspicion of an earthquake or hurricane to afford them a decent excuse for so doing.

Then arises the question of how the mortar was made, and generally this one inconsiderable material has to stand the racket for all the rest, and bear the blame, especially if any neighbors come forward and declare that they saw a great deal of common garden mold mixed with the lime. The catastrophe is then held to be accounted for, though in point of fact dry walls are built in some parts of the country out of irregular shaped stones, that last for ages, without any mortar at all. Park and game preserves are sometimes so enclosed, and every building, in regard to stability and durability, should be made as independent of it as possible. But as an excluder of weather, rain, wind, and external moisture of all kinds, good mortar or cement is indispensable in housebuilding, and it is maintained by some authorities that modern science, widespread, and loudly belauded as it is, has lost the art of making it of the same durability as some of our old castles and Roman remains prove it to have been in ancient days.

Not a few of these ruins owe their present existence entirely to the perfect preservation if we may so term it, of the mortar with which they were constructed. Caerphilly Castle, about seven miles from Cardiff northward is an instance of this. There a tower knocked out of its perpendicular, by the balls of Cromwell's artillery, overhangs its base, of which only a section remains by about eleven feet, as if it were one solid stone, and early in the present century the then Marquis of Bute (to whom the property belonged) offered the people of the town of Caerphilly the use of the ruins, merely for the fetching away, to construct some new buildings then in contemplation. But the offer was found to be of no avail. The tenants considered it cheaper to get their stone from the more distant quarry on the usual terms, than to be at the cost of separating them from each other in the fallen blocks of the old castle close by, on which their pickaxes labored in vain.

But it is not alone as to the integrity of a building that true and good mortar is necessary. There are other uses it appears which miss it in this country, uses scarcely less important to the votaries of art and its patrons; and a contemporary calls attention to it, in a voice of no uncertain sound, as if very sure of his authority.

In the *St. James Gazette*, of a recent date, treating of the "lost art of fresco painting" in England, the writer draws some conclusions, which seem to us to be a challenge to the building trade, either to refute the hypothesis laid down, or to justify itself for not adopting the Italian method of using lime in the construction of mortar. It is denied that the difference of climate has anything whatever to do with the dampness of our walls, and the gradual fading of our frescoes, and it goes on to account for it thus:—

"In saying 'it is the lime,' the reply may be nearer to the mark. But the remarkable excellence of some of our English limes, such as that, for example, of Southam on the one hand, and the extraordinary variety of the limestones of Casale, of Liguria, of Tortona, and of the Emilian, Tuscan, Roman, and Sicilian provinces on the other, is so great that to speak of the difference between English and Italian lime is to betray ignorance of the essentials of the subject."

The pith of the argument, and the reason of our transferring a large extract from it to our columns, is contained in what follows:—

"There is, however, one point in which there is not only a difference but a contrast between English and Italian walls. It is in the preparation of the lime for use. It is the habit of the English architect to require that the lime should be used fresh, almost hot, from slaking. Lime that was yesterday slaked, if not

worked up in the course of the day, is by many specifications deemed unfit for use, and ordered to be removed from the ground. The Italian method is the very reverse. There among the first preparations for a new building is the digging of a pit large enough to hold the lime that it is calculated will be required for the building. The proper quantity is at once put in this pit, covered with water, and kept under water during the whole process of the work. What is required for daily use is dug from this pit, in a pasty condition, and wrought up with sand or with pozzolana as required for use. And the excellence of the plan is apparent. Weeping walls, with streaks of half melted mortar running down their faces, are unknown in Italy. For walling, for roofing, for flooring, for scagliola, or for fresco, the fine close damp paste is at once applicable. The value of the method cannot be doubted by those who try it. From the Roman times, no doubt, it has been in vogue in Italy. And therefore it is that, apart from the effects of earthquakes, the Italian builds for centuries not for years. So he did fourteen hundred years ago in Britain. Let any one study the masonry of the Roman times the herring bone brick-work at Rochester, the concrete that is as solid as rock at Corfe and he will see that with English lime treated in the Italian method the builder need not trouble himself about the climate of England."

It is observable that the writer of this criticism calls British architects not builders to account for their assumed indifference to the mode of mixing and applying the mortar to be used under their contracts. But it may be questioned if any architect's position entitles him to exact any departure from the established method of mixing and applying the mortar to be used, and introducing that of another country, unless the contract he was employed to superintend, made some reference to the subject. If the statement of our contemporary be true our building fraternity have evidently fallen into a bad system of making mortar, and we commend the subject to their serious consideration, as it will cast them so little to apply the remedy if they find themselves in the wrong. The trade will not be revolutionized by it. If the Italian system would stand the contractor five or ten pounds more in additional lime, a codicil to that effect might be tacked on at the foot of the agreement, nothing more. The architect would then be responsible for the goodness of the material to be applied in that department.

In conclusion the critic takes wider field, and his remarks, written with so firm a pen, are worthy of the attention of the trade:—

"It is not fresco alone that is a 'lost art' when lime is used fresh; it is the same with scagliola. It is the same with 'rough cast.' It is the same in the 'villa architecture' of urban and suburban notoriety and of Georgian taste. Mortar hardly anywhere in England plays its proper part in building. Everywhere it is a sort of temporary plaster; and the use of the more costly cements has been encouraged by the badness of the ordinary mortar."

"It is difficult to avoid drawing the true lesson from this comparison of methods. In one case the results are admirable, permanent—the same to-day that they were 2,000 years ago. In the other they are transient, shifty affected by damp, affected by frost—all that they should not be. The painter of to-day does not, like Michael Angelo or Leonardo de Vinci, unite the skill and practice of the architect with that of graphic art. He takes the wall as it is given him. And the consequence is that he can do nothing with it worthy of his art. The inimitable boldness and freedom of the touch on the fresh surface is denied him. And when his work perishes we laugh at the painter and grumble at the climate, unjustly."

There is a positiveness about these statements which gives them an air of emanating from the writer's own experience. But bold assertions are liable to be met with equally unqualified denials, and it is not unlikely but some equally competent hand may speak up for the British builder, and place the subject before our readers in a light which will remove all reproach from him, as a whole, on the question of the art of making mortar. *Timber Trades Journal.*

THE ADVANTAGE OF WHOLESALE MARKETS.

I have lately been a favorite notion with manufacturers that the way to make the most money out of lumber was to ship it from the mill directly to the country yards or to consumers. In cases where mills are remote from any great lumber centre the mill man has no other way to dispose of his product than to ship it by the one railroad, which is probably his only outlet, to retail dealers, contractors, or any body that will buy it. In times of speculative demand a manufacturer thus situated does well enough, but when times are dull and there is only a consumptive demand for lumber, he often finds that the great markets, at ports, or both combined, are able to satisfy the greater portion of the requirement. This is so because in times of slow business and small profits the hand to mouth ways of buying is the rule, and dealers and contractors prefer to purchase at a market where assortments are full, and they can get just what they want and no more, have half a dozen sorts loaded into a single car if they choose, with an end load of sash and blinds. This cannot be done where resort is had to a single isolated mill, or even three or a half dozen in a bunch. It is for this reason that in times of depressed trade the tendency is to load the great markets with lumber, while at the same time the smaller points demoralize all values by cutting prices on the surplus that remains at the mills after all has been sold that was possible.

A dealer in this city lately remarked that the trouble caused by the Wisconsin mill men in Iowa and Nebraska was not the amount of lumber they sold, but the way it was done. The interior mills, not having an assortment, send out salesmen with instructions to sell certain kinds of stock of which the mill has a surplus, in spite of all competition. When a salesman from Chicago, or any other market, encounters the price made by the Wisconsin drummer, he has no other recourse but to meet them by an equivalent reduction. If the lumber from the interior Wisconsin mills could go to a central market and there enter into the general stock, and be shipped thence to the retail yards, and such were the general system adopted in the disposition of mill product, the sacrifice of profits could be measurably avoided.

This desultory raiding of prices is what is working ruin to the lumber trade, and whittling down margins until in many cases they disappear entirely. The evil has been intensified within the past two or three years by the opening up of new districts, the building of new mills, and the construction of railroads. By such recent enterprises the older channels of distribution have been broken into, and the currents of trade deflected from their original lines. In making these observations we, of course, have particular reference to the white pine trade of the Northwest, but the yellow pine business of the South could be brought under the same rule. Lumber is a commodity with a commercial value. In its rough and unassorted state as it comes from the log it is not in a merchantable shape for distribution. In order to place it in merchants' stocks it must be graded and piled. The trade at large demands a diversified list of sorts. One mill, or two, or half a dozen in a bunch, cannot always furnish what a widespread demand in city and country requires. For this reason there must be, and will be, concentration of stocks in great markets. After lumber is well assorted, graded and piled, it should have a value commensurate with the outlay for getting it into that shape. But it can never retain its proper value as long as scattered mills are continually raiding prices with particular sorts such as they may have in surplus, and, very likely, can only produce owing to character of timber or capacity of mills. If there could be a unity of purpose among the leading manufacturers, by which markets could be established at convenient points, so that the lumber of the scattered mills could be concentrated and held in general wholesale stock, it would do more to steady prices and secure margins to both producers and dealers than anything else. But as matters are now progressing the best of our pine is being slaughtered and forced into distribution

in a turbulent struggle to secure a minimum profit.

Two of the great manufacturing concerns at Menominee, Mich., have initiated piling and distribution from that point. One of them has shipped 4,000,000 to 5,000,000 this season, and has so broken its stocks that it is noticeable that latterly its shipments from that point have greatly decreased, simply by lack of assortments, but if all the mills at the mouth of the Menominee were to pile their lumber, there would be such an accumulation of stocks as to afford a resource for constant shipment. It added to this, the lumber of the scattered mills in the back country, and along the shore, were concentrated at the mouth of the Menominee, a commanding market could be established that would have a controlling influence over transportation, prices and trade distribution.

There should be wholesale markets of assorted and graded stocks at Menominee, Ashland, Duluth, Wausaw, and Eau Claire, to localize the trade of the districts of which they are the centres. In the lower peninsula of Michigan it is difficult to designate a place outside of Detroit, which is already a market, and Saginaw, which is adding a yard trade to its cargo business, as a point for a wholesale yard market. Grand Rapids, however, should be an eligible place for such a business, where the product of the mills to the northward could be deposited for grading and distribution. If the requisite rail connection with Lake Michigan mill points were also made, Grand Rapids would become a secondary market for much of the lumber to be distributed eastward and southward. In any event the larger share of the product of Lake Michigan mills must go to the Chicago market for distribution.

It is not claimed that the policy here outlined can be carried into full effect. The lumber business, in its various branches, is inherently opposed to combination or unity of purpose. The manufacturers will probably continue to go on slaughtering their pine and crowding it on the market without reference to the nature or extent of the demand. But the evident truth will still remain, that if the desultory method of scattering stocks could be changed to one of concentration at secondary markets, where distribution could be systematized and prices controlled, it would be much better for all concerned.—*Northwestern Lumberman.*

CALIFORNIA SKIDWAY.

The San Francisco *Chronicle* thus describes a skidway that is built in California on which to move logs from the gulches to the mills: "The mill being located, then commences the building of a skid road up the ravine to be first worked out. A road eight or 10 feet wide is made with a grade as uniform as the ground permits. Sometimes the roadway has to be raised eight, 10, or perhaps 15 feet, with long pens filled with earth. After the grade is completed the road is laid with timbers resembling railway ties, two or three feet apart, and sunk into the ground the depth of a stick. At either end the ties or timbers are held in place by braces extending from one to the other, locked in by tenons and corresponding notches. Without these braces the first log coming down the road would be certain to leave it in ruins; with them a road will bear the transportation of logs an entire season, or until the gulch is exhausted of timber. When finished, the road, with its cross timbers just above the ground, resembles a winding stairway, and the dense shade of the overhanging trees gives it a romantic and enchanting appearance."

Brown's Little Jake.

"Why, Brown, how short your coat is," said Jones one day to his friend Brown, who wittily replied: "Yes; but it will be long enough before I get another." Some men spend so much for medicines that neither heal nor help them, that new clothes is with them like angels' visits—few and far between. Internal cures, weakness of the lungs, shortness of breath and lingering coughs, soon yield to the magic influence of that royal remedy, Dr. J. V. Pierce's "Golden Medical Discovery."

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