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# Wachuwannano

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BY MICHAEL A. GARDNER,  
A.K.A. MR. WACHUWANNANO

Our February column asked you, kind reader, to tell us the meaning of the word “portland” as it is used in the term portland cement-based plaster.

First across the finish line with an accurate answer was Washington, D.C., specification consultant extraordinaire, David Metzger. He narrowly beat out Charles Gerstle, a Louisville, Ky., stone consultant.

David wrote:

Just got my February issue of **Construction Dimensions**, and, as usual, turned right to *Wachuwannano*.

According to Caleb Hornbostel’s “Materials in Architecture” (which has been a wonderful reference book for me; I’ve had my copy since 1971), portland cement was invented in 1824 by an English mason named Joseph Aspdin. He combined lime, silica, iron oxide and alumina in specific proportions, pulverized the mixture, burned it to a clinker and then ground the clinker into a finished product that he called portland cement, after the Isle of Portland in the English Channel.

Now, what’s a clinker?

Clinker is the “bluish-gray substance created when an intimate mixture of calcareous and argillaceous minerals” are “strongly heated.” Aspdin mixed his materials together, ground them up and heated the ground-up mixture. When the heated mixture was burned, he had clinker. He ground up the clinker, called it portland cement, added water and an aggregate, probably sand, and created portland cement-based plaster. The process of creating clinker is still used in modern portland cement manufacturing, although on a much larger scale than in Aspdin’s era.

(Quotes in the above paragraph are from Brady and Clauser: *Materials Handbook*. Other references used in the creation of this column include Diehl: **Manual of Lathing and Plastering** and Bucholtz: **The Consumer’s Stucco Handbook**.)

To elaborate further, Aspdin was, as David stated, a mason who lived and worked in the area around Leeds, England. Aspdin was enamored of the positive Characteristics—durability and an ability to resist water penetration—of the most popular building stone used in England during the early 13th century. He was not, however, pleased by the high cost of the stone material.

Believing that the positive building characteristics of the stone could be replicated in a lesser cost material, he began to experiment with various combinations of ingredients. He ultimately settled on a hydraulic cement mix—mostly clay and limestone—that was water-resistant, set very hard and was similar in appearance to the stone he sought to imitate. He called his new mix “Portland cement,” and named it in honor of Portland stone, the popular name for the stone that he sought to copy. As far as we can tell, most of that stone was quarried on the Isle of Portland in the English Channel. One of the reasons that it was so expensive was the cost of transporting it from island quarries to other parts of England.

Portland cement experienced its first recorded use as a building material in the United States in 1868. Joseph Aspdin’s new material was so low in cost that it was initially shipped to the new world in the bottom of cargo ships, where it was commonly used as ballast. 📦

## About the Author

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