

Clear water flows through the sculpted strata of Matkatamiba Canyon, a Grand Canyon tributary. The narrow slot canyon is a popular hiking destination.

📷 RANDY PRENTICE

THE LONG, DEEP TRAILS OF WATER

The name Grand Canyon implies that the abyss consists of only one canyon, a giant crack in the landscape of Northern Arizona. Actually, there are more than 600 canyons, most of them dry, some harboring small perennial streams. As our writer writes, each one is exceedingly different from the next: "The canyons are only similar in that they often involve rock and cliffs and some sign of water. That is all."

AN ESSAY BY CRAIG CHILDS

WAVES SPREAD in front of my chest, fanning away and tapping the canyon walls before purling back. I hold my pack over my head to keep it out of the water. I stop and listen. Silence. The canyon swallows the sounds my partner makes downstream. Ahead, the Redwall limestone curves.

It curves again in the opposite direction. Then comes another curve as the canyon slices through solid stone. Its walls are fluted and deeply scalloped by floods.

You don't come in here by mistake. The inner passageways of these canyons curve too steeply, lie too remote for you to just stumble across them. Here, you shiver with isolation. In this place, you spread your hands against rock and breathe. Satellites and airplanes could never spot you. All this constitutes a quality of wilderness drawing you to the interior of the Grand Canyon, a place draped into a web of a thousand canyons.

The name Grand Canyon implies that the abyss consists of only one canyon, a giant crack in the landscape of Northern Arizona. Actually, there are more than 600 canyons here, most of them dry, some harboring small perennial streams.

These canyons are tributaries of the Colorado River. Perforating the curve of local plateaus, they fan out like wings from a 280-mile stretch of river, breaking into feathers, then into vanes and tines. Tributaries split in half and split, and split again. Counting branch by branch, the canyons eventually number in the thousands. Few of the canyons have names. Fewer have trails. In most, decades will pass between human footprints.

The canyon I'm in widens and tightens as if breathing. Overhead, ellipsoidal bulges of limestone block the sky. Several weeks ago, I watched a flash flood cascade from the rims and enter this canyon, sending a dun-colored mist straight up the walls. The floodwater remains. It seeps cold and clear from springs, spilling through consecutive pools. Some places are filled chin-deep, while others are left only with swollen, damp sand at the bottom. Boulders, some of them a fine-grained sandstone from 4 miles away, are lodged in and above the water, carried here by the flood. Where passing boulders have struck the walls, the limestone



ABOVE: Water cascades over sculpted rocks in National Canyon, located just upstream from Fern Glen Rapids. 📷 RANDY PRENTICE
RIGHT: The Colorado River rushes through Hance Rapids, as seen from Lipan Point on the Grand Canyon's East Rim. 📷 ADAM SCHALLAU

has turned a powdery white. Above that, a steel gray defines the canyon, and farther up — 300 feet over my head — the stone has absorbed a red stain from the leaking iron oxide of formations 4,000 feet above. The deepness of the canyon and the absorptive color of the walls work the afternoon light into a dimness no stronger than a gibbous moon. I tip my head in the half-light and drink from the canyon floor. No need to carry water.

People call this canyon SB, rumored to be a shortened version of SOB. People who once corralled cattle along one of the rims used the term to describe the effort it took to get around in this terrain.

SB lies on the north side of the Colorado River, in the center of Grand Canyon National Park. To get this far, we have used almost every piece of climbing equipment we brought. We've built ladders of webbing over boulders and clipped rope into firm anchors. Days have been spent seeking routes and returning to camp, climbing narrow cracks in waterfalls.

When I come around a turn, finally climbing from the water and seating my pack over my shoulders, I find my partner. He stands straining to see down from the tip of a boulder. He looks back at me. The way he smiles, I know



EDITOR'S NOTE: This essay was first published in our book *Grand Canyon: Time Below the Rim*. The book is no longer in print, but this powerful essay is as good as ever. Find a comfortable chair, make a cup of tea and enjoy the written word.



we have come to another dead end. The boulder, 7 feet wide, has wedged into the canyon floor, creating a talkative waterfall below.

We will have to climb. Again.

Water, the blade that cut each of these canyons, ranks as the element of consequence here. There is, of course, the slow crafting of wind and gravity, the exfoliating collapse of cliff faces over time, the tug of tectonics. But water laid these canyons to their depths. It has given the Grand Canyon its unmistakable breadth.

On first glance, it might seem that something the size of the Colorado River cut each canyon. The highest rims may be miles apart, the bottoms so precisely inset, that you might imagine great ice-age rivers carving their way to the bottom of the continent. But walk to the floor of each canyon, and you will find a narrow wash or carved bedrock showing where a stream once flowed. The bed likely will be dry.

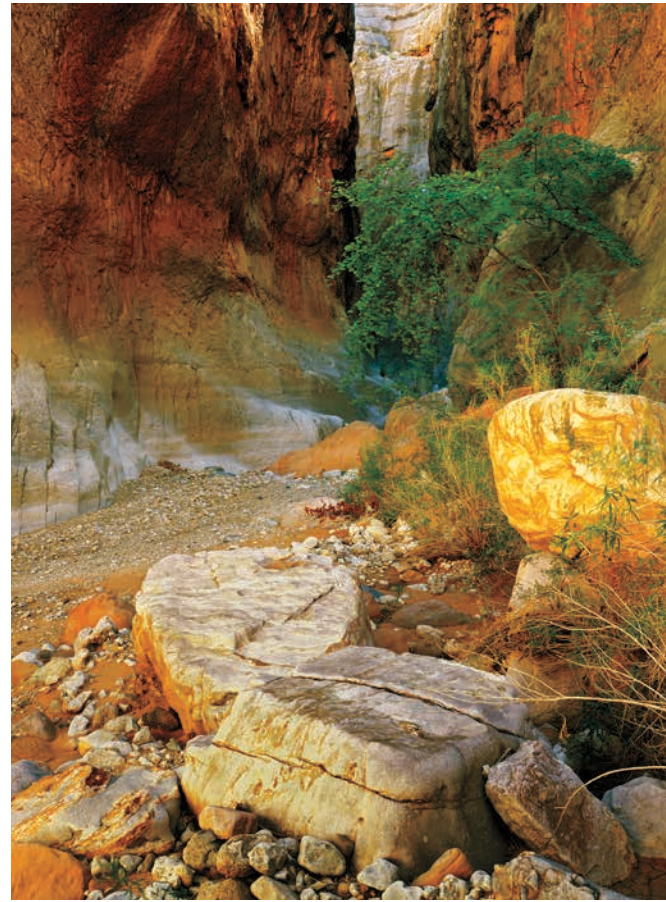
That streams so small and rare could cut canyons of this size makes little sense. The time frame for this kind of erosion may seem staggering. But don't be fooled. Water that moves over stone is staggeringly influential.

Customarily, the water comes as floods. The canyons formed from a litany of flash floods over millions of years, not by a few catastrophic floods. Rarely do floods last more than several hours. Sometimes, they last only 20 or 30 minutes. They follow the whims of isolated storms, coming to a particular location a couple of times in one year or only once a decade. They form in distant tributaries and gain force through the deepening hallways of inner gorges, aiming for the lowest common denominator — the Colorado River. The river, sunk into the Kaibab Plateau, forms a base level to which all surrounding water must travel. Floods have marked their passages to the river, leaving the land a scarred complexion.

The flood I witnessed here weeks ago threw boulders and trees down the throats of canyons. Relentlessly, the water drove deep into the canyon like columns of pounding cavalry horses. During three hours of rising and falling, the flood utterly rearranged the floors of several canyons, dropping boulders miles from their previous locations. The place filled with violence, with an industrial howling of mud, water and stone. Then, as the beds drained and dried, absolute silence descended.

This was one of the million brief etchings that, like a single word added to the rest, combine eventually to tell the story. When you look into these canyons, keep this in mind: Water has crafted what you see.

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Rocks and sparse vegetation line the floor of a steep-walled Grand Canyon tributary. WES TIMMERMAN

In lab experiments with running water and a resistant, concrete-like substance, lowering the base level constitutes the only way to cut a good channel. This means lowering the elevation of the water's destination. For side canyons of the Grand Canyon, the Colorado River serves as the base level. For the Colorado River, it is the Gulf of California. The lowering of the base level puts more vertical distance between the top and bottom of a drainage, and the water pierces the ground in search of equilibrium. The further these lab streams are stretched from their base levels, the more they form channels resembling miniature portions of the Grand Canyon.

You can lower the base level or raise the land with the same results. For about 10 million years, the Kaibab Plateau and a number of neighboring humps of land have been rising out of the earth like whales, and across their backs flows the Colorado River. As land rose, the river dug harder into the continent to lower itself to base level. The river, having a far more constant flow than its mostly dry tributaries, cut quickly toward equilibrium, leaving hundreds of tributaries teetering at the edge of a deepening gorge. With their base level pulled out from under them, these smaller canyons have struggled to catch up. They have disemboweled themselves at every occasion of flash floods, trying to flatten their gradients to the river.

These forces shaped the Grand Canyon. The Colorado River alone would have carved one 200-foot-wide chasm and left it at

that. But water began trickling down from storms and streams on all sides. In their attempt to equalize with the river, 600 struggling tributaries have spread through the desert countryside until canyon space exceeds land. They are still working. If you want to see the true nature of animated, dynamic geology in the Grand Canyon, look into the side canyons. Staying awake for a night in a canyon, you may hear boulders and smaller rocks tapping and crashing as they fall. The action comes in the distant, unlit places where the landscape will not rest.

I came here in August to travel for weeks across red benches of Esplanade sandstone looming over lower levels of canyons. Every 10 days or so on this solo walk, I reached a food cache where I would linger for a night, restocking my pack with chocolate, rice and potato flakes. Nights were brief and clouded with stars. Days were long and well over 100 degrees. I spent my afternoons in shade, creeping from one boulder to the next, curling against the cool rock when I stopped, like an animal accustomed to sleeping on the ground. Cliff faces baked in sunlight, heating the surrounding air. I shaved my head. I did not carry a sleeping bag and often slept naked among the rocks, covering myself with a cotton sheet if a breeze picked up.

The National Park Service had asked me to write a report on a trail that was supposed to cross this region. After 20 days, I found only a few cairns and narrow clearings 30 or 40 feet long that might have been remnants of a trail. I would return with my report: There is no trail, only a route.

I reached the top of SB Canyon in September, seeking refuge in its inner shadows. Down into the canyon at dawn, my gear left tucked into the rocks for safekeeping, I followed the deep, bucket-like depressions that floods had carved from bedrock. The air, moist before sunrise, smelled strongly of something like freshly cut herbs. Cottonwood and Western redbud trees, monkeyflowers, and seepwillow shrubs. I stopped for a while to listen to a spring. A drop of water fell every 15 or 30 seconds, tapping the surface of a pool I could not see. The sound was so private that when I stood and walked ahead, I did not look back to find it.

Deeper into the canyon, formations arose around me. When a light-blue bed of limestone appeared beneath my feet, the canyon plunged. Now, set within it, a line ran straight into the canyon floor. It was another canyon, dark as a cave even as the sun came up. I walked the edge, looking down. The passage 50 feet below did not look accessible. As far as I could see, it deepened. One hundred feet, 200 feet, and tight as a church aisle. I climbed in where I could, taking handholds in the limestone until my boots touched the canyon floor. Polished, flood-burrowed limestone rounded into a small creek. I swam in the deeper stretch where water had pooled. Maidenhair ferns crowded at small waterfall springs, the kind frequently exposed in the Redwall limestone. My presence set into motion a clockwork of pools below. Matching exactly the volume of my body, water spun down a chute, topping the next reservoir and spilling over again. The repercussions of my act sent word into the canyon.

I could go only so far. A boulder choked the narrow passage, and, for me, SB stopped. I crawled onto the boulder's back and looked over. I didn't even try to go farther. My body would never be found if I made a mistake. I sat, staring as far as I could see.

As it left my view, falling water casually conversed with its own echoes, pure as love and unattainable. The longer I sat and listened, the more I felt that I was rubbing shoulders with more mystery than I could bear. Desire to go on enveloped me strongly, but everything was out of reach.

Two days later, I walked to a rim several hundred feet above this place. Still a thousand feet below the highest rim, I was somewhere in the middle, walking the broad shelf of Esplanade sandstone. I drank from water holes in the open desert — whatever water I could find, brushing away layers of insect bodies before touching my lips to the surface. The water would be gone in a day or two. Monstrous stone temples stretched back for miles. Over SB Canyon, a raven soared, making fascinating designs in the sky. It grumbled and spoke sharply to me. One feather was out of place, or was stripped, because each time the raven swung back, catching the air just so, its feather whined like a mosquito. I followed the sound to the edge.

From there, I looked into SB, miles down to the narrow crack that had stopped me days earlier. Now it looked like a paper cut in the limestone. The bottom was nowhere in sight. If this were anywhere else, it would be a monument, a place to come and stare at the terrifying power of nature. A metal railing would prevent fascination from taunting you right off the edge.

The fact that I could not get inside forced me to look away, to scheme, to give up and look back in. The raven came so close on its next pass that when I lifted my hand to block the sun, the bird veered away in surprise.

The next time I left the Canyon, I reached a pay phone in Kanab, Utah, and called Tom Vimont. We had worked as guides and instructors for years on the Colorado River, taking our days between trips to wander into the deserts of Southern Arizona. He had once taught mountaineering. He knows how to use ropes, how to get into unattainable locations.

I told him about this snip of a canyon that would turn his world inside out. Instead of climbing up a mountain, we would climb down a canyon. We would go until the sky closed over our heads. I called him at work, told him to meet me at the end of a 60-mile dirt road and hung up before he could say no.

Broad-shouldered and bulky, Tom likes to bleed, and laugh as the blood flows. I've emptied first-aid kits on him after scrambling through cracks and loose rock. Talking to him is like having confetti thrown in your face. His voice is loud, his words pointed. He does not fear what people think. I sat with him once in the desert and, after a long time of saying nothing, he looked over to me.

"You know, I wouldn't mind being a cave man," he said. "Eating and hunting and having sex and sleeping. That is a good life."

At various times, he worked as a three-star chef in Chicago, an exotic dancer in some other city, a climbing instructor for Outward Bound and a singer for a punk-rock band. Our histories have little similarity. This allows us to travel well together. He seems to be afraid of nothing. But even coming with a partner, I feel a solitary fascination from the days I stared down off the rim. We only need each other to stay alive. This is how we often have traveled together, sprawling beneath stars at camp after difficult days and telling our stories back to each other.

He has bread maker's hands, his fingers strong and meaty on a rope. At the boulder that has stopped us, he unravels some webbing and ties loops into it. Even if we pass this point, we do not know if we can find a way down. Only one piece of webbing remains in our gear, and so far each piece of equipment has been necessary. Tom shrugs at the possibilities and sets the webbing.

This thin lifeline dangles down the crack between the boulder and the wall. I enter first. My strength quickly wanes as I tip backward, shifting various small muscles to hold my body in place. The space is not quite large enough. My chest jams between boulder and wall, and I exhale to squeeze myself further. The boulder has been wedged so long that it has been carved by floods. I groan and reach down, dropping notch by notch, the walls slick and not taking to my fingers.

I lower myself into a pool and wade across to watch Tom work his way down. We intend to reach the Colorado River, then climb back along these same routes. But the river may as well not exist. There is nothing but this canyon. I feel as if I must hold my breath as I walk through. The walls swing from side to side, forming overlapping waves that look more like water than rock. There is no true floor, only a depression of water and gravel or a curve of scoured bedrock. The limestone exhibits structural soundness, especially when compared with the higher slopes of Hermit shale or the cliffs of Coconino sandstone; it will not cave in as it is incised. It braces into position, allowing this canyon to wind deeply. As it resists floods, the limestone takes peculiar shapes. Walls turn smooth like bone, as intricate as vertebrae or the ball of a femur.




Someone once asked if I grow bored with canyons, if the repetition of drainages wears on me after months. I could not find words to explain. I merely said no. To express an eternal fascination with them would peg me as a starry-eyed naturalist loping merrily from canyon to canyon. But each canyon inscribes a signature so descriptive that it is difficult to talk about more than one at a time. I will be very clear about this. The canyons are only similar in that they often involve rock and cliffs and some sign of water. That is all.

The unnamed canyon west of Garnet Canyon turns into a tight sliver before a 700-foot fall into bands of Bright Angel shale. Haunted Canyon levels into a remote grove of cottonwood trees, the floor flickering with shadows. A tributary to an arm of Tuckup Canyon has a scoop that could seat a symphony orchestra but instead holds five strands of maidenhair ferns, each releasing small slips of spring water. Various portions of the Grand Canyon between Lees Ferry and Pearce Ferry have vastly different terrain. Side canyons with mouths facing each other at the river — one on the north, the other south — bear, in their interiors, distinctions as pronounced as differences between a midnight sky and a sunrise.

Compared to the variety of side canyons, the river's canyon ranks as elementary. The Colorado River often burrows straight through structural, geomorphic controls such as faults and regional dips in the strata. The river gives little preference to what it erodes. But side canyons, with less stream force, must contend with the slighter nuances of geology. Side canyons are engrossed in pivoting and pushing through formations, creating intricate



Shinumo Creek pours over a waterfall and polished boulders. The creek begins on the Canyon's North Rim.  JACK DYKINGA

profiles that alter over the thousands and millions of years.

The Grand Canyon stretches across a plateau that dips steadily south. Its highest rim is the North Rim — more than 1,000 feet higher than the South Rim. North Rim canyons flow down the dip and linger beneath long ridges. South Rim canyons, which must work against the grain of the dip, plunge off the rim, hitting the river quickly.

The eastern portion of the South Rim near Desert View has few canyons because of low rainfall, low runoff and rock layers leaning away from the river. A little west, as you walk along Comanche Point and its surrounding saddles, canyons will open under your feet and plunge directly to the river. Slightly farther west, weak shales are exposed, allowing numerous broad canyons to form. And even farther west, deeper, narrow canyons drill through newly exposed Vishnu schist that lies solidly in the floor.

Most of the canyons falling off the South Rim are dry or hold

only small ephemeral creeks. The canyons are simple, rarely branching more than once or twice.

Meanwhile, across the river, rainfall and snowmelt off the extensive North Rim feed long and crowded canyon systems. Their branches flow radially down the curved southern and western flanks of the Kaibab Plateau.

Interestingly, floods from the curt and declivitous South Rim canyons produce larger, more rocky debris than do the wetter, longer North Rim canyons, suggesting that the steepness on the south side sustains higher levels of erosion.

There are influences that will turn a canyon into a sine wave, causing it to hollow out amphitheaters or giving it a gentle, stair-step descent. But the highest authority on canyon-forming stems from geologic faulting. The entire underside of the Grand Canyon is loaded with faults. Most of these cracks in solid, underlying rock trend northeast with a few skirting at odd angles. The slipping of the faults has left impressive forms and many colorful names: Crazy Jug Monocline, Dragon Fault, Blue Moon Graben, Eminence Fault.

There are formations of substantial length, such as the Kaibab

Monocline, which runs more than 150 miles from a point near Flagstaff to Utah. It has 5,000 feet of displacement — that is, one side is 5,000 feet higher than the other. But displacement of others — less than half a mile long — may be only the width of a finger. I have traced massive rockfalls to faults, walked behind the tilted back of a collapsed 200-foot block and found there an exposed axis of a fault.

Looking at a surface geology map of the Grand Canyon, you will see that nearly every side canyon, and even minor tributaries, follow faults, most of which predate the Canyon by millions, if not billions, of years. Unrelated canyons can be lined up with a ruler because underneath, like an underground passageway, lies a connecting fault. Like interlocked fingers, a side canyon of Unkar Creek points directly into the head of Asbestos Canyon. The upper arms of Vishnu Creek are parallel with each other and with the canyon on the opposite side of Krishna Shrine. Walking up Stairway Canyon near Toroweap, you can stop halfway and turn to see the slot of Mohawk Canyon on the opposite side of the river, both canyons aligned over a straight fault that crosses the river. Nearly every small canyon has a trailing twin nearby. This is not routine behavior for canyons cutting with various forces into differing rock. It implies that below is a key to the entire layout of the Grand Canyon.

If a canyon severs a fault, rocks on either side of the fault are weakened and collapse. So, as floods spill into a fault, they cut downward, rending the fault's support. The walls then fail, and floods carry the debris out. Debris adds abrasiveness to the floods. Thus, they cut deeper into the faults, severing them again and opening the canyons even further.

That phenomenon compares to a roadway being cut into a steep side of a valley. Construction likely will sever a fault, causing landslides to repeatedly blanket the road, leaving engineers cursing and wondering why nature plagues them so.

Upstream in the Grand Canyon, Marble Canyon follows the southwest-trending grain of local faulting. Few faults run perpendicular to the river along this upper stretch, so there is little interference with the river canyon, leaving fewer side canyons. The river then takes an unprecedented swing to the west. It lays faults open to the sky, and side canyons grow into the fissures like splintering glass.


I once hiked with a geologist to this point where the river jumped its tracks. We set camp on the Colorado Lineament, an ancient and deep basement structure that runs from here to Wyoming and keeps the river in its course nearly back to the Colorado border. The area, down Tanner Canyon, is a mess. We saw growth faults, thrust faults, reverse faults, anticlines, monoclines, synclines, folds, warps, slump blocks, unconformities and chevron folds in twisted solid rock. Looking north, we could see up the line of Marble Canyon. West showed where the river turns out of the Colorado Lineament and rattles over a washboard of faults all the way to Nevada.

The river should continue south to Phoenix, but instead, it takes this heroic run the other way across the Kaibab Plateau, opening the stage for hundreds of side canyons to pour into the newly exposed faults.

This geologist stood looking straight up the Colorado Lineament, into Marble Canyon, grinning as if he were standing on the line where the continent soon would split in two. He said it



The canyon beyond falls from my grasp. It is dusky and curved, drawing water into subterranean shapes just out of view, down where the stream echoes around boulders. The enigma down there is raw. It is a clear and perfect reminder of what is out here, what the land is made of. Secrets are everywhere, and meant to be kept.

Green plants flourish near a perennial pool at the bottom of a secluded side canyon.  WES TIMMERMAN

might someday. The lineament is part of longer, deeper systems that extend to Canada. Sometimes it is wide enough to occupy an entire mountain range and here creates swarming fault systems to feed the Grand Canyon.

In a way, the Grand Canyon was formed because the river resisted the grain of the lineament and took a dive to the west. This turn, where the inner gorge rebounds off Palisades of the Desert and Tanner Canyon, sent the river into a nest of faults and fractures. The underside of this landscape must look like a spiderweb. Across its surface, canyons fall into place like insects caught on strands, outlining the invisible web below.

This is why I cannot tire of these canyons.



I walk deeper and the half-light turns to quarter-light. Few signs of life show themselves down here: a tree frog, pale and still as a river cobble; several desert-rock nettles grown from cracks well out of the flood zone, hanging 30 feet off the floor; a dragonfly after prey with the grace and quickness of a cutting horse.

I come to the next obstacle, another array of rocks jammed between two walls. One of these chock stones lies low on the floor, building waterfalls through its seams. Another is left suspended where a flood once jammed it between walls. This second boulder, 4 feet high, hangs 30 feet off the floor. The arrangement looks as if it were hand-placed by someone with a sense of order and artistry.

Below is a pool. Bottomless, as far as I can see. The curve of the route is difficult, the length of the drop daunting. Tom stands beside me and we look down, hoping to see a handhold or some small crack that can aid in getting us up and down. There is nothing to say. The final piece of webbing is brought out. Loops tied. Anchored and lowered into place. It does not reach the water. We will have to go to the end, then drop. Coming back, we'll have to swim under it and reach, in hopes of snatching the line. Sounds impossible.

For 10 minutes we look into this water. A 40-ton boulder hangs before our heads. "I'll be the scapegoat," Tom finally says. "I don't think I can do this." I study his eyes. I don't think I can do it, either. The canyon has ended.

Tom has ideas about how to get to the end of this canyon. They involve some other time, coming in with a certain amount of rope, pulling it down behind us to use on the boulders ahead, finding a route out from the river, perhaps up Kanab Creek or Tuckup Canyon. Staring into the water, he unravels his plans. He asks me what month would be good and, man, it would have been something to have reached the river, wouldn't it?

I am looking into the same water. The canyon still is not mine. Never will be mine. The satisfaction of this is rich and inexplicable. With understandable reluctance, Tom reels the webbing back up the rock. It catches a couple of times between boulder and wall, and he snaps it loose. When the last few feet are slithered up, he unclips the carabiner, and the canyon beyond falls from my grasp. It is dusky and curved, drawing water into subterranean shapes just out of view, down where the stream echoes around boulders. The enigma down there is raw. It is a clear and perfect reminder of what is out here, what the land is made of. Secrets are everywhere, and meant to be kept.

At night we set a meager camp on stream cobbles a quarter-mile upstream. We listen to the ornate, etching sounds of water over small rocks. Above us, a series of escape ledges provide space where we can scramble if a flood should come down the canyon.

But we give little thought to floods tonight. Just thoughts of this canyon. We do not have sleeping bags or pads. Only sand and delicately rounded stones. We each find a place to sleep. Tucking hands under my head, I curl into the rocks, again like an animal. Stars gather in the narrow cleft of sky, and I swear that if I reach up, they will spill, powdering my face. 