in its native district. However, the whole discussion seems to point to this conclusion: That the School of Practical Science, in which we are now meeting, ought to have that department put into efficient working order just as soon as possible, so that whenever any building of any importance is to be erected we can call upon that department to give us a chemical and scientific analysis of the stones, as well as test them for crushing strength, so that in buildings that are intended to be permanent monuments, nothing will be used but stone that will stand the test of time and the effects of weather, and all other influences to which it may be subjected. (Hear, hear, and applause.)

Mr. Rastrick: I wish to correct an observation made by Mr. Macdougall that the British Houses of Parliament are not limestone. Sir Chas. Barry, in conjunction with eminent geologists, published a voluminous report on the question. This report can be obtained from the parliamentary offices in England. Local stone always wears best in the locality where it is got. The local stone from which the House of Parliament is built is the most perfect stone in the district. There are churches there that have existed five or six hundred years. There are a great number of houses that have been built even from the first William of Great Britain; yet in the Houses of Parliament that stone disintegrated about the third year it was put up—especially in the upper parts—evidently from the effects of the atmosphere. There was great commotion at the time, and serious charges were brought against the Commission and all concerned in it. But it was no fault of theirs. They had taken the precaution of ascertaining the stability and the longevity of the stone. They had visited all the quarries in Great Britain, and the specimens were analysed and reported upon. There is no doubt about the stone chosen being considered to be the best. There are no stones perfect, as we think, for our purposes. There are stones in Canada which may be utilized at less cost than stones imported from the States. Some twenty-five years ago I was sent to inspect a quarry on an island just above Lake Simcoe, and I found the stone first-rate marble of a very close, fine texture. I think we can obtain stone in Canada that is far better than they have in the States, for this reason—most of the sandstone formations are from geological deposits which have not had that pressure upon them which the stones in Canada have had. I think we can do better by using own own stone after having it examined.

Mr. Curry: I should like to bring this dissussion to a point by moving, seconded by Mr. D. B. Dick, "that it be an instruction of this Convention to the Council that they shall take such action as they may deem best to determine the quality and value of the building stones which are being used in this Province." We are using stones without having much knowledge of their qualities, and we are now in a position where we can obtain some knowledge both chemically and also as to the constructional value of the stones we are using. This Science School will have before long a plant by which they can test the stone. I don't think we should as architects use a stone without some knowledge of what it will carry, and its length of life. Of course, the Council take it up simply as a business matter, because they may be able to employ some one or two persons and pay them for doing this work and let them report. I have no doubt that authorities of the School here would be only too pleased to give any assistance they can, and possibly we may be able to obtain some assistance also from the Ontario Government in the matter; but whatever is necessary to be done can be done by the Council. I think the Council should pay for a certain amount of this work being done, then each member should send in any information he may have of defects in stones, or anything which may strike him as of value to a Committee investigating the value of stones. Mr. Townsend wants to suggest sending in samples as well. Mr. Macdougall's paper is very valuable, and has brought up a very instructive discussion. (Applause).

The resolution of thanks to Mr. Macdougall was put and carried, and Mr. Macdougall briefly responded.

Mr. Curry's motion was being put, when Mr. Billings said: Stone includes sand and clay, and lime and cements.

The President: And all building material.

Mr. Billings: There is no doubt that sand is stone, and lime is a product of it, and so also is cement.

Mr. Curry: We can find out a great deal as to limestones and cements from standard authorities, but we can find out nothing about our local stones.

Mr. Curry's motion was carried unanimously.

HOW TO MAKE A GOOD FLOOR.

A SOUTHERN contemporary, the *Lumberman*, gives a few rules for laying a floor, which for so apparently simple a job may sound somewhat silly. The directions are justifiable, however, from the fact that there are many alleged carpenters who do not know how, or are too lazy, to lay a floor properly:

"The best floor for the least money can be made of yellow pine, if the material is carefully selected and properly laid. First, select edge-grain yellow pine, not too 'fat,' clear of pitch, knots, sap and splits. See that it is thoroughly seasoned and that the tongues and grooves exactly match, so that when laid the upper surfaces of each board are on a level. This is an important feature often overlooked, and planing-mill operatives frequently get careless in adjusting the tongueing and grooving bits. If the edge of a flooring board, especially the grooved edge, is higher than the edge of the next board, no amount of mechanical ingenuity can make a neat floor of them. The upper part of the groove will continue to curl upward as long as the floor lasts.

Supposing, of course, the sleepers, or joists, are properly placed the right distance apart, and their upper edges precisely on a level and securely braced, the most important part of the job is to 'lay' the flooring correctly. This part of the work is never, or very rarely ever, done nowadays. The system in vogue with carpenters of this day of laying one board at a time, and 'blind nailing' it, is the most glaring fraud practiced in any trade. They drive the tongue of the board into the groove of the preceding one by pounding on the grooved edge with a naked hammer, making indentations that let in the cold air or noxious gases, if it is a bottom floor, and then nail it in place by driving a six-penny nail at an angle of 50 degrees in the groove. An awkward blow, designed to sink the nail-head out of the way of the next tongue, splits the lower part of the groove to splinters, leaving an unsightly opening. Such nailing does not fasten the flooring to the sleepers, and the slanting nails very often wedge the board so that it does not bear on the sleeper. We would rather have our flooring in the tree standing in the woods than put down that way.

The proper plan is to begin on one side of the room, lay one corner of boards with the tongue next to, and neatly fitted to, the wall (or studding, if a frame house), and be sure the boards are laid perfectly straight from end to end of the room and square with the wall. Then nail this course firmly to the sleepers, through and through, one nail near each edge of the board on every sleeper, and you are ready to begin to lay a floor. Next, fit the ends and lay down four or six courses of boards (owing to their width). If the boards differ widely in color, as is often the case in pine, do not lay two of a widely different color side by side, but arrange them so that the deep colors will tone off into the lighter ones gradually. Push the tongues into the grooves as close as possible, without pounding with a hammer, or, if pounding is necessary, take a narrow, short piece of flooring, put the tongue in the groove of the outer board, and pound gently on the piece; never on the flooring board. Next, adjust your clamps on every third sleeper and at every end joint, and drive the floor firmly together by means of wedges. Drive the wedges gently at the start and each one equally till the joints all fill up snugly, and then stop, for if driven too tight the floor will spring up. Never wedge directly against the edge of the flooring board, but have a short strip with a tongue on it between the wedge and the board so as to leave no bruises. Then fasten the floor to the sleepers by driving a flat-headed steel wire nail, of suitable size, one inch from either edge of every board, straight down into each sleeper. At the end-joints smaller nails may be used, two nails in board near the edges and as far from the ends as the thickness of the sleeper will permit. Proceed in this manner until the floor is completed, and you will have a floor that will remain tight and look well until worn out."

The Dominion Stained Glass Works, Toronto, have recently been purchased by Messrs. J. Willis and J. S. Bradley. The members of the new firm are experienced in the business, and have employed a young artist of acknowledged ability in New York. Withthe facilities at their disposal, they will no doubt achieve success.

A French official industrial department issues the following recipe for preserving wrought-iron chimneys and chimney-flues from oxidation: Brush over the inside of the pipe with a mixture of coal-tar and pine-tar. Then fill it with wood shavings and chips, and set fire to them. The tar is thereby calcined and adheres to the metal, and also covers its surface with carbon. A pipe so treated will last many years longer than one which is unprotected.

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