

here very much—the long straight edge—and all work there was made perfectly true.

The following discussion then ensued :

Mr. Burke : I have been told that a great many of the buildings in the United States which have been plastered on metallic lath have been developing serious defects, in some cases it having been found that the metallic lath had almost disappeared. I suppose that was owing to their not being galvanized.

Mr. Siddall : I had a little experience of that in the Confederation Life building. We had occasion to take down a partition, even before the building was completed, and, although the lath had been painted, it was half eaten away.

Mr. Burke : Have you had any experience in that respect, Mr. Hynes?

Mr. Hynes : I cannot say that I have, personally. I have never seen any metallic lath that were destroyed by oxidation or rust, but I know that where the lath is not completely covered with mortar it will rust. If the iron or steel is thoroughly embedded and covered with mortar, I do not think there is any danger whatever, but where the slightest particle of the metal is exposed it is likely to be affected, and that is why I say it should always be either galvanized or painted.

Mr. Siddall : I quite agree with Mr. Hynes that if the metallic lath were completely embedded with mortar no rusting would take place. I think it is the exposed part at the back that rusts.

Mr. Hynes : A thorough covering of lime mortar is a preventative of rust, but the reverse is the case with all patent plasters having calcined plaster or gypsum as their basis ; this material has a very great and immediate tendency to rust. I should think the cases cited by Mr. Burke were likely caused by their use. English white cements—as Keene's, Parian, Martin's—have a still greater tendency to cause rust, even destroying the tools used by the mechanics when working them. A knowledge of this fact is sufficient, as it is easy to guard against trouble from this source.

Mr. Wickson : Mr. Hynes did not refer in his paper, I think, to any of the patent plasters that have been on the market lately. There is the Rockwall plaster, Paristone, and others ; I wonder if he has had any experience of them, and if it has been satisfactory.

Mr. Hynes : My experience has been principally with Adamant. This was the first of the patent plasters. It originated in Syracuse in a patent for hardening plaster. The inventor became associated with business men, who changed his fluid chemical into a dry powder, and made a plaster furnished complete and ready for use by the addition of water. They did not make much out of selling the plaster, but obtained large sums for State rights—Illinois selling for \$35,000, Pennsylvania for \$17,000. Of course, in addition to the chemical compounds, to everyone whom they sold to they gave a formula of how to make the plaster. The result was that each of these parties found difficulties in preparing the mixture, and after a series of experiments each became an expert, and then called his mixture something else—"Rock Wall," or anything he had a mind to, but they are all composed of the same compound with the exception of the Acme, Agatite and the Royal cement. These I have never been able to get analyzed, and I would suggest that the authorities of the School of Practical Science make an analysis of them. They seem to be a kind of brownish earth, and it is claimed that they are

calcined. They make very hard, durable work. Those on the market here to-day are principally Rock Wall, which is good. It is made by the Albert Mfg. Co., of Hillsborough, N. B., who also supply most all the calcined plaster used in our market. "Paristone" is made in Paris, Ont., by the Alabastine Company, from the local gypsum found down on the Grand river. The Grand river gypsum is good and plentiful, but is very little manufactured. I do not know of a bad patent plaster—it does not pay any one to make one that is bad.

Mr. Dick : I am sure Mr. Hynes has given us a very valuable paper. There is one point on which, perhaps, he can give us a little information, and that is about mixing the mortar applied to walls and so on, as to the time it should be allowed to stand before being applied to walls, with special reference to the limes we have in this country.

Mr. Hynes : Our limes are very slow, cool limes, and when they are first made up all limes are watery, and if you place them on the wall at once the lime has no binding, and the key falls off. It would never do to put fresh mortar on walls ; it is radically wrong, though one is sometimes forced by circumstances to do it. The idea of leaving it for a period of weeks or months is equally absurd. I think our mortar, after standing one week in ordinary weather, is sufficiently aged for all practical purposes. The greatest danger in connection with plaster is in trying to rush it through, and drying it too quickly. You see, you have only three-eighths of mortar on a lath wall, and if you dry it in a few hours there cannot possibly be any strength in it, the best lime cannot have any chance to strengthen properly. I am not an advocate of taking an unreasonable time, but I think that attention should be paid to the circumstances. The weather in summer that dries mortar in a few hours will always leave you a weak and pulverent mortar.

Mr. Wickson : Nearly all the text books say that lime when slacked ought to show a considerable amount of agitation, bubbling and hissing and so on. Now, I have noticed that a good many of the limes used here are quite unemotional when the water is put on. Will Mr. Hynes tell us if that is any indication that they are not good?

Mr. Hynes : That is a question that covers a good deal of ground. Limes are divided into different kinds. There are the pure limes, composed of almost all lime, and when they are put in water they go off like a shot ; in fact, I have had limes placed in a lime box under a tree that burnt all the leaves off the tree. That was a pure, fat lime. Now, I think the greatest thickness you can get that lime to set is in white-wash, where it can get sufficient carbon from the air to form its original carbonate of lime. The grey limes have all more or less a certain amount of clay, some a very desirable clay, and those go towards forming the same compound we have in Portland cement ; in fact, if you take a good, well-burned brick, and mix that with good ordinary lime, you will have hydraulic or semi-hydraulic cement, and in that way we get all our best and strongest setting limes from these grey limes. I don't just know what the text books would call them. They are not pure lime, but an earthy lime, and my experience is that they are the hardest setting.

Mr. Baker : There is one point that Mr. Hynes has not touched upon, and that is the action of frost, and we would like to hear his opinion on that subject. I have seen two or three authorities, and they differ to some extent.

Mr. Hynes : I am aware that there are a number of things I have not touched upon, but the question put by Mr. Baker is a very pertinent one in Canada. I know there are architects who claim that the mortar being frozen, even in the bed or bulk, is destroyed. That is entirely wrong, according to my opinion. I would like to have it all frozen ; I think if we could have it all frozen we would have a more homogeneous