

RAZING A BIG CHIMNEY.

There are instances where the demolition of a structure requires as much study and calculating to meet existing emergencies as are brought into play in the erection of a new edifice. A rather unique method of felling a chimney was resorted to recently at the Old Grove Paper Works, says an exchange. The works have been idle for four years, and are now being dismantled to make room for dwelling improvements. The chimney to be razed was an octagonal one, 270 ft. in height, 27 feet in diameter through the faces, and its total weight estimated at 4,000 tons. On the north side of the works the ground is occupied with streets of cottage property, but toward the south was a stretch of vacant land, and it was in this direction that it was desired to have the immense mass precipitate. This stretch of open ground was very small, and should the chimney fall beyond the limits the damage to adjoining property would be considerable, hence it was desired that the chimney should fall in as small a space as possible. Accordingly about one-half of the base of the chimney was cut away on this side, the structure being supported as work progressed by strong upright timbers in the usual manner. This woodwork was then saturated with paraffine and fired, and in six minutes the chimney leaned slightly, and then breaking into three sections, seemed to telescope, and fell in an area not much greater than the base of the chimney.

LIME MORTAR IN FREEZING WEATHER.

There is a popular fallacy to which a great many masons adhere most tenaciously, that the addition of lime to cement mortar is desirable if the work is to be carried out in freezing weather. Upon what reasoning such a solution is based it is impossible to determine, though there seems to be a vague feeling that because the lime in slacking becomes very hot, it therefore must impart a certain portion of its heat to the mortar and so retard any effect of freezing weather. This is not only illogical, but it is not warranted by facts. Lime is slacked in cold water; it is then mixed with cold sand and cold cement, and is on ordinary building operations carried a long distance through the cold atmosphere, so that by the time that it is actually laid up with the cold bricks in the cold wall all heat virtue has departed and the lime is absolutely inert in caloric. So much for theory. To determine the practical effect, tests were made last winter during the course of the construction of one of our largest buildings. Upon the coldest day of the winter, when the thermometer registered below zero, two brick piers were constructed under as nearly as

possible the exact conditions which would obtain in a wall. The piers were a little over 1 ft. high. One was laid up with mortar composed of 1 part lime, 2 parts cement, and 4 parts sand. The mortar of the other was composed of 2 parts cement and 4 parts sand. The piers were allowed to stand under cover which would protect them from beating storms, but they were exposed to alternate freezing and thawing, effects of the temperature during a period of about three months. At the end of that time it was found that the mortar containing lime was considerably disintegrated, so that it could be crumbled easily between the fingers, while the cement mortar, though somewhat injured by frost, was still reasonably firm and hard. The first pier was dropped to the floor through a distance of 4 to 5 ft. and was entirely destroyed, no bricks adhering to each other. Dropping the cement mortar pier through the same distance, it broke in two pieces, and not until it had been violently dashed against the floor six times was it entirely destroyed. Even then some of the bricks broke before the mortar became dislodged.

The reason for this action of the two mortars is very apparent. The addition of lime to cement mortar tends to retard

the setting. Consequently there would be a considerable period during which the cold weather could act disastrously upon the mortar. Furthermore, lime mortar sets by absorbing carbonic acid from the air, a process which takes a great deal of time. Cement mortar, on the contrary, sets by crystallization, and a few moments after it is in place in the wall the outer surface has taken a sufficient set to serve as at least a slight protection against the cold, while long before the lime mortar mixture would be hard the cement mortar would be so completely crystallized that the cold would have comparatively little effect upon it. Consequently the addition of lime to cement mortar is a positive detriment in every sense.—The Brick-builder.

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