Ecologist Roy Funch hikes up the bed of a waterfall to a diamond mining camp. He has observed the diamond culture in the region since the 1970s.

Diamond Rush

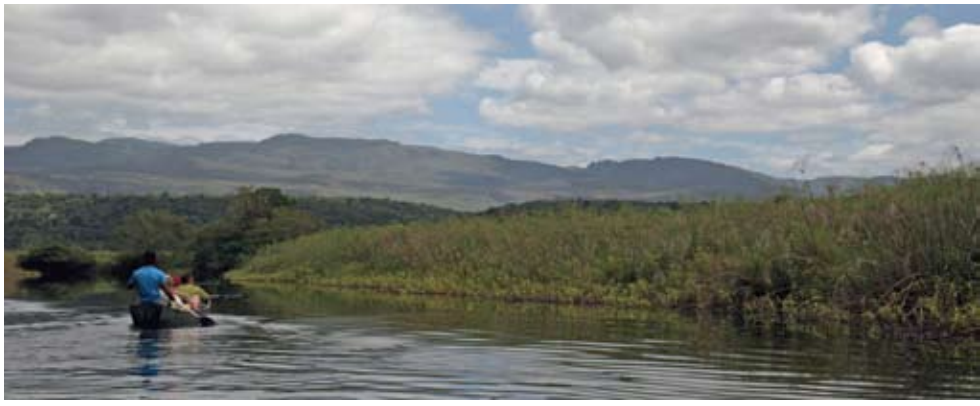
Nineteenth-century wildcatters left their marks on Brazil's landscape.

by Samir S. Patel

We are walking up the bed of a gently graded waterfall in Bahia, Brazil. It is the dry season and the water—so clear and dark with tannins that it looks like strong tea—cascades through shallow pools to the left, leaving an expanse of smooth pink sandstone for us to climb. Roy Funch, a local ecologist and guide, is hunting for something he spotted from a helicopter last year, some remains of the frontier-mining culture that gave this region its name, the Chapada Diamantina, or diamond tablelands.

At the top, we push our way through some thorny scrub, rock-hop across the river, and find two rows of slabs stacked about a foot high. To me they look like suburban landscaping, but Funch—a wiry, spry American expat—explains that they are part of a double-walled canal used to pan for diamonds since the nineteenth century. The diamond miners who built this canal used it like American gold prospectors used sluices, to control the flow of water to separate out denser material that can be panned. We see, a few yards away, Brazilian-style frontier cabins made of more unmortared sandstone slabs. Cacti grow up through the blocks, and inside are the brittle remains of roofing and bedding material. The buildings haven't been occupied in a while—Funch guesses a couple of decades—but the construction style suggests they were built during the Bahia diamond rush in the 1840s, before the gold rush in California. Back then, the mountains and valleys of the 15,000-square-mile Chapada Diamantina were crawling with prospectors sifting every bit of gravel for the dull glow of a raw diamond and leaving behind such structures, which reflect the rugged, ramshackle lives of their erstwhile inhabitants.

"We're the first," says Funch, who resembles a Brazilian hill-town version of Leonard Nimoy, but we're not really the first to visit since the miners left. Guides often bring travelers through the Marimbus Marsh, a maze



Most of the local rivers drain into the Marimbus Marsh, a sprawling, confusing expanse that serves as a gateway to the once diamond-rich valleys.

of rills between stands of papyrus and water hyacinth, to swim in the waterfall. Some of them must have stumbled across these sites. We are, however, the first to see their significance as symbols of the inflection point between living culture and archaeology.

Funch is admittedly an amateur archaeologist, but he's the only one paying these sites any mind—he takes photos and GPS readings at each one. "It's always nice to add a couple of new houses to my collection," he says, which numbers over 100. But frontier-mining sites are studied by archaeologists all over the world, and those investigations might guide a study of the Chapada Diamantina: who lived there; how they survived, communicated, and altered the landscape; and how successful they were in seeking their fortunes.

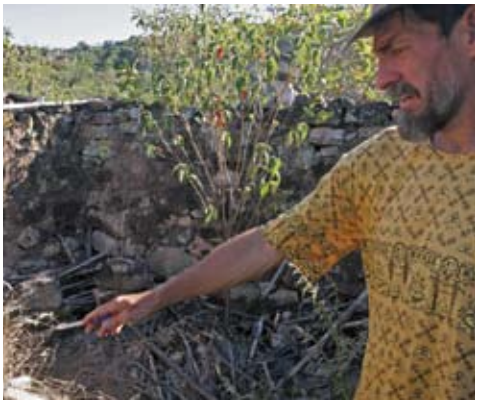
Located 250 miles from the Atlantic coast, the Chapada Diamantina looks like the American Southwest with green stubble. There was little besides natural beauty to distinguish the roadless region until 1844, when diamonds were found. In his guidebook on the region, Funch writes that at that time diamonds easily could be plucked from streams or sifted out of thin mountain soils. Even today, older people still cut open the craws of chickens to look for swallowed diamonds or scan the ground for them after a heavy rain. Slaves of African descent were used in the early mining operations, but the diamond trade here lacked much of the conflict and dark political overtones of the modern industry. It resembled, in its techniques, wild lifestyle, and petty exploitations, frontier gold rushes in the United States, Australia, and other places around the world. With the influx of mostly Brazilian miners, the towns of Lençóis and Mucugê grew quickly, just like Scagway and San Francisco during the Alaska and California booms. For the next several decades, industrious and desperate men marched into the mountains and returned to the towns to spend their diamonds on booze, women, and overpriced provisions. The miners found shelter in the mountains by walling off natural overhangs and building freestanding stone cabins.

Within a couple of decades, the easy diamonds were gone. A run on superhard black diamonds, or *carbonados*, in the late nineteenth and early twentieth centuries kept the region alive. "Rock-boring became viable with the black diamonds from Brazil," says Funch, and the diamonds were used to tip drills that dug the Panama and Suez canals and tunnels all over Europe. Cheap, synthetic diamonds returned the region to its century-long, bleeding decline. Diamonds trickled out of the mountains at a survival level—searching for them was no longer a get-rich-quick strategy, but a subsistence lifestyle, a trade passed from father to son. Lençóis became a musty relic of the rush days, an inhabited ghost town.

As the adventure travel industry arrived in the Chapada over the last

decade, Lençóis became a safe, charming, New World mountain town with lively restaurants, barrels of aged *cachaça*, and cobblestone streets. But in 1978, when Funch first arrived, it was dirty, poor, and forgotten. "The town had been falling apart for 130 years," says Funch, who studied the Chapada's vegetation for his Ph.D. Most able hands had fled to the cities, but Funch explored the mountains and met many of the old-time diamond panners, still living in the stone shelters their forebears built. "All the miners would invite me out to their digs," he says. "It was like living in the Western films I had seen of the gold rush or the post-gold-rush phase."

Funch learned about panning for diamonds and the mountain-man mythology. Diamonds were beings made of energy, the old miners told him, glowing brightly and calling out to their chosen discoverers. The diamonds' energy took the form of women—white ones for white diamonds, black ones for *carbonados*—driving men mad with longing.



When Funch finds a new site, he photographs it and records its location, but he admits he is only an amateur. Understanding the area's history, he says, will require trained archaeologists.

This army of wildcatters left their marks on the Chapada, which is now a national park. "It's actually amazing what one old man and a dog and limitless water and endless time can do—the amount of destruction that can be done," says Funch, whose post as the park's first director put him at odds with the old-time diamond panners. "These guys could destroy acres of land in weeks." They burned patches of forest for meager agricultural plots, diverted rivers, and washed the thin soil off entire valleys.

Such blights on the landscape are among the most important archaeological records of frontier-mining sites. Diversion of water, the need for fuel, and general disregard have resulted in local ecological catastrophes that look remarkably similar from country to country, from rush to rush.

Don Hardesty of the University of Nevada, Reno, sees these patterns. Frontier-mining archaeological sites across the world, he says, have so much in common that they can be examined as a whole and shed light on one another. In an article he is writing for an upcoming volume on frontier-mining archaeology, he posits that these sites

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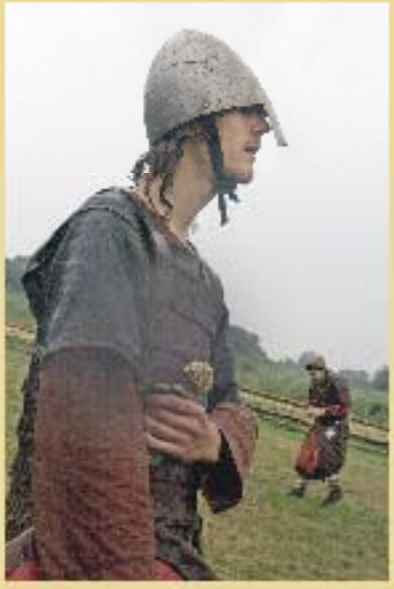

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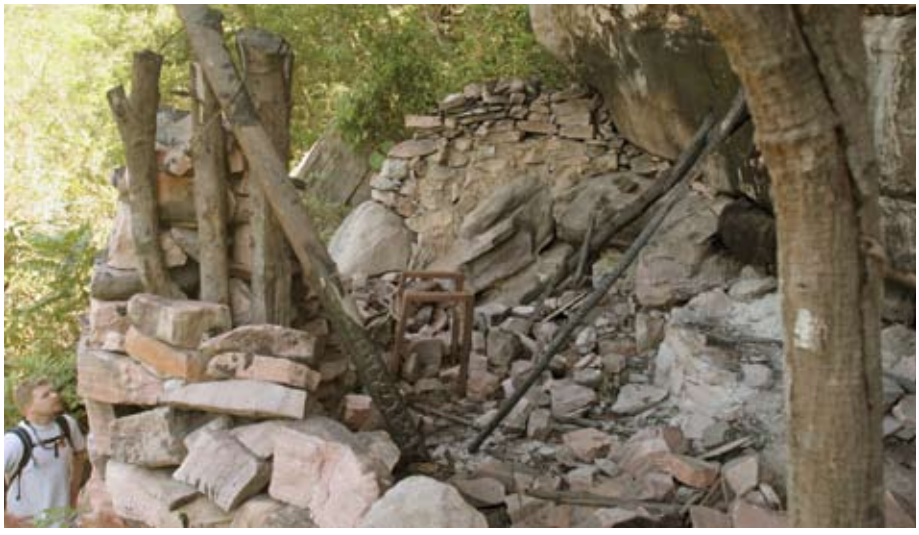


Shelters like this one, which may have been built in the 1840s, have more recently become hangouts for misanthropes. The old woman who lived here used to chase her husband with a machete.

are laboratories for historical ecology, or the study of how human-environment interactions affect landscapes. The ecosystems of the Chapada Diamantina, for example, are the canvases on which this history was written, in a language that has already been deciphered at other sites around the world.

In the Otago gold-rush region of New Zealand, many of the water courses used for placer mining are still visible, according to archaeologist Ian Smith of the University of Otago. From their modes of use and construction, he says, archaeologists have been able to show how miners from different parts of the world brought their own ideas and resourceful methods, often within the same water system. The evolution of water-control techniques in the Chapada, from handworking a streambed, to guiding a creek, to diverting a river to sweep a hillside clear, can show how and when certain regions were worked, and potentially who worked them. These techniques and other technological aspects of mining are passed within and among communities, just like an artistic style, in what Hardesty calls "sociotechnical networks." They reflect, in patterns of water control and deforestation, the social organization of the Chapada's diffuse mining community.

A few days after visiting the waterfall, we walk uphill through Lençóis and down again into the narrow canyon of the Ribeirão River. We leave the trail to hop and climb our way through a five-mile stretch of shiny, house-sized conglomerate and sandstone boulders. In some places, water trickles right through the canyon walls, creating slick, slime-coated surfaces Funch calls "bacterial teflon." The valley is laced with canals, stone dwellings, and denuded hillsides. It is a landscape worked and reworked by generations of busy, desperate hands.

A few hours later, halfway up the side of the valley, we find our first shelter, built directly under an enormous boulder that seems to teeter over us. Some of the stones have collapsed, but this site had been occupied very recently. The last occupant was a daft old woman who, when she was not sifting through pebbles, drank and chased her husband—who lived on the nearby valley floor—with a machete. Various bits of junk litter the area: a metal fork, some melted plastic, part of a chair charred in the fire that killed the old woman two years ago. And beneath the bricks and the dirt floor or in the surrounding weeds, there is a century or more of the site's frontier-mining history.

The U.S. National Park Service (NPS) has surveyed hundreds of such solitary mining sites from the Alaska

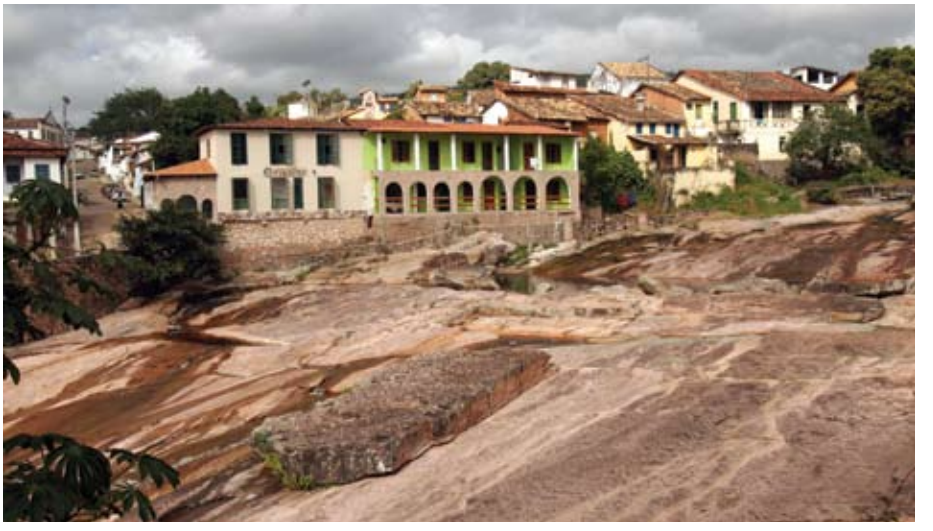
gold rush, according to NPS archaeologist Becky Saleeby. The most commonly found artifacts are mining tools, such as shovels filed to a point to scrape out sluice boxes, and evidence of subsistence food production with an uncommonly high degree of improvisation, ingenuity, and adaptive reuse, such as cans pounded flat to make roof tiles or perforated to make strainers. "Whatever they had, they figured out another way to use it," says Saleeby. But the differences between the sites can often be more telling, she says. One group of cabins on the Charlie River in the Yukon, for example, all had birdhouses, perhaps evidence of a single bird-lover in the group. The size of cabins, the quality of workmanship, and the presence of ceramics or unique artifacts can tell archaeologists whether a woman lived on the site, how successful a group of miners were, or whether the inhabitant loved the freedom of the mining lifestyle more than the promise of riches. Based on Funch's stories about the valley residents, it is not surprising that remnants of tobacco and alcohol are also common at virtually all frontier-mining sites. "When I came here, every male above school age was a miner," says Funch. "You were either a drunk or a miner. Or a drunk miner."

Hardesty explains that despite the loneliness of the remote camps, studying the miners' social interaction is key to understanding them. Careful examination of a modest assemblage of trash, for example, could yield insights into the structure, endurance, and level of communication for an entire community. He also notes that frontier mining is associated with rapid change and flexibility in social structures, much like sites associated with refugees, political unrest, or war. On this point, the grinding steadiness of the Chapada's long decline may break with other frontier-mining situations. The old woman's husband, for example, spent 60 years, on and off, trying to access what he thought would be a rich deposit. It's unlikely he would have stopped searching, even if he had found his treasure.

We continue down the valley, hopping from one precarious boulder to the next, the camera around my neck bouncing off rocks as I reach out to catch myself. We shimmy through a smooth tunnel under a boulder the size of a four-story building, and stumble across another stone mining cabin every 15 minutes or so.

"Follow me," Funch says, as he turns abruptly off the path and up a hillside covered in eye-high dry grass. "They call this stuff grease grass," he says. "I don't know why." I develop my own theory. The field has a pungent botanical smell and leaves a sticky film on my hands and clothes. But because the grass

The former mining town of Lençóis, now a hub for adventure travel, has a colorful charm belying the poverty that enveloped the area for more than a century.



almost completely conceals the steep, rocky ground, it is difficult to find purchase. I slip face-first a half-dozen times. It's sticky, smelly, and slick. Out of breath, I stumble out of the chute of greasy grass into a low clearing, where there is another stone structure built in the imposing shadow of a giant boulder. It has a commanding view of the valley, but this site is different—it appears occupied. There is no door and no one home. The inside is dank, with sooty walls (a fire at night keeps mosquitoes away), a small grill over the hearth, a shelf for sleeping, some ratty clothes, and some plastic bottles of a mysterious dark brown liquid. It is simple, but after days of thinking about these structures from an archaeological viewpoint, it appears as a complicated, precious relic. I thought I had been looking at history in these stone cabins, plotting out how an archaeologist might see them. But here was a place that lashed archaeology to the present, where the transition from earthenware to metal cans continued through to plastic bottles.

These raw diamonds, including the black *carbonados* at bottom, are what remains of the Chapada's haggard mining culture, which has been replaced with development and relative prosperity.

"There has been a very visible break in the mining tradition because all these miners learned from their fathers, who learned from their grandfathers, and now their sons who would have been the next generation of miners are all guides," says Funch when we return to Lençóis. "There's an incredible amount of knowledge that is necessary to do mountain mining." It has not, for better or worse, been passed on, but a few diamonds still trickle out of the mountains.

On a side street back in town, behind simple, ill-fitting, and unsecured wooden shutters, far from the showrooms of Antwerp or the dangerous mines of Angola or Sierra Leone, is one of Lençóis's few diamond traders. In a tiny, airless room, where a sweaty old man polishes a vanishingly small diamond, the merchant pulls out packets made of newspaper, and short lengths of plastic tubing stoppered with slivers of wood. Each contains a small, rough diamond or two. He pours the contents of several packets into small bowls—the best of his stock. They are rough, and their color and clarity are probably terrible, but they play with light in a supple way. Here, living in the mountains in search of these stones was less about violence, money, and power than it was about chasing spirits.

"There're all sorts of nuts in the world," Funch says as I examine a *bala*, or spherical rough diamond, about the size of a pea. "But here it's kind of a romantic life." ■

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