Five Miles from Pavement
by Steven Utley

The Dame Paleontologist, that sun-blackened whipcord of a woman, sits down opposite me in the mess tent. We have not seen each other in several years—she has jumped in and out and in again, and for the past many months she's been collecting in the interior, somewhere far past Wegener Point. By way of greeting, however, she tells me, "You look like hell, and you deserve to."
"Why, thank you. And you're even pricklier than I remember."
"Your big Tinkertoy's an eyesore. It looks like the bastard offspring of a drydock and an offshore drilling rig. There used to be a lovely view of the bay."
We have been friends, or more or less friendly ex-lovers, or acquaintances, anyway, for decades, ever since our post-graduate days. Even if that were not the case, I'm too tired to be offended; though the sun will be rising soon, I'm already more than halfway through my work day. So I let her crack about the structure pass, and she accepts my grunt as an appropriate response, contemplates the breakfast tray she has set on the table between us, shakes her head in obvious disbelief.
"When I came here the first time," she says, "the standard of living was lower than an opossum's. I'm not one of the those boring old farts who never shuts up about how much rougher field work used to be, and how much tougher everyone had to be. Still—now—here's a perfect example of what I mean."
"Just what do you mean? It's an omelette."
"A Spanish omelette, for chrissake."
"The new cook's ambitious."
"What's next, quiche? Sidewalks? A beauty parlor and a sports bar?"
"I'll put those on the recommendation list."
But she digs in with real appetite—no doubt, off in the hinterlands, she subsisted on dried vegetables and meat bars, by comparison with which even reconstituted eggs must taste like gourmet fare. I used to call her The Girl Paleontologist when she worked out of the paleo-lab at the University of Texas in Austin. She always said she never minded roughing it, and I learned to believe her. In her line of work, she spent considerable time in the field, "five miles from pavement," as she was wont to put it, sleeping on rocks and shaking scorpions out of her shoes of a morning. One January, after a nearly complete plesiosaur skeleton had been discovered in a creek bed behind a subdivision, she was among those dispatched from the lab. It takes a while to excavate a thirty-foot-long prehistoric monster, so she and her colleagues had to take turns sticking around all night to make sure that curiosity-seekers or vandals didn't disturb the site. One horrendously cold night, I visited and found her and another paleontologist huddled shivering under the nearest shelter, a bridge. I had brought a Mason jar filled with brandy, and we partied like winos. They had to stay, however, after I went home to my warm bed and my warm wife.
The Dame Paleontologist eats her Spanish omelette, and my attention wanders; the background murmur is lulling. The mess tent is full of hungry construction workers, technicians, even a few scientists—some, like my companion, having breakfast, gearing up; others, like me, winding down.
Work proceeds around the clock, the "Paleozoic" (I insist upon the quotation marks) has become an age of steel and sparks, an industrial era, and the structure nears completion. Viewed from the shore after nightfall, the hard pinpoints of arc-welders' lights flicker like supernovæ against a softer background illumination of work lamps. The effect, if one exercises only a little imagination, is of a Cubist sort of galaxy floating in darkness. I would not hesitate to set this artifact against the great cathedrals of Europe or the Egyptian pyramids, any of which would dwarf it, but only in a purely physical sense. The pyramids are mounds of dead rock; this thing will hum with power. The cathedrals have stood for a few centuries, the pyramids for a few millennia; this structure will bridge four hundred million years. I have been

intimately involved with it from the beginning, carried it from conception through fruition, and if memory serves (history, however, is not really my strong suit) it took lifetimes to build the cathedrals, and at least some of the pharaohs lay unentombed while work continued on their final resting places.

Be those things as they may, I am not bragging too much when I say that no one has done more than I to make the human presence here possible. Not even Cutsinger. I have given my life to that end, built a career upon it, and this structure will be the culmination. In all modesty, it was due to my own foresight that this project has been undertaken. Early on, very early on, when the numbers of scientists visiting "Paleozoic" time were still in the single digits, I insisted that if this kind of thing was going to be done at all, we must do it big and do it right, impose order; therefore, even as we attended to immediate problems, we would take the long view, plan extensively. Stabilization of the spacetime anomaly would have to be ensured, and as long as the anomaly did persist, the extent of our exploitation of it for purposes of research would only grow; we were talking not about anything as ephemeral as space stations, but about permanent bases and personnel numbering in the hundreds, perhaps even the thousands, because every branch of science, from microbiology to astronomy, would have something to gain from "Paleozoic" research. No résumé would be considered worth a second look if it did not mention "Paleozoic" field work or some activity related to a "Paleozoic" expedition. Early on, we physicists, chiefly Cutsinger, Morales, and I, solved the problem of spatial/temporal drift by inserting the equipment necessary to "fix" the anomaly at both "ends" and thereby establishing a synchronous link between the ancient "Paleozoic" and the immediate Cenozoic—what laypeople and lazy people stubbornly insist upon thinking of as The Past and The Present. This, however, was only a temporary measure, for not only would the number of scientists increase, but so, too, the duration of their visits and the scope of their explorations. We deemed it best that the "Paleozoic" "end" of the anomaly be "reconnected" to a vessel provided by, and crewed by officers and enlisted personnel of, the U.S. Navy. With its complement of auxiliary craft, this vessel, once having been inserted, would become the receiving/sending point in "Paleozoic" time in addition to serving in other capacities. But this, too, was a temporary measure. A ship, we noted, requires regular refits, and though routine maintenance "in the field" would be possible (some of the auxiliaries being specifically designed and equipped for this purpose), our vessel must perforce return to Cenozoic time for the sort of maintenance that can be performed only in a yard.

Thus, plans were drawn up and funds allocated for a large, permanent structure to house the stabilization devices so that the ship could be sent back as necessary and yet our synchronous link be maintained. It has been terribly expensive, but it will be worth every penny. Yes, there have been occasional setbacks. There have been accidents, too, more than expected, more than there should have been; a few serious injuries among the workers, but no fatalities, fortunately. The majority of these can be traced to sheer exhaustion. I am not one to duck responsibility; I put the blame for this squarely on our having stuck to the twenty-four-hour clock in the face of the "Paleozoic" day's being less than twenty-two hours long. Work has to be completed on schedule, work shifts are necessarily rigid, but the human time-sense is fluid. Although we cope as best we can, the fact remains that our sleep cycles have been disrupted. A few concessions have been made—even the Navy finally allowed that, no matter the hour on the official clock, morning colors could wait until sunrise; there is hardly anything more dispirited than a flag-raising ceremony in the dead of night. It must be said that with very few exceptions Navy personnel of all ranks have comported themselves in a manner that is a credit to the uniform they wear and the flag they serve. All here are volunteers, and they are screened more rigorously than the civilian scientists. True, a few instances of substance abuse have been reported among the ratings, tempers have occasionally flared and landed disputants in the

brig, but to the best of my knowledge there have been no instances to date of personnel going AWOL—if only because there's so little incentive to do so, no place to go that isn't exactly like every place one has already been. Tours of duty in war zones are traditionally described as long periods of utter boredom punctuated with moments of utter terror; a tour in "Paleozoic" time is long periods of intense activity punctuated with moments utter boredom. Obviously morale is going to be affected, even though the Navy has quite enough to do and everyone tries to stay busy. The Navy's here in a support capacity and is responsible for keeping between one and two thousand scientists safe, supplied, and in touch. The bulk of this population is concentrated along the Laurentian coast of the Iapetus Ocean (I'm stuck with these place names), but there are also camps deep in the interior and on some of the island arcs, and it could be, and has been, argued that the Navy is stretched thin. By the end of their tours the majority of officers and enlisted personnel are clearly good and ready to go home; the percentage of recidivists among them is low. Well, they are young, most of them, and whatever domestic touches they have been able to apply here are insufficient to distract their attention from the reality, the emptiness, the dullness, of the "Paleozoic" world; they yearn for the great wide wonderful world waiting on the other side of the spacetime anomaly, so busy, so noisy, so full of vivid color and things to do, and they don't care that the "jump" (as that wracking tumble is called) will rattle every bone in their bodies and put an unlucky few into sick bay with mild concussions or worse.

As for myself, I am locked firmly into Work/Sleep mode. My "days" and "nights" do not entirely correspond with actual days and nights, but they follow a pattern as surely as the sun and the moon trace regular courses across the sky. I am careful to make any really important decisions only early in the "day," when, like the morning sun and the evening moon, I am ascendant.

Now, however, in the mess tent, I am past zenith. The Dame Paleontologist continues to glare across the table at me while she chews and swallows her food. Then she says, "I've heard about the plan to build a power plant upriver."

"Well," I begin, "the generators here won't be capable of …" and give it up, because she goes right on talking.

"Every time I get back here to Stinktown, I half-expect to see the first fast food restaurant's opened for business. They don't even like you to call it Stinktown any more. There aren't just scientists and technicians here any more, now there're boosters. I hate to say it, old pal, but you've become one of them."

"I've always been one of them. Maybe the biggest one of all, too. Because I know that everywhere humans go, they stick. Some places are harder than others—Antarctica was, the moon is, Mars will be. But it's in our nature to try and keep trying until we do stick. My big Tinkertoy, as you call it, will make it easier for us to stick."

"Every place we," and she twists her mouth as though she finds the word distasteful, "stick, we start importing our technology and our bad habits. It's no longer pristine here. I'm finding trash on the ground. The foot traffic here's been so heavy for so long that we've beaten paths into the bare ground. It no longer looks primeval. The best you can say for it is that it looks rustic. Boats and helicopters are pumping exhaust gases into the air, there're oil films on the water. You can see rainbows on the surface of the bay. And what's the latest estimate on the amount of stuff we've dropped into the bay?"

I accidentally overturn my cup; she watches with sour amusement as I block pseudopods of coffee with paper napkins. In only seconds the tabletop immediately before me is covered with steaming brown slush. As I scoop up the mess with still more napkins she asks, "Did I finally hit a nerve?"

I long ago learned the proper response to this line of argument so well that it's become reflexive, I have rattled it off enough times, but, yes, she's touched on a matter which, irrationally, in spite of myself, I find worrisome:

lost items. We've slung safety nets and catch pans underneath the structure during all phases of construction, and divers regularly scour the bottom. Such precautions are not one hundred percent effective, however, and these are murky waters. We're erecting this structure of ours at the mouth of an estuary. Every moment of every day, the turbid brown waters bring sand and silt from the interior badlands and deposit them as sediments. The bay's muddy bottom is the graveyard of uncountable billions of organisms ranging in size from microscopic to man-sized, and strewn among their remains in the general vicinity of the structure are hand tools, screws, bits of wire, who knows what else. I am a physicist, quantum mechanics is the only thing that accounts for the reality of our situation, and yet I would not be fully human if my head and my (for want of a more appropriate-seeming part of my anatomy) viscera were not sometimes at odds: this reality sometimes feels unreal. At some level of consciousness impregnable against calm, sound reasoning, I'm utterly unnerved every time I read an accident report (the rules are strict, a report must be filed if so much as one bolt goes overboard).

I begin, feebly, "There're guidelines," and once again I get no farther.

"Guidelines! We were so conscientious at first. We had to wear spacesuits, for chrissake."

"That was before Cutsinger proved—"

"Oh, never mind what Cutsinger proved or thought he proved. I never knew what he was talking about most of the time, and I bet he didn't know about half of the time. Especially when he said the hole's stable. Remember, once upon a time, long ago, he and you and every other physicist said the hole was impossible. It opened by itself. You didn't know what caused it, and you still haven't got a clue."

"That's not quite—"

"Oh, never mind your explanations, I couldn't understand them whatever they are. Maybe the hole'll close by itself, too."

"I doubt it very much. The anomaly's remained pretty stable all these years. We've almost ceased to think of it as an anomaly, in fact. And once we complete my Tinkertoy we'll be able not only to maintain it indefinitely but to manipulate it as well. Excuse me," and I take a large wad of sodden napkins to the waste bin.

When I return to the table, she says, "Did you ever hear about that idiot who came up pregnant and wanted her baby to be born here? No, it's true, this really happened."

"I don't see how. It would've been in violation of the Navy's PWOP policy."

"Its what?"

"PWOP. Pregnant without permission."

She smiles; it's the first time I've seen her smile since—well, I'm not sure, it's been so long. "And all along," she says, "I thought the military lacked a sense of humor." The smile fades. "No, this was a civilian like us, a biologist or something. Somebody who should've known better. Somebody who was thinking like a colonist."

"Don't you think you're being just a bit hypocritical? How many times have you come through the anomaly? How many years of your life have you spent here in all?"

"I've loved it here, but I'm not a sentimentalist, and I've never had any patience with people who are—who profess what I consider to be too strong an attachment to this place. This world isn't ready for humans. It's not our home, we're not colonists, we're just visitors." She vehemently stabs the last bit of omelette with her fork, raises it halfway to her mouth, studies it for a moment, then returns it to the tray. "You're supposed to be on your best behavior when you visit a place, and not trash it."

"We're not trashing this place."

"You're making it over. The rest of us, we're only human, so we make stupid decisions, we get careless. We drop stuff. We lose things. We leave our footprints. We forget to clean up after ourselves. But you, you're deliberately trying to make it a fit place for humans to live."

"Look, I'm too tired to argue any more."
"Then don't argue, just listen. Let's say the hole closes by itself—as mysteriously as it opened—before you finish building your big machine. Or maybe you get it built but it breaks down. What happens then? When our supplies are cut off? Do we just starve then? Do we die out and turn to humus? Do we start eating invertebrates and nasty fish, raw? There isn't even wood for cooking or building here."
"We wouldn't be the first human beings who've had to figure out how to survive," I say, and I get to my feet.
She rises, too, and we go out of the mess tent and into the new morning together.
"Walk me to my tent," she says. "We may not get another chance to say goodbye. It'll be the middle of the night for you when I make the jump."
Her tent is in the last row, behind which the ground slopes upward. She looks toward the heights and says, "Let's go up."
I make no attempt to stifle my groan. "I've got to get back to work," I say, and because I can see that that doesn't move her, I add, "I'm a tired old man."
"So? I'm a tired old woman. Come on, indulge me one last time. Let's go up just a little way."
I mutter an obscenity. Nevertheless, we climb, carefully picking our way up the stony slope. What, I wonder, does she have in mind in the way of saying goodbye? This isn't the first such slope we've climbed together. She was the bright protostar of the geology department at the University of Texas, as I was the physics department's, but the departments can be better described as compartments hermetically sealed off from each other. Thus we met off campus, by accident, at a used bookstore in the "Science" section—a catchall for works by and biographies of Hawking, Einstein, and Darwin as well as volumes on gardening and astrology, pet care manuals, picture books of dinosaurs, creationist tracts, and more than half a century's worth of exposés of government conspiracies involving everything from extraterrestrial visitors to bioengineering projects gone horribly wrong. One or the other of us initiated an exchange of caustic and (so it seemed then) hilarious comments on this jumble of real, pseudo-, anti-, and simple non-science. An hour later, we were seated across from each other in a coffee shop, still entertaining ourselves with barbed witticisms. Within two weeks we became lovers. The affair wasn't serious; in fact, it was less an affair than a mere episode; it didn't end altogether amicably, but we got over it and went on to marry more compatible individuals, and to divorce them, and in the meantime never quite let go of each other. What really united us in an enduring, if often testy, relationship was our love of science and our contempt for superstition and irrational thinking. We were too different in other regards. I preferred the classroom, the laboratory, the library, order, quietude, a minimum of dirt. Her idea of fun was a weekend camping trip; she insisted, soon after our first tryst, that I accompany her to Enchanted Rock in Llano County. What, I asked—being a comparative newcomer to Texas—is Enchanted Rock? "An eerie and beautiful square mile of antiquity," she said, "a relic of the Precambrian, the second biggest exposed batholith in the United States!" I affected disappointment: Only the second biggest? "Don't mock the rock," she told me. "Idiots carved likenesses of Confederate generals on the biggest—that's Stone Mountain, in Georgia. Our rock is pristine. Actually, it's the merest nub on a planetoid-sized pluton underlying the whole region. To walk on it, touch it"—she sighed; she actually talked like this when she was in her twenties, before collecting seasons under hot suns smelted softness and whimsy out of her—"it gives you a sense of the alienness of Precambrian Earth. The Indians thought it was a magical place. So do I. So will you." And so I had, from the instant I saw it. The great bald dome of pink granite simply looked supernatural, unnatural, at any rate, like some titan's monstrous rock garden, palpably ancient. After dark, we crept out of our tent and coupled on the still-warm rock. I slipped my hands between it and her knees to cushion them,

prevent their being bruised, as she bumped and bounced atop me. Then we lay spent and listened to the pop of cooling, cracking granite, and after a time I said, So is this what you mean by field work? and she laughed and kissed me deeply. At that moment, for just that moment, we may have been in love. A little later, she said, "I am going to do great things in my field." And I, I said, in mine, and waved at the sky, because I knew then, believed, that humanity's destiny lay out there among the stars. It never occurred to me that my work would bring me closer to Precambrian time than to the nearest star.
Whatever she has in mind now, it surely isn't sex for old times' sake on a high rock. There's a limestone shelf big enough for both of us to sit upon and look across the camp and the bay to the open sea. Visible on the ridgeback above us is one of the towers supporting receiving equipment above the radio telescope's reflector dish; the dish itself sits in a natural hollow, screened from our view and from radio interference from the camp. The structure in the bay dominates the seaward view; the estuarine waterways seem to point to it, the bracketing headlands with their ellipses of sea stacks hold one's attention on it; even if one cared to go to the trouble to climb those distant slip-faulted cliff faces, the structure would still be the centerpiece, the sole point of bothering to take the view from the bare rain-pitted limestone up there. The sea beyond is only a sea, the landscape behind us is as barren as an empty parking lot. Moreover, the structure, though unfinished, already has a look of permanence, unlike the flimsy tents and Quonset huts in camp.
"Isn't it exquisite?" I murmur. "It's like the Taj Mahal."
She does not respond immediately, but after some seconds have elapsed, she says, "More like the Tower of Babel. A bad idea whose time has come."
She fingers a chert lump in the limestone as if she were touching old, familiar wallpaper, examines a weathered-out fossil shell, replaces it on the ground as carefully as if it were a cherished piece of bric-a-brac.
"I have to resist the impulse to collect any more souvenirs," she says. "We pried out a bargeload of specimens this time. Probably way too many." I know; the crates are aboard the ship, awaiting transfer to Cenozoic time. She's one of the handful of paleontologists who have worked in "Paleozoic" time as paleontologists. Most of her colleagues come to study living examples of, to confirm or disprove conclusions drawn from, the contents in their specimen drawers back home; she has always come, as she puts it, to get a 400-million-year jump on erosion, examining already ancient rocks that are already weathering away to grit and dust.
I ask, "Can you ever collect too many specimens?"
"I guess I'll find out when I go home and start pawing through what I've collected. I'll write my papers, lecture, and bask in the respectful regard of the scientific community. And in the less respectful but more affectionate regard of my family. I have young grandnephews and -nieces I can terrify." She is brown and leathery, with piercing eyes and vertical creases in her face. "I'll be the ancient mummy woman, returned to life." Then she sighs and asks, "At what point does everybody else decide they're finished here? When do you go back through the hole and pull it in after yourself?"
"When have human beings ever left a place once they've established themselves in it? People live in Antarctica now, and in space."
We sit side by side and say nothing for perhaps a minute before she says, "Do you know the history of the Viking colony in Greenland? Eric the Red founded it late in the tenth century. At that time, the climate along the southwestern coast wasn't any worse that what the settlers were used to in Iceland and Norway. Agriculture didn't amount to much, but fish and game were abundant, the settlers brought their domestic animals with them, and they lived fairly well. After a couple of hundred years, though, the climate began to deteriorate. It grew colder, the glaciers advanced southward, and finally the colony was hemmed in by ice and cut off from all contact with Europe. Centuries later, archeologists excavated the remains of the last of the colonists. They were malnourished, stunted, deformed, diseased. They lived miserably and died out miserably."

"We have advantages those people didn't have."
"Such as?"
I laugh harshly. "Well, just for starters, equatorial Laurentia isn't about to ice up! We've got our knowledge and our technology—"
"And a supply line that's four hundred million years long. Everything we need has to come through the hole. Everything from fuel to food. Without fuel, all our machinery's just a lot of scrap iron. Without food, we wouldn't last long enough to see it go to rust. At most, this world could sustain about a hundred of us if we lived far apart from one another and weren't too particular about what we ate."
"We could harvest the sea for food."
"With the Navy's help, no doubt. Well, what about the Navy? Remember, there wouldn't be any fuel for the ship or those auxiliary craft or the helicopters. How long do you suppose you could maintain a ten-thousand-ton ship even if it just sat there in the bay?"
"I'm tired of supposing highly unlikely things. Let's go back down."
"If we did somehow survive," she says, "we'd reproduce. If we reproduced here, in isolation, over time, we'd evolve. And what a gene pool we'd have to work with, too. Geeks and gobs. Do you know what quantum speciation is? It's the separation of populations of organisms that can interbreed into independent evolutionary units that can't interbreed. Each of these small populations in isolation—stuck on an oceanic island, let's say, or stuck four hundred million years in the past—becomes subject to the founder effect. That's what we call what happens when a new population is founded by individual organisms representing an extremely small sample of the genetic pool to which they formerly belonged—the ancestral population. Now, in all populations, there are always random fluctuations of gene frequencies. Genetic drift occurs. Mutation. The offspring's genes aren't perfectly representative of its parent's genes. Most mutations are fatal, and in a large population, those that do survive are swamped. But natural selection operating on small isolated populations quickly results in gene combinations unlike those found in the ancestral population. You end up with populations that're isolated not only geographically but reproductibly. You end up with entirely new species. The thing of it is, there's no evidence of that in the fossil record. Not the minutest hint of it, of us, of whatever we might become. That means one of two things must happen here. Either we leave, or we stay and die out and turn to humus."
"If we were actually time-travelers, it would probably only mean that paleontology's guessed right about that the odds against any particular thing's turning up in the fossil record. But we're not time-travelers. Nothing we do here can have any bearing on the future of our own world because this isn't our Earth as it was in Paleozoic times, but only one of an infinite multitude of Earths in the equivalents of Paleozoic time."
"What if it's a case of there being a unity in spite of infinite multitude, and an infinite multitude in spite of unity?"
"The universe is continually dividing, copying itself, as it jumps from state to state. The copies are infinite in number, they coexist in parallel with each other, and each is in a different state. That is, a separate reality exists for every possible outcome of every possible quantum interaction. And while most of the realities would be imperceptibly different on the macro level, given an infinite series of separate realities, there'd be gross differences as well."
The Dame Paleontologist grimaces. "I didn't really mean for you to answer me. If in fact that was an answer. All this multiple-universe stuff just makes my head swim. I flat don't believe it anyway. I never have."
I say, "I've go to get back to work."
We stand, dust off the seats of our pants, step away from the rock shelf.
"It is too beautiful," I insist, nodding at the structure in the bay. Even at this distance, human figures and the blue-white sparks of welding torches are visible.

She mimics my tone. "It does too look like a theme park on bad drugs."
"You have your fossils. I have that."
"I'm glad I won't be here to see whatever's going to happen."
"Whatever happens, I'll tell you all about it when I get back."
She shakes her head. "I don't think you will get back."
"I'm not going to be marooned here. Nobody is."
"What I mean is, you won't even consider coming back until that damn thing out there is up and running. Then the jump'll probably kill you, or at least shake loose something inside you. Your brain, for example. You are an old man."
"I'm not exactly dragging around an oxygen bottle and pushing a walker in front of me."
"Not yet you aren't. Not yet." She looks away from me. Her voice becomes strained. "Just in case I never see you again—good-bye. Good-bye and good luck. You're probably going to need it."
"Don't worry so much. In the end—"
"Ah, God, darling," she says, turning toward me, "in the end," and suddenly I hear a note of tenderness in her voice that has not been there in decades, not since that night on Enchanted Rock, and for the first time in I can't remember how long she touches me, on the hand, quickly, lightly, then lets her arm drop and stands disconsolately before me with tears sparkling on her eyelashes. I have misjudged her. For all these years, from the very first, I have cruelly misjudged her. "Who," she almost sobs, "can ever see the end of anything?"
The End