A beam of light shines into one of the old beehive kilns at the Archie Bray Foundation of the Arts in Helena.

PRESERVATION SPECIALISTS LAUNCH EFFORT TO SAVE ONE OF MONTANA'S HISTORIC COLLECTION OF BUILDINGS

FROM KILNS TO CLAY

The scene isn't commonplace. "It's like an Islamic village," says Frank Matero, contemplating the view. Clay domes huddle in a sleepy golden valley. A tall tower seems to await a muezzin and the call to prayer. But this is the Prickly Pear Valley and Helena, Montana. The domes, made of brick, aren't dwellings, they're beehive kilns that fired industrial and decorative brick, tile, sewer pipe, flowerpots and more. The tower was involved in processing clay. Clay products were manufactured here beginning in 1885 under a few different company names, but from 1905 to 1960, the plant belonged to the Western Clay Manufacturing Company, managed and ultimately owned by Charles Bray, an English immigrant, his son, Archie Sr., and his grandson, Archie Jr.

As head of the Architectural Conservation Laboratory (ACL) at the University of Pennsylvania, Frank Matero has seen an Islamic village or two as the ACL helps preserve precious heritage sites around the world. Matero, ACL staff, and U Penn students have worked on ancient walls in Egypt, Iron Age city gates in Turkey, cliff dwellings in the American Southwest and southern plantations. The story told here by Western Clay's beehive kilns, Matero believes, is just as important. And after a century of withstanding the elements, the domed structures seemed to be falling apart.

The kilns' story is part of American industrial history. By 1918, Western Clay was Montana's largest producer of brick, at times employing up to 50 men, and each generation of Brays made upgrades and improvements. The kilns, originally coal-fired, then converted to gas in 1931, operated 24-7 and were tended by workers who, until 1947, slept on site. Two rail spurs ran through the brickyard alongside the kilns. Through one arched opening, workers filled a kiln with up to 45,000 bricks. After the firing, through a door on the opposite side, workers unloaded them directly into boxcars. Much of Helena, and Montana for that matter, was built with bricks stamped "W C Mfg Co, Helena, Mont." ▸

STORY BY BETH JUDY
PHOTOS BY DYLAN H. BROWN

However, World War II introduced new building technologies. Demand for brick declined. In 1960, unable to pay its bills, Western Clay closed practically overnight. Fifty years later, the last firing is still stacked in Kiln 8.

In 1900, beehive kilns weren't rare in the U.S. or Montana. But Western Clay's are special. Midway down the dome, a wooden shed roofed in metal extends out, encircling the kiln. The kilns' shed roofs interconnect, creating a protected, versatile workspace beneath. It was a system Charles Bray brought with him from England. Inside, the kilns measure 30 feet across and 16 feet high. Stand in the center and you're surrounded by fireboxes at the base of the wall at regular intervals. They look like bricked-up fireplaces but are open at the top, like pockets. They produced heat, which traveled up the walls and was drawn down through the wares by flues under the grated floor. Above, an oculus, or hole, at the very top of the dome let air in or out during firing.

The ACL found that the kilns are remarkably intact. In part, because as soon as Western Clay closed, they were protected—and even revered. Archie Bray Sr. didn't know it at the time, but he ensured this protection when he founded the Archie Bray Foundation in 1951. On the site, "the Bray" became a place for ceramic artists to live, work and learn. Its founding involved some of the most important clay artists in the country—who happened to live in Montana—and from the start they attracted great ceramicists from around the world, who often stuck their creations into the beehives to be fired with the brick and sewer pipe. By 1966, when the defunct site was auctioned, the Bray Foundation was able to buy its own buildings. Though stilled, the brickyard was never totally abandoned, and in 1984, the Bray bought those buildings, too. The site had "transformed from industrial production to the production of art," Matero says. "Two traditions came together here. This site links them—it's Adam's finger touching God's."

Today, the beehives are integral to the Bray though they're fenced off for safety. "When you arrive, they're the first thing you see," Matero notes. "You know you're somewhere special." Bray artists have responded to the structures and sometimes put them to use. Kiln 7, for example, its grated floor filled in for safety, has hosted exhibits, concerts and a memorial service. Unlike Kiln 8, Kiln 7 is empty. The domed space is eerie. Whispered messages shoot up and over the dome to a listener standing on the other side, arriving clear as day.

A combination of creative thinking, desperation and serendipity brought the ACL to Montana. Concerned about the kilns' deterioration, Chere Jiusto and Patty Dean of the nonprofit Montana Preservation Alliance (MPA) happened to read about the ACL's work on ancient kivas at Mesa Verde in Colorado. The ACL was protecting the sacred structures with an innovative type of roof. The issues the ACL faced with the kivas were similar to issues with the kilns, so MPA contacted the ACL with questions. Matero asked them to send pictures, and "the photos sucked me in," he recalls. "In 35 years, I'd seen hardly any site like this." In part, that was because of how immediately and completely Western Clay was mothballed—the intact firing in Kiln 8, the tools leaning against the kilns, things like the empty bag of salt, after all these years. "Unlike so many other places," Matero says, "we could enter the story before any other restoration or preservation had occurred, when critical decisions can be made about how future generations will relate to this place."

For now, the goal

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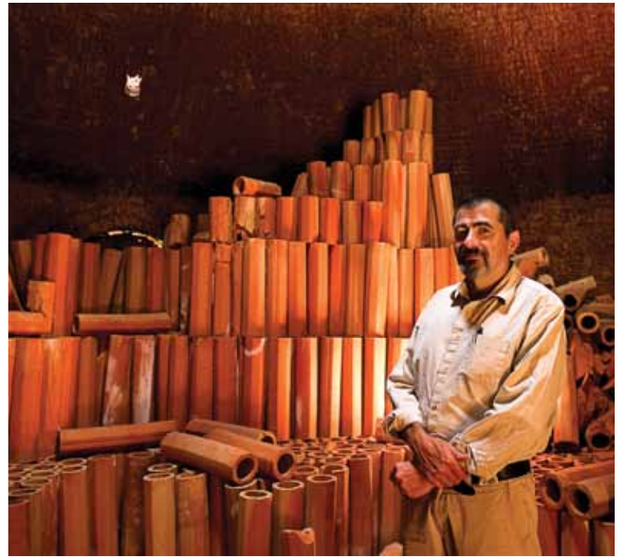
FRANK MATERO

with the kilns is stabilization—stopping the trend of deterioration and simple remediation of damage. Down the road, further conservation or use will be up to the Bray. With support from the J.M. Kaplan Fund, ACL and MPA are combining the work of stabilization with hands-on conservation learning. Starting in 2011, students in conservation, museum studies and archaeology from U Penn, the University of Montana and other institutions have arrived in Helena to learn by doing. Their curriculum ranges from nuts and bolts—or in this instance, bricks and mortar—to philosophical aspects of conservation. The first summer focused on documentation, a necessary first step, says Joe ▸



This page, top: Artifacts from the Western Clay Manufacturing Company era still lie in the old drying room at the Archie Bray Foundation. Bottom: Frank Matero from the University of Pennsylvania. Facing page, top: A smoke stack, which connects to one of the beehive kilns, towers above the rest of the buildings. Middle: A beam of light shines into one of the kilns. Bottom: Laura Lacombe, left, and Casey Diserens throw wet toilet paper on the outside of a kiln.

Torres, ACL staffer and U Penn conservation grad, "or we'd be guided by assumptions." Documentation of the domed buildings included Discovery Channel-style laser scanning, computerized drawings and large-format photography—but also, old-fashioned hand measuring.

Last July, U Penn students in blue and black conservators' overalls gathered around Matero, staring past him at the brick wall of Kiln 7. Non-stop, Matero fired questions, all of them meaty and many having to do with chemistry. The students were deep in thought. Not only would they be cleaning dirt and debris from this wall that day, they had to figure out the best way, considering this particular site, to remove salts absorbed into and eroding the bricks. Matero led them through all the considerations at hand. "You don't want to be thinking about this stuff when the mortar is mixed and ready," he admonished.

Comparing steps of this project with an ACL project in Cairo, Matero returned to the question of how to remove the salts. "A poultice?" one student ventured.

Matero nodded. "What materials? Sponge? Paper? Clay? Once it's on, how do we get it off?" The talk touched on barium, reagents, titration. Overhead, metal roofs flapped in the breeze; the light beneath them is dappled, filtering through holes—another aspect of instability the ACL will address. Meanwhile, Matero guided the students to a paper poultice—specifically, toilet paper, which he's already had soaking for 12 hours. He produced a kitchen blender, hit a button, then passes samples around for all to feel. Slapped onto the brick, the poultice will draw salts out, dry and peel off "like a scab," Matero promised.

"After poulticing, what?" he prodded.

"Repoint the bricks?" someone replied. And they're on to the next step, which Matero compared to dentistry.

Part of Matero's curriculum involves touring the students around Montana to see other remnants of its industrial past—lime kilns, charcoal kilns, Butte's minescape, hydroelectric. "They're blown away. There was such a variety of industries here. And they were physically big, their scale was massive." Sites in few other U.S. states compare, Matero continued, save maybe Minnesota. "But many sites there have been lost to development. Montana is a time warp." The up side of boom and bust cycles (plus an arid climate) is that "sites here manage to survive a long time."

But Western Clay and the Bray are special to Matero and the ACL, in part because of the material at the center of their story. "Clay is how we know the history of so many amazing cultures around the world. It comes from the earth and fires easily compared to glass. Think terracotta soldiers in China, bits and pieces of the Roman world. Sometimes the only fragments of past civilizations are clay." **M**

Beth Judy is a frequent contributor to Montana Magazine. She lives in Missoula.

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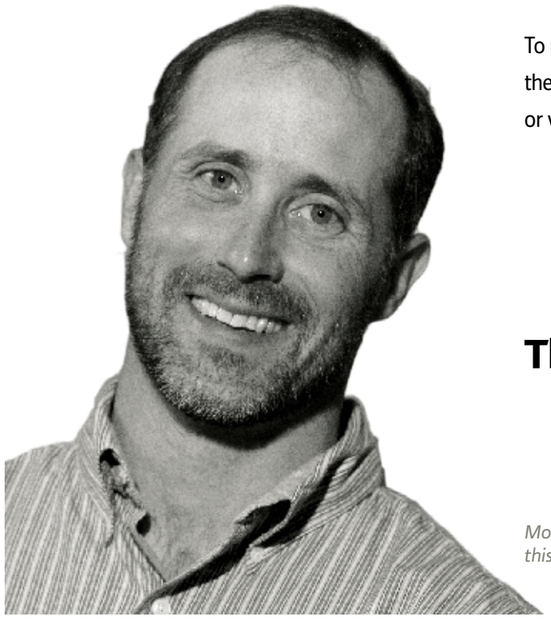

Montana Western biology professor Mike Morrow, this year's Carnegie Foundation Montana Professor of the Year.