

MANUFACTURES AND MATERIALS

PUMICE BRICKS.

For many years a brick made chiefly of pumice, in small pieces cemented together, has been in use in that part of Germany bordering the Rhine, and it appears that it has now found its way to England. The pumice is the product of some ancient Tertiary volcanoes, situated near Andernach and the Laacher See. The sections, as seen in the various pits, show the pumice to be in pieces, varying in size from mere grains to lumps some four inches across. It occurs in layers, but is frequently interrupted by small cuticular patches of more solid fragments of lava. The bricks are made from screened pumice, the larger pieces being broken to pass through a sieve having about $\frac{1}{2}$ inch meshes. These screened pieces are then covered by a thin coating of cement, and the brick is moulded. It will be observed that the cement is not mixed with the pumice so as to form solid cement blocks, but by the fragments being coated first; the brick is obtained by these coatings adhering to one another. The result is a very light and viscular brick. Although used largely, even for exterior walls, in Germany, it is not very strong. These bricks seem specially adapted for light partition walls, for which purposes they are now being used.

PECULIARITIES OF CEMENT.

The annual report of Mr. A. W. Dow, inspector of asphalts and cements, to Captain Lansing H. Beach, Engineer Commissioner of the District of Columbia, refers to tests now in progress at Washington to discover the reasons of what might be termed abnormal behavior of cement. The points under investigation are: (1) The great strength obtained by some samples of Portland cement. That is to say, a certain brand of Portland cement will be running quite uniformly, the seven-day neat tests will average about 600 lb., and the seven-day tests with one of cement to three of sand will average 250 lb. Then a carload will be received that will pull over 1,000 lb. for the seven-day neat, and over 500 lb., when mixed with sand. The data for the investigation of this point are very meagre as yet. Such cements do not show any weakening with age and appear sound in every respect. On chemical analysis they are found to run 1 to 2 per cent higher in lime than the average of the same brand, while in all other respects they are about the same. They differ so little in the ordinary chemical analysis from normal cement that it is considered evident their normal strength is due not to the quantity of the ingredients, but as to how they are combined. (2) A shipment of natural cement is received at time which, in testing, passes the requirements of the one-day test, but after being in water for a few days the pats and briquettes, both neat and with sand, begin swelling and cracking. This disintegration

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