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MATERIAL WORLD *By Zahid Sardar*

From Earth's core to your backyard

Porphyry, an igneous granite that forms when magma is exposed to air through fissures in the Earth's crust, is the latest darling of landscape designers.

Essentially a fast-cooled magma, porphyry is denser than most granite and absorbs little water or oil that might break it down. Ironically, its imperviousness also makes it ideal for permeable paving (laid over sand) because it lets a maximum amount of runoff trickle into the soil.

Miles Chaffee, owner of Milestone Imports, a Santa Fe, N.M., porphyry distributor, says the stone is found in quarries all over the world. Russia, China and even Argentina have it.

Known to ancient Egyptians who quarried it near the Red Sea to make columns and pillars, porphyry has long been valued for its great density and strength.

In Italy, the rock's purplish hue (that gives it its name) made it popular for the sarcophagi of Roman kings. Fragments of the strong stone could also be made into cobblestones and pavers, so the Romans used 3- and 4-inch-thick chunks to make roads, including sections of the famous Appian Way that went past porphyry quarries near Verona. Some roads, laid in distinctive arced patterns for uphill climbs, still survive, Chaffee says.

Chaffee represents Mondial Porfidi, an Italian stone purveyor who owns quarries near Guanajuato, Mexico, better known for its silver, gold and copper mines.

"The coppery metallic hue from that region is extremely popular," says Chaffee, who ships Mexican porphyry to clients in the United States and Canada where, because of its proven durability over centuries, it is used to pave walkways, patios and driveways.

By comparison, Chaffee says, porous limestone floors show wear within decades.

In the Bay Area, you can learn of its virtues by walking or biking on it: New landscaping at Stanford University designed by SWA Group incorporates porphyry.

Photos by Milestone Imports

Porphyry, above, an igneous granite used for centuries, has been rediscovered by landscapers.

At a glance

Expert opinion: Pavers fashioned from porphyry require less labor, and that keeps the cost down.

"You just score and hammer it to make it into rectangles and squares," Miles Chaffee says.

However, because it is a heavy stone, shipping it costs more. "The closer the quarry, the less expensive the stone will be," Chaffee says.

Like slate, the stone is often found in layers that vary from 1 to 8 inches thick. Most pavers for roads and driveways are about 2 to 4 inches thick. "Without meaning to, the Romans created a permeable paving system," Chaffee says. To keep their roads stable and dry, they standardized a 40-inch substrate of compacted gravel and sand below surfaces paved with porphyry.

Laid in fan or fish-scale patterns, the stone's intrinsic strength (it can support 20,000 pounds per square inch) was enhanced. It withstood chariots, heavy carts, horses and animal waste. "The Romans called it the metal of the road," Chaffee says.

Pros: While limestone absorbs acidic salts that harm it, porphyry, because of its density, repels contaminants. Unlike slate, small pieces of porphyry are structurally sound and can withstand heavy traffic on permeable patios and walkways. Unlike permeable gravel beds, porphyry surfaces require little maintenance.

Cons: Porphyry is not available in large slabs; 4 to 6 inch squares are typical, and the biggest pieces, mostly from Argentine quarries, are about 16-inches square.

Price: About $7-$8 per square foot.

Resources: www.milestoneimports.com.