

Sacred & Mundane

ARTIFACTS OF CONTEMPORARY CULTURE

The Moss Shall Set Them Free

BY NALINI M. NADKARNI

My secretary stuck a Post-it note on my office door. “Telephone call from your prison warden.”

Although I am a professor of forest ecology with no criminal record, I had grown used to such messages. The note continued: “He said Inmate Hunter has another hypothesis to test. He wants to put moss flats under big-leaf maple trees in the prison yard, where they’ll get natural throughfall—does that make sense?”

The Moss-in-Prisons project is one part of a nascent effort to counteract the destructive effects of collecting wild-grown mosses from old-growth forests for the floral trade. Inmate Hunter and half a dozen other prisoners were participating in this ecological research and outreach program I initiated in 2005. I told the warden that the request did make sense, since mosses in the wild grow best on maple trees, a fact I had briefly mentioned when I first met with the prisoners.

Since 2000, the moss industry has grown rapidly, producing nearly \$200 million in revenue in 2005 and raising concern among ecologists because canopy-dwelling mosses fill important ecosystem roles and are slow to regenerate. Mosses capture and retain atmospheric nutrients, provide habitats for arboreal invertebrates, and supply foraging locales for arboreal vertebrates. Recent research has shown that moss communities take decades to

regrow after disturbance, far longer than what would make for sustainable harvest at present removal rates from ancient forests.

No protocols exist for growing mosses commercially or in large quantities. To learn how best to grow them, I needed help from people who had long periods of time available to observe and measure the growing mosses, access to extensive space to lay out flats of plants, and fresh eyes and minds to put forward innovative solutions. These criteria, I thought, might be shared by many incarcerated people.

The biology of mosses makes them suitable for novice botanists, as mosses possess poikilohydric foliage that enables them to survive drying without damage and to resume growth after wetting. Mosses lying in herbarium drawers for over one hundred years have been revived by simply applying a little water and bringing them into the light. They are resilient to under- and over-

watering, a characteristic that increased the probability that the prisoners would succeed in nurturing them. Carrying out primary research on how to grow mosses in captivity could also provide an opportunity for people with no access to nature and little opportunity to use their intellects to learn about the process of research and the rationale for plant conservation.

After scouting prisons in my region, I found the superintendent of Cedar Creek Correctional Center in Littlerock, Washington, amenable to our program. Our moss-growing team comprised a warden, two of my students, a community volunteer, and six inmates who rotated in as their fellow prisoners’ sentences ran out. Our questions were basic: Which species should we consider for commercial farming? How much water and nutrients do mosses need? Should solutions be delivered as droplets or as mist? At the outset of the project, my





Tainted at the Source

In Youngstown, Ohio, the Mahoning River winds through the rubble of a once-booming industrial economy. Its waters are brown and murky; its sediments contain a menagerie of heavy metals, PCBs, and raw sewage. After growing up near this neglected river, Leah Menzies and her friends decided it was time to bring the Mahoning back into the community. They ignored the posted warning signs, slipped their hands inside plastic bread bags, and

dipped empty water bottles into the water. Then they made labels with their brand name and logo, which also faithfully listed the product's ingredients: water, untreated sewage, Pb, Hg, Se, As, P, Polychlorinated biphenyls, polycyclic aromatic hydrocarbons, nitrates, nitrites, *E. coli*, other miscellaneous contaminants. After fastening the bottles into six-packs, they stood in front of the local shopping mall and tried to sell their bottled water. No one bought it.

students collected moss samples with a permit from the Olympic National Forest. We gave each inmate a notebook and pencil to write observations. The prisoners quickly learned to identify common moss species by their scientific names. They devised their own ways to grow mosses (for example, hanging clumps of moss in mesh bags), delivered water with medical tubing and hardware clamps, and learned how and why to retrieve randomized subsets of mosses to air-dry for our moss growth measurements.

The results of the project were dramatic. After eighteen months, we all shared the excitement of knowing which mosses grew fastest and which watering treatment was

most effective. We have since been working with two online nature gift companies to sell "sustainably grown moss pots" using the mosses the prisoners have propagated. We include information about the ecological importance of mosses on a hangtag that accompanies each pot.

Inmate Hunter joined the horticulture program at the local community college after his release, with a career goal of opening his own plant nursery. Inmate Juarez told me he had taken an extra mesh bag of moss from the greenhouse and placed it inside the drawer of his bedside night table. Each morning he opens the drawer. "And though it's been shut up

in a dark place for so long, the moss is still alive and growing," he said, grinning. And then, more quietly, "Like me."

In Praise of Old Maps

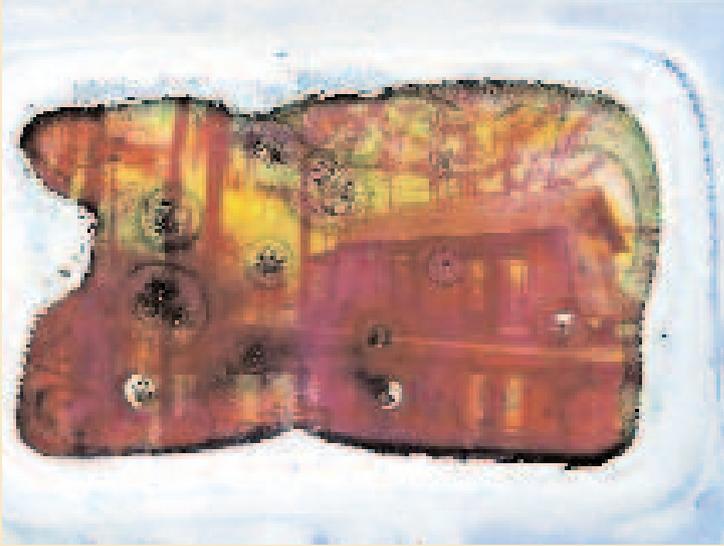
BY PAUL GILMORE

Two of my rock-collecting friends recently dropped off several hundred pounds of old United States Geological Survey topographical maps that had been thrown out by universities. Most of my basement is occupied with tables covered with stacks of these large maps. Something about their appearance, their purpose, and their very survival for over a hundred years brings to them a significance that defies obsolescence. The paper itself has aged to a sepia tone and yet maintains a glossiness not seen on more modern editions. The elevation contours vary in depth of color, but are usually a burnt reddish-brown. Forested lands aren't green on the earliest maps, but when green arrives, it's a mellower shade than the current graphic hue. Water is a deeper shade of blue. The Mississippi River delta makes for some of the loveliest images of braided watercourses rendered by man. All these colors have a luster that seems to elevate lake and woodland areas off the paper.

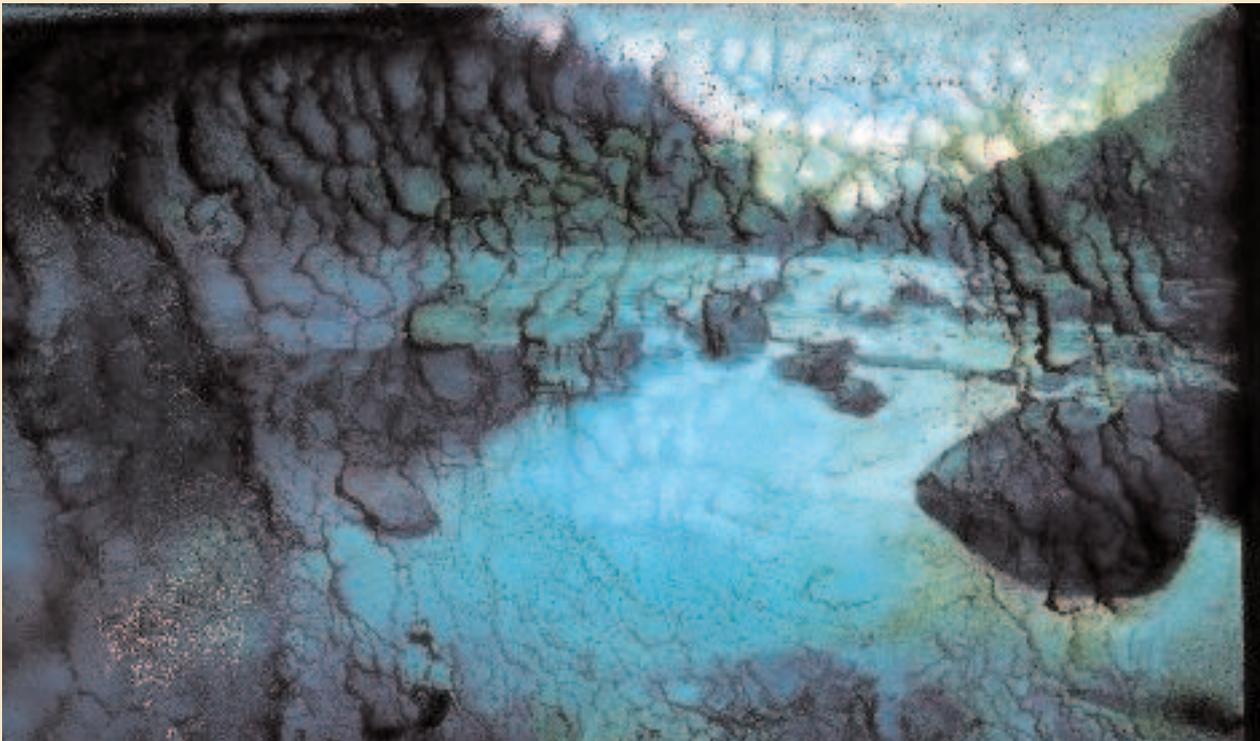
Some of the more featureless areas are attractive for the old typeface used for place names. A sparsely populated place in the Southwest is labeled "Memroy's Ranch" since it was the only settlement for many miles. The flatness of the Midwest facilitated the rectilinear road layouts, with houses (tiny black squares) so widely scattered they had to be farms. The rare instances of Midwest roads not oriented north-south and east-west appear where a city grew up on a river that didn't feel like running due north or south. Even then, the roads ran parallel and perpendicular to each other, but the grid was rotated, snuggled up against its lifeline.

"Big city" maps (of Los Angeles, San Jose, and New Orleans) from the 1890s

Nature's Photography



Photographer Thomas Kiefer's home studio in New Orleans was flooded during Hurricane Katrina. Two months after evacuating, he returned to find that many of his original images of nature, made on slide film, had been manipulated by the storm—submersed in floodwaters for days, transformed by chemicals, and then baked in the sun.



document the growth of streets and even buildings. Some quadrangles went through five or six editions between the late 1880s and 1945. Mountains, scarps, and gullies instantly communicate the enormous forces that shaped them over eons. Different versions of the same area seem identical until I discover that a delta sandbar shifted a bit, or a river altered course. In the case of Lake Yellowstone, the “Western Thumb,” a large bay at the lake’s southwestern edge, shrank slightly by the 1930s and is now labeled the Western Leg. Such changes are only detectable by laying one map on the other and trans-illuminating the two with a bright light. Whether they depict the convoluted topography of eroded badlands or the structured imprint of humanity, these maps tell the story of an evolving American landscape.

The Greenest Noodle

BY LOU BENDRICK

The box designs were similar: both had the same deep-space blue background and depicted a spoonful of the soothingly famil-

iar yet preternaturally orange noodles. And yet, the differences were clear enough: the organic (*organic* written in green script) steered away from the hyperbolic claim of being the “cheesiest” and sported the USDA organic seal of approval (which holds about as much esteem among organic types these days as the Oprah Book Club seal holds among the literati).

It was only a matter of time before a processed-foods juggernaut like Kraft entered the organic market, potentially laying waste to smaller competitors. When the company first announced that it would offer organic macaroni and cheese, I was ambivalent. Yet I secretly hoped that the new product would offer a cheaper and tastier alternative to pricey health-food varieties like Annie’s Homegrown, with its child-attracting bunny logos. So when the Kraft organic mac arrived in my local grocery store, I grabbed a box, along with a box of the original, and took both home to the ultimate taste-tester: my child, age five, a connoisseur of orange pasta mixes.

Once they were prepared, there was no chance of mixing them up. The organic

noodles were paler and firmer than their goopier, brighter kin. My daughter tucked into both bowls and at first failed to find any difference. “Both are good!” she enthused. But as time went on, she liked the organic kind better, finally eschewing the original altogether. I had to agree: the organic had a “cheesier” flavor and better texture. This was surprising because its cooking directions called for less milk and butter. (Actually, the original called for milk and “spread.”) The original mac’s ingredient list was longer and had creepier, harder to pronounce items (sodium tripolyphosphate) and two different types of yellow (not orange!) dye. Organic varieties use annatto for color.

The real irony about organic processed foods is that the point of processed foods has never been about nutrition, but rather about cost (low) and convenience (high). After all, Kraft introduced macaroni and cheese in 1937, and it became popular during World War II rationing. And yet for many Americans, the point of eating mac and cheese in the blue box is pure nostalgia. Surf the Internet’s few macaroni-and-cheese fan sites and you’ll find paeans to Kraft’s original mac. My favorite line reads: “Together through the darkness, we seek the warmth and light of its unearthly orange glow.” This and other odes have been posted on lovemarks.com, a site devoted to brands that inspire “loyalty beyond reason.”

Of course, a quest for junk without guilt is also beyond reason: I was willing to pay roughly 73 percent more for 17 percent less of a product that despite being organic was still—let’s face it—junk. (I paid \$1.89 for a 6-ounce box of organic mac and \$1.09 for a 7.25-ounce box of the original.) Why don’t I just take the extra twenty minutes and make the homemade stuff? I could blame it on lack of time but the truth is that I, like my daughter, occasionally want to ditch the food police for a joy ride. 🐉

