

Sediment of lives

A camping trip to Bighorn Canyon provides a lesson in legacies

Photo courtesy of National Park Service

Bighorn Canyon National Recreation Area, which straddles parts of Wyoming and Montana, is home to the oldest known granite on earth.

During the re-construction of Wyoming's Route 14A, highway engineers received on-the-job climbing instruction from the National Outdoor Leadership School to help them remain safe while they cut the road through the harsh cliffs of the Bighorn Mountains.

The ancient mountain range, a massive arch of Precambrian granite, rises 13,000 feet above surrounding plains of sagebrush and grama and buffalo grass. To the west, the Bighorn River basin stretches flat and tan, bounded in the distance by the volcanic Absarokas. To the east, steep slopes cut with cliffs and canyons descend into Powder River country, a greener plain rolling toward a horizon hiding North Dakota's Black Hills.

The eight cylinders powering my 1972 Econoline roared through the damp air as I coasted at dawn down this eastern face in 2nd gear, engine compression slowing my descent. Before me, 14A slashed acute, north/south angles down the steep slope. A rising August sun flashed flat golden beams over my white knuckles, blinding me each time the camper rotated eastward around a switchback.

The Bighorns boast the oldest granite found on the face of the earth, formed of

magma that cooled deep within the lithosphere more than 2 billion years ago, then was forced upward sometime during the Mesozoic. The rising bedrock had thrust overlying sedimentary rock layers skyward, then split and bent them back upon themselves so that the oldest lay broken below the granite peaks and the youngest crumbled around their bases.

Some inspired geologist had prevailed upon the state highway commission to mark this inverted geologic timeline. As my camper struggled downward, the morning sun caught the reflective brown signs labeling the rock layers; Cambrian, Ordovician, Silurian, Devonian and Mississippian road cuts rolled past my open windows at a cautious 30 miles per hour.

The Ordovician layer, an ocean floor laid down 440 to 500 million years ago, contains the oldest vertebrate fossils known, jawless, armored fishes whose genetic sequences may still lie coded, in part, in our chromosomes.

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The tiny town of Dayton, Wyo., lies waiting at the bottom of this long descent. I stopped at its diner to eat breakfast, to let the engine cool and to ask directions to the day's

destination: a nearby canyon on the Tongue River. The Tongue is a tributary of the Powder. It draws strength from melting snow and rain captured by headwaters high in the Bighorns east through the center of town.

Poking around, I found a potholed access road and followed the river upstream, returning toward the mountains up a deepening valley. The camper's aluminum siding scraped against thick, dusty bushes as I cranked the loose wheel to avoid the tire-puncturing edges of broken cobbles.

The canyon rose above my camper, watching as I rolled west. Layered rust and sienna cliffs rose on both sides of the river. Small bushes struggled to grip the motte-like scree below the steep walls. Stone barbicans with juniper finials guarded the access road.

I pulled the camper under some shade and bathed in the river to wash off the night's drive, then climbed into my bunk above the cab and took a nap.

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I woke at noon to the strange song of a foreign language and stepped outside. A crumpled, two-door Oldsmobile was parked upstream, a small group of American Indians lounging around it. ▶

There were four. A slender, middle-aged woman sitting on the dented hood wore glasses, dirty lenses in thick plastic frames. Her shoulders hunched as she stared at the river. The tips of her ears poked through the bangs of her dull hair.

A wiry teenage boy stood beside her. His eyes darted around the canyon, dark and birdlike. Three cans of Pabst dangled from plastic rings twined in his fingers.

Opposite from me a heavy shape sat in the passenger seat, a man I couldn't see well. Only the top and back of his head and the thick meat of his shoulder showed around the reclining velour.

The fourth, and last, stood silent, apart from the others. He was huge, six-and-a-half feet of thick muscle with two black braids, a broken nose and no shirt. Horizontal Sun Dance scars slashed livid bars across his bulging pectoral muscles.

I must have been staring. He sauntered over, splashing Vodka from a plastic bottle of Stolichnaya into a 32-ounce gas station soda cup. The large red and white plastic cup looked small in his massive hand.

"I'm a kindergarten teacher," he said, flatly. "I just got out of prison." He looked at me, evaluating. "Got any food?" he asked.

I told him I was out and, afraid he might think I was lying, invited him into the camper to prove it, showing him its empty dust-covered cupboards. I pulled the peanut butter jar from under a pile of fly-fishing magazines on the counter and offered him a scoop.

He looked disdainfully at my dirty spoon, then sat down on the camper's pullout couch to sip his Stoli and gazed out the window, falling silent. Not knowing what else to do, I sat there with him. To kill the uneasy silence, I picked up a book and pretended to read, keeping watch out of the corner of my eye, but a few minutes later, when the woman and the skinny teenager came looking for their friend I abandoned the pretense, put the book down and we all sat in the camper together, staring at each other and out the door at the cliffs above.

They were Crow, from a reservation north of the Bighorns in Montana. I learned this from the boy, who talked a lot. He asked me for food and for money and for marijuana, but I had none, so he asked what I was reading, what it was about and if I was in college. He had recently returned from Los Angeles and his gaze shifted between his two friends as he bragged of drugs and schools and jails.

As the boy ran out of stories, quiet descended. Uncertainty and road dust settled through the tense air so that when the big warrior spoke up, breaking a thousand-yard stare to point up at a large arch topping one of the canyon's stone towers, I jumped.

"I brought my brother here to see that big

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hole," he said. "Him," he nodded with authority toward the Olds where the other Indian hadn't moved. "Someday I will climb with him and sit with him up there and watch the sun rise." As he spoke, I could see expectation lighting his battered face, perhaps from imagining the glory of climbing and conquering the arch-topped spire, then it passed and he fell silent again.

The woman watched him speak, then looked at the cliff where he pointed. A sad expression drew her forehead together and she spoke for the first time. "Why is it like this?" she asked, plaintively. When her mouth opened, I could see her tongue struggling in the gaps left by missing teeth. "This canyon...." She trailed off to gesture helplessly up at the sheared rock cliffs and asked me how I thought they had been created, as if my comments might help her work through their place in her modern life. We talked, and from our conversation I gathered the canyon had once been somehow sacred to her people. In her words I could feel the conflict, the rift between Crow culture and a Christianity that had forced its way into her life.

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The Sun Dance is an ancient plains tribe festival, held on the summer solstice, during which the bravest young men allow skewers of bone to be thrust through the skin of their chests, then tied to rawhide ropes hung over high tent poles. The ropes are drawn taught until these "dancers" lift from the ground, hanging in pain for days until the bone skewers rip from their flesh. Their sacrifice is considered a great honor; their pain and release symbolize the cycle of life and death.

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The three left eventually, their curiosity in the dirty white boy with his books satisfied. I had become accustomed to their presence by then, so when the big one's brother stumbled to the door I was not, at first, as nervous.

He was obviously younger, also tall, but not muscular, just padded with that sweaty fat that comes from drinking too much. His round scalp glistened underneath the in-

long black stubble of a ragged buzz cut.

Swaying in the doorway, both hands grasping the sills for balance, he blinked at me through fumes rising from vomit stains on his shapeless gray shirt, then reached down to the ground to pick up a large rock. He held it for a moment, weighing a granite cobble broken from the exposed bedrock and rounded by floodwaters from the nearby river, then handed it to me.

I took the rock, but not knowing what he wanted, dropped it. It bounced down the camper's yellow linoleum steps to thunk into the sandy road at his feet. He watched dust puff from the impact, then picked it up again and thrust it back aggressively, with a drunk's blind insistence. I shook my head, confused and growing uneasy.

Frustrated, he started to speak, then stopped and instead grabbed my wrist, this time placing the rock clumsily in my hand and curling my digits around it with his own sweating fingers. Then he leaned forward, bowing through the doorway. Turning his head sideways to blink up at me from his left eye, he spoke. "Crush my skull," he said, pantomiming. His meaty fist thumped loosely against his scalp.

Blood rushed to my face and goose bumps sprouted along my scalp. There was a deadness in his gaze, a blank stare that made me think of crypts, of depthless holes, and I felt sick. I tossed the rock past him onto the road, and when he went after it, shut and locked the camper door, my hands shaking.

I saw him later through the window as he wobbled out of the nearby outhouse, a dark stain spreading from the crotch of his faded jeans, and I decided to leave early. Yet, as I started the camper, the woman walked over and leaned into my open window, then held out a handful of change.

"You have less than us," she said. "Go buy some food."

"You better take it, college boy," the Sun Dance warrior called out from where he lay on the grass next to their car, staring up at the clouds. "She'll be offended."

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We're connected, the dead and the living. Our sins and our victories form the earth's uppermost crust, a sediment of lives that will someday be thrust upward, exposed like Ordovician sandstone. As that guarded canyon haunted those four Crow, our own

Wolverine: Continued from page 7

crumbled remains will haunt our children. What lessons will they learn? The past is a fertile soil.

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A few years after visiting the Bighorns, I found an arrowhead on Michigan's Keweenaw Peninsula, near a Lake Superior beach.

A friend and I were returning from a late October exploration of the peninsula's southern shoreline, taken in brightly colored kayaks rented from an outfitter in Copper Harbor. The last night out we had camped next to a fall that poured water golden with tannic decay down a stair of dark basalt directly into the lake. Blue and gold had mixed as the plunging river displaced the frigid waves.

The campsite, a carbonized swath of compact dirt, was well used, trampled but clean. Only a few small shards of broken glass glistened in the fire pit at its center. It was an ideal spot. Fine fishing by the falls, flat ground for the tent, low bushes blocking the wind.

Others before me thought so as well. That last morning, as I had walked a narrow, eroding path to the water to wash my pot after cooking, my eye somehow focused on a small white triangle jumbled in the dirt and I reached down to pick up a perfect late woodland point, meticulously chipped from quartzite, a metamorphic sandstone.

Later that evening we took off for home from Houghton Airport in my friend's single engine plane, a red and white Piper Cherokee. A strong crosswind jostled our ascent as the falling sun shone underneath dropping cloud cover. The trees below had peaked during our trip and now, lit at a low angle, they flamed with color — orange, scarlet and yellow leaves catching the sunset and casting it upwards against and above the rising plane's white wings. The painted light illuminated dark tendrils of water vapor swirling down from the low clouds. Looking down at the receding colors, I couldn't stop thinking of that eroding beach campsite, and wondered if the one who had lost his point there once carried his own Sun Dance scars.

Author's note: Based on linguistic evidence, ethnohistorians believe a westward migration of Paleo-Indians from the upper Great Lakes region that occurred during the late woodland period (1200-800 B.C.) included the tribe that spawned the Crow.

13,000 tons of soil and creek sediment had been removed from the site. Most of the residents had returned to their homes, and testing on air and water quality by the DEQ had been completed. But at least one resident reported that after digging a shovel into the bank of the creek in his back yard, a pool of rainbow-colored water seeped up from the ground — remnants of the gasoline spill.

Many of the long-term effects of the massive spill are yet to be determined. The pipeline company paid to have all the homes connected to municipal water because it still has not yet been determined whether gasoline reached underground water that supplied the residential wells.

As far as the state is concerned, there are two outstanding issues in the cleanup: Significant amounts of gasoline remain in the wetlands, which the company wants to allow to evaporate, and some may have worked its way into the groundwater.

"There was never an opportunity to flush the gasoline from the wetlands and the contractors were not able to capture much of it," Sygo said. "We've allowed them to let it degrade as long as the water isn't moving. We are still watching that process closely."

Sygo said hydrogeological studies have shown so far that heavy clays above the water table have protected the groundwater. But the state is continuing to monitor that as well.

The cause has now been attributed to a 20 3/4-inch long fracture in a weld of a stopple valve in the pipeline. Wolverine Pipe Line spokesman Ron Embry said the weld was about 20 to 25 years old. The company has inspected the length of the pipeline from Detroit to Chicago and found four other welds that were at least as old. The welds had not been inspected since they were installed. By the end of the summer of 2000, Wolverine had again halted its gas supply and shut down the pipeline to repair those welds.

"We wanted to make sure we could trust the integrity of the steel along the pipeline," said Embry.

ENVIRONMENTAL IMPACTS

When the valve on the underground pipe ruptured, gasoline bubbled up from the ground, into a culvert and straight on to a creek that drains into the Grand River.

The creek also abuts a wildlife sanctuary operated by the Grand River Environmental Action Team (GREAT), a nonprofit environmental group.

Tests in the months following the spill revealed gasoline compounds of ethylbenzene and xylene at above-acceptable levels in the sediments surrounding the spill area.

To this day, families near the spill report that gasoline continues to reappear on their property. However, Wolverine, which has spent around \$10 million on clean-up, feels its part in

the clean up is nearly complete.

"The remediation work is essentially complete except in the immediate area along the railroad tracks adjacent to the terminal," Embry said.

The company plans to let the remaining gasoline disperse through the natural filtration processes of the wetlands in which it spilled.

Environmental officials have signed off on this plan, as long as continued monitoring assures that water in the wetlands is standing and not traveling into a creek or river. But the process will take years to dissipate the gasoline components.

"In the wetlands, it wouldn't surprise me if there were still measurable levels of gasoline today and in the future," Sygo said.

GREAT is continuing to negotiate with Wolverine on the impacts to its wildlife sanctuary. The group wants the company to pay for replacing plants and trees destroyed by the spill. It also wants the waterline to be extended to its property to allow for canoe expeditions.

Wolverine has given a \$2,000 donation to the group's annual Grand River clean-up project and agreed to pay for new plantings along the creek.

But questions still remain about the impact on wildlife and aquatic life. Studies by GREAT have not been completed.

THE SPARTAN PROJECT

Based in Houston, Wolverine Pipe Line Co. operates 1,100 miles of pipeline throughout the Midwest. It has created a network of pipelines that supply Michigan with a significant amount of gasoline. Its underground pipe system originates in Joliet, Ill., and continues through Michigan to Detroit. Spurs of the system carry fuel to Muskegon, Lansing, Bay City and Monroe.

Just two months before the spill, Wolverine had filed a request with the state to expand its pipeline system in Michigan. Dubbed the Spartan Project, the plan was to construct a 12- and 16-inch diameter pipeline system through Jackson, Ingham and Clinton counties.

Originally, the company wanted to travel straight north along U.S. 127, taking it through East Lansing. Following objections of the residents, the company has now created an alternative route to take the pipeline along the I-96 corridor south of Lansing and then north through communities on the west side of Ingham County to the Lansing Terminal.

The Michigan State Public Service Commission approved the alternative route in March 2001. Despite local opposition, all the townships along the alternate route have approved the plans, said Summer Peake, local spokeswoman for the Spartan Project. The city of Lansing is continuing to fight the public service commission's ruling, but the company hopes to begin construction this summer.

The pipeline is expected to be complete and operating by 2004.