

WHERE THE WINDS ARE ALL ASLEEP

by Michael F. Flynn

When Shakespeare wrote, "There are more things in heaven and Earth..." he may have been more literally right than he realized....

If all those contentions with which the world is surfeit, the one that may never be settled is whether the Chordettes or the Four Aces recorded the definitive version of "Mr. Sandman." Each rendition has its partisans in the Irish Pub, and these partisans will sometimes change sides just to keep the debate lively, the Irish being more committed to the argument than to the outcome. The debate is of long-standing; and in the jukebox of the Irish Pub, amidst the Clancies and the Dubliners and the Dayhills, there rests a single recording of each version. Sooner or later, those two old 45's will have to wear out, and that will be the end of it all.

At least such is the hope of the rest of us—agnostic as we are in the matter.

It was a Saturday evening in late October when Bill Poke reared up and said to Kelly Brady, "I'll show you what I mean."

Everyone else hunkered down, for this could mean only that another round in the Sandman Wars was about to begin. Bill was from Philadelphia and therefore a devotee of the Four Aces while Kelly, being of the female persuasion, favored the Chordettes.

The O'Neill, seated to my right, said something in the Gaelic, the which does not bear translation in a family magazine such as this. He slipped off his stool and said, "I have to get to rehearsal," before vanishing. A wily devil, he had taken a role the month before in a community theater performance of *The Sound of Music* in order to have this very excuse ready for this day. Even O'Daugherty Himself was heard to heave a long sigh as he polished and rehung glasses in the overhead rack behind the oval bar. A short, wide-set man, he slicked his hair down, parted in the middle. "I'm thinking," he said to me, "that this will outlast the Troubles."

Doc Mooney entered just as the first bars of the Chordettes chimed out. "Jaysus, Mary, an' Joseph," he cried. "Not again!" Although an atheist himself, he was not above calling on help in extremity. Nonetheless, he entered and took the stool beside me that the O'Neill had so lately vacated. "A gin and tonic, Mr. O'Daugherty, if you please. It's been a busy day at the morgue, with little in the way of live-ly con-ver-sa-tion." These last two words, he lilted, he being a man who liked to savor his speech.

"And while you're at it," said I, "my Guinness could use some reinforcement."

"Oh, and could it now?" Himself answered, setting a fresh mug emphatically before me. "And will you be paying the O'Neill's tab as well?"

A wily devil, the O'Neill, as I have often said.

"*Slainte!*" Doc lifted his gin to me and I tapped it with my Guinness. "That damned song," he complained with a toss of his head toward the jukebox, "is an earworm. I'll be a week exorcising it."

"Why, then you are in luck," I told him, "for here comes the very man for an exorcism."

The door to the street had opened to the dry-leafed autumn weather to admit Father James McGinnity, S.J. He was accompanied by a slim, young woman wearing an Irish barleycorn wool tweed cap and a suede jacket. But before Doc could so much as hail the priest, the young woman cocked a head to the jukebox, turned the brightest red I have ever seen on the female flesh, and spun on the good father. "Is this some kind of *joke!*" she demanded. And then, suiting actions to words, she strode to the power cord and pulled the Chordettes from our ears. The music died in that peculiar winding-down fashion of old vinyl recordings.

Bill and Kelly had been swing dancing to the music. (You don't think that musicological metaphysics was their only purpose in the playing of it, do you? This was the music of their youth, and in it they could be always young.) As the Chordettes groaned to a halt, Kelly blanched and turned on the newcomer. "You!" she cried. "If you've damaged my record...!"

Doc muttered under his breath. "One down. One to go."

Bill Poke moved to Kelly's defense. "Young lady, I think you owe my friend an apology." Now Bill, in his youth had agitated the gravel with the best of 'em—he had been cool when "cool" was new—and something of the young greaser remained in the old man.

The woman in the Ivy cap turned to Fr. McGinnity. "It wasn't a prank?" At the silent shake of his head, she broke into tears, and Father put his arm around her shoulders and led her to the bar. "A pint of bitters for my niece, here; and white wine for myself." And then he spoke to her gently so that we could not hear.

Apologies thereafter flowed all around. Jeanne Price, that being her name, begged from Kelly a forgiveness gradually and only grudgingly allowed. In penance, Jeanne offered to buy a round for the house. That drew Danny Mulloney from the back room, where he had been practicing for an upcoming pool contest with Jimmy Shaugnessy. He was fated to lose—Jimmy had never lost a game to our certain knowledge—but Danny was working on the point spread.

Shortly, the *craic* was flowing. Bill and Kelly explained about their long-standing debate, and I think Jeanne saw that it was not about the music at all. Father introduced her to Doc and myself. Danny excused himself and returned to his balls. It being early afternoon, no one else was about. This is the best time to buy a round for the house, should the mood ever strike you.

"She doesn't look a bit like you, Jim," Doc said. "Sure you're related?"

"Ah, she has my sister's face," the priest explained. "And her brains. 'Little Jee' is a doctor of biology, and she has clicked her heels and flown in from her emerald city—I speak of Seattle—to participate in a conference at the University. A featured speaker," he added with no little familial pride.

"Not that it impressed anyone there," Jeanne murmured, but I think she meant the comment only for herself.

"And what conference was that?" Kelly asked.

"Approaches to Abiogenesis and the Monogenic Problem," she answered—though to no great enlightenment on anyone's part. Seeing our perplexity, she added, "Abiogenesis

is the origin of life from non-living matter.”

A crafty gleam came into Doc’s eye, and I shot one anxious glance toward the pool room before whispering, “No! Don’t say it!”

But it was no use. “You mean it has to do with *e-vo-lution?*” the Doc announced; and no sooner had the words slipped the leash of his tongue than Danny Mulloney burst forth from the back room, cue in hand, seeking infidels to smite.

You see, Danny had forsaken Holy Mother Church a few years back for one of those sects that worship a text rather than a God, and “*evil-ution*” was the pea under his personal mattress. Doc and he had danced this particular jig more than once in the past. Like the old warhorse, “he sayeth among the trumpets Aha! and smelleth the battle afar off.”

But Jeanne said, “Oh, not really. Abiogenesis isn’t evolution.”

I don’t know who was more deflated at this, Danny or Doc. The looks on their faces so perfectly mirrored each other that I nearly burst out laughing.

“It isn’t?” said Kelly. “But didn’t you say it was about the origin of life?”

“Yes, but evolution is about the origin of *species*, not the origin of *life*. Biological evolution is driven by Malthusian pressure on resources. Individuals less able to secure those resources produce fewer offspring, so those better fit eventually prevail. Well, for that you need organisms—and competition for resources. That doesn’t apply to non-living matter, most of which just sits around without either reproducing *or* competing. So something other than natural selection must have kicked off the whole thing.”

Danny had been steadily brightening throughout this explanation, never a good sign. Now, he cried, “You mean ... like God?” He said this as though the possibility had only just now occurred to him.

Jeanne glanced at her uncle before answering. “Ah, probably not the way you think.”

Doc said, “Hey, Jim! Are you going to let her get away with that?”

McGinnity shrugged. “Not my field. My specialty is paleography—ancient manuscripts.”

Doc lifted his gin and tonic. “Say something ancient for us.”

Hoisting his wine in reply, the priest said, “en arxh hn o logosz, kai o logosz hn prosz ton ueon, kai ueosz hn o logosz.”

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Himself had been sipping from a water bottle he kept behind the bar. Now he choked on a swallow. It was a good laugh all around; but I wondered if Doc knew what the good father had quoted at him.

Bill Poke brushed off the whole matter. “Whatever happened that long ago is nowheresville. I sold Buicks for forty years and not once did ‘evolution’ or—what’d you call it? A-buy-o’genesis? Or for that matter, ‘Genesis’—ever add a dime to my commission.”

“Well, now,” said Doc, “I’ve been cutting up the dearly departed for twenty years and not once did Buicks help me diagnose the cause of death.”

“Except for auto accidents,” I suggested in a helpful tone. Doc gave me a disgusted look.

“Evolution makes a lot of difference, Bill,” Jeanne said. “It’s been very helpful in planning research programs, developing new medicines, diagnosing new strains of disease. And just generally making sense out of a mess of data. What it comes down to is this: Either new species branch off older species, or they just ‘poof’ into existence. And they don’t ‘poof.’”

“Jim,” Doc said, trying again, “aren’t you going to jump into this?”

McGinnity finished his wine and set the glass down, circled it with his finger to indicate a second. “And why should I? I don’t have a dog in the hunt.”

“I thought this creation thing was part of your religion.”

“Oh, *creation*, sure. But not *creationism*.”

Danny snorted in derision. “Typical Jesuitical evasion...”

“I don’t get it,” said Kelly. “What’s the difference?”

“Creation,” said McGinnity, “is bringing being from nonbeing. That’s not the same as changing one form of matter into another—like changing sodium and chlorine into salt or one species of ape into another. I should hope that no one would invoke God in the course of an ordinary scientific explanation.”

Danny crossed his arms. “Some things are so unlikely, they couldn’t happen by chance. Microbiological machinery. The cosmologic numbers. You need a Designer to make them happen. They’ve proved that.”

“Ah, Danny,” said the priest, “there’s no need for theokinetics.”

Now it was Doc’s turn to choke on his drink. “Theokinetics ...?”

McGinnity accepted his second white wine. “The idea that God’s creative power can only be expressed by events *beyond* the natural capacities of matter. Danny, it’s not the *exceptions* to the natural law that demonstrate the orderliness of creation. It’s the existence of the natural laws themselves. My Church holds that God created matter with the natural capacity to act directly, in a manner accessible to reason.”

“Then,” said Doc, “you don’t need the God Hypothesis.”

“No more than you need the ‘Frank Whittle Hypothesis’ to understand how a jet engine works. You’ll never find him, no matter how many measurements and tests you perform on the engine’s parts and components. That’s because the ‘Whittle Hypothesis’ simply isn’t an engineering problem.”

Jeanne spoke up. “Beside, the odds may not be as long as you think, Danny. There

are only about a thousand or so possible protein folds. That's a limit set by physics and chemistry, not by natural selection."

"Not by natural selection?" Another mask of faux surprise. "You mean Darwin was *wrong*?"

"No, I mean a theory can explain *many* things without being tortured into explaining *everything*. Darwin's natural selection explains certain kinds of evolution. Kimura's neutral selection explains other kinds. Neither one explains abiogenesis."

"Wait a minute," said Kelly. "What was that about *natural* and *neutral* selection?"

"Natural selection is mostly a culling of unfit variations, with encouragement to the occasional advantageous one. Neutral selection is ... Well, living creatures have a drive to go on living. *Whatever* variation the roll of the genetic dice comes up with, if it's not outright deadly, the creature will probably find some way to use it for *something*. That is, it's not so much that the trait is advantageous, but that the organism uses it to its advantage. *Much* faster evolution that way."

"What about Fox's protocells?" said Doc. "Didn't his experiments show that heating amino acids produces vesicles that grow and bud, just like living cells?"

"The paraffin in a lava lamp can 'grow and bud,' too," said Jeanne. "That doesn't make it alive. His protocells have no true metabolic processes. They don't *act*; they're *acted upon*. Like the bubbles growing and budding in a glass of beer." She held her glass up to show us. "There's no internal information, so there's nothing there to evolve."

"Worse luck, that." I suggested, studying my Guinness.

Doc remained skeptical. "The theory of evolution is as well established as the theory of gravity."

Jeanne set her glass down. "Exactly—and the theory of gravity has been drastically revised since the Victorian Age. What I'm saying is that when you're not dealing with organisms struggling to survive and reproduce, it may be that ordinary physics and chemistry matter more than Darwinian selection. And..." She pursed her lips and turned to her uncle. "And I don't really want to talk about this, Uncle Jim. I've spent all day talking about it and defending a son of a bitch, and I'd really much rather talk about the World Series or, or *anything* else."

Father McGinnity smiled. "Think the Cubs can take it this time?"

Bill Poke, delighted for a topic he could contribute to, said, "Naw. You hate to see old traditions die."

Doc was downcast by this turn of events, and I could see Danny was too. He hesitated a moment, as if to return to the back room, then shrugged, leaned his cue against the wall, and took a stool. "Black and tan," he told Himself.

For myself I wondered why Jeanne Price had spent all day defending a son of a bitch, but the answer was not then forthcoming.

Not until later, after Joe and Kelly had gone and the evening traffic had softened to

the point where Doc contemplated the completion of his journey home. Danny had gone out and returned with a tray of sandwiches from the deli on the corner, for while he was impervious to reason on certain matters, he did own a generous spirit. Father McGinnity had nursed his second white wine as if it were a patient in critical care, and had watched with increasingly evident dismay as his niece put herself outside of one pint after another.

Not that you could see it on her, beyond the ruddy flush that is the curse of the Gael. Her voice took on no slur, and she kept up her end of the banter as it drifted from one topic to another. Perhaps a slight surliness had crept into her tone. Though she was still its master, “the creature” was lurking, ready to pounce.

When she raised her hand to signal another pint, her uncle seized her wrist and whispered urgently. What he said, we could not hear, but its import was clear to all. Doc looked away, and even Danny Mulloney fell silent. The glass that Himself was polishing squeaked under his ministrations.

Jeanne pulled herself from her uncle’s grasp. “I know what’s best for me! O Daugherty, please?” She hefted her glass for the refill.

But Himself only shook his head. “It’s sometimes better to pour the bitters out than to pour them in. They’re a poor medicine for any pain.”

For a moment, I was unsure whether Jeanne would throw the glass or not, for there was a wild look in her eye on the other end of which I’d loathe to be. But then she set it down like a hammer and a shudder passed through her and she began to cry.

It was a quiet weeping, not the *caoine* of mourning, though there was something of the keening in it. It was the lament for things lost past all recovery, which the Irish know down in their bones.

Finally, Jeanne sucked in a long, gasping breath and wiped her eyes with a bar napkin. “I’m so sorry,” she told us. “You’d not want my troubles. Did you ever...” and she looked to Himself as she asked, “Did you ever miss a toothache when it was gone?”

“I can’t say I have,” he answered.

“I went down with him, but I don’t have to go down with him. It’s *my* career, right? I had to stand up there and listen to them laugh at me. They all thought it was a joke—*un hommage dans l’humeur*—and I had to pretend it was. I had to laugh with them. That hurt. He was a son of a bitch, and I had to mock his life’s work. Can there be a greater cruelty than that?”

“There was bound to be a man in the back of such tears,” said Himself.

But Jeanne shook her head. “It wasn’t like that. No broken hearts. I didn’t like him.”

“It isn’t always the *love* of a man that drives a woman to tears.”

“This world is a vale of tears,” Danny suggested. “But He is with us to guide and comfort.”

Jeanne’s smile was as brief as a flash of sun on a cloudy day. “That’s what Uncle Jim tells me.” She let her breath out slowly, ran a finger down the sweaty side of her empty glass,

and looked on something that only she could see. Then she sat upright on her stool. "Alright. I'll have to explain some things; but this is how I went down with Luke Bonhomme. Luke Bonhomme! Oh, was there ever a man with so inapt a name!"

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I should begin by telling you that I love the outdoors. When I went into biology I pictured myself in the wild. A naturalist, observing and recording, describing new species. I didn't count on days spent tied to desks, buried in journals, importuned by grade-crazed students. Ah, but there's nothing for it when you're an associate professor but to bend yourself to the wheel. At times, gazing at blank and bored young faces, I would wonder: Are there green fields somewhere? Lonely, rocky crags? Dank tidal estuaries? Dark and haunted caves? So whenever—as Melville wrote—it's 'a damp, drizzly November in my soul,' I know it's time to get out in the field as soon as I can. It is a way I have of driving off the strangulation of the ivy-covered walls.

Now grant money has never come easy to me—I don't have the knack for writing the proposals—but it bounds toward Luke Bonhomme like eager puppy dogs. So when the word went around the department that he was organizing field work for the summer quarter, I went to see if I could hang some research of my own on his proposal.

I'm not sure if he even knew who I was at that point. Certainly he gave that impression. Now, I might have been new, but the department is small, and it may have been a calculated affront intended to show me my appointed place in his universe. But then, he lived in a Lukocentric universe, so he may not have been intentionally rude. He may only have been thoughtlessly so. I think that may be worse.

How was he rude? It was in everything he did. The way he pursed his lips when he talked to you. The way he always made you wait when you called on him with a question. It was in the way he *walked*, for the love o' Mary. But ... Oh, he was brilliant!

When I suggested that I include my researches on micro-adaptations of alpine flora—we were going to Mount Rainier for the field work—he smirked and told me that was in the wrong direction.

I almost told him to, ah ... But he was already in love with himself, and I really did need the field work. Publish or perish, right? But Luke told me that since it was *his* grant, I'd write about what he told me to write about. Something no doubt to ornament his own research.

"Don't worry," he told me in that nasal drone of his. "The Nobel Prize will make up for it. If you follow me to Rainier, you can follow me to Stockholm."

Well. No one ever said he lacked confidence.

Alright, Uncle Jim. ybrisz. But, by God, I think he could have gotten there! What's the point of falling unless you've first scaled a height?

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It was my outdoor experience, of course. Otherwise, I don't know if he would have taken me on. But he asked me about caving and rock climbing, and what I said must have made an impression because by the time I got back to my office there was an e-mail waiting for me. "You're in," it read. "Arrange spelunking gear for five people. Camping supplies for

two months.” Evidently, I could be useful. That was the only criterion. At the very least, I could tell him that cavers never say “spelunking.”

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I met three of the others later that same day.

Knobby Bryant was Luke’s grad student: young, wiry, and with a prominent Adam’s apple. Bonhomme needed a serf to do his scut work. Knobby had climbing experience, but he was along mainly to keep Luke’s notes and samples.

Cap McConnell was, in theory, Bonhomme’s peer, but while in theory there is no difference between theory and practice, in practice there is. I found out later that McConnell was up for tenure but shy on his publications. Luke had promised him a breakthrough in geochemistry, and so a certain spirit of desperation had lured him into our company.

Wendy Chen was an engineering student. She would not be climbing with us, but would stay above and monitor the fiber-optic link that we would maintain.

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We took a rental van out State Road 165 to the park entrance and from there to the Carbon River trailhead. I drove and Knobby sat shotgun. He fairly bounced in his seat the whole while, so excited was he to be part of the project. In the back seat, Cap stared morosely at the passing scenery while Luke read maps and jotted from time to time in a pocket journal.

A ranger met us at the trailhead, and there were papers and other formalities. Stay on trails. Do not pick flowers. Carry the “10 Essentials” and Leave No Trace of your visit. I could hear the ranger capitalize Leave No Trace. This was all done with such grave solemnity that I nearly raised my right hand and swore on a map of the park.

I could tell the ranger was not happy. The amount of our equipment hinted that a trace of something might be left somewhere. “What are extremophiles?” she asked, referring to our permit.

“Biological lifeforms,” Luke answered, “that have adapted to extreme conditions—around ocean thermal vents or, as we hope to learn, in deep lightless caverns.” He managed to say this in a tone that implied some deficiency on the ranger’s part for not having known.

Certainly the ranger heard it that way. She folded the documents and stuck them in a pocket of her jacket. “Your permit expires in six weeks,” she reminded us.

The second van had arrived behind us with Wendy and four more grad students co-opted for the day to carry our equipment to our base camp. Since no wheeled vehicles were permitted inside the park, it all had to be carried in by Shank’s Mare. The grad students were husky outdoors types and were getting fifty bucks for the work.

We divided the equipment among us and each took a share, except Luke, who had the maps and walked on ahead of us. I think he liked being “bwana” with a line of bearers behind him. Cap and I carried the power source, each of us taking a handle. We would use it to power our communicator and recharge our batteries and lights while belowground. We

planned to spend several weeks below ground, and it wouldn't do to lose our lights or our contact with base camp. It's dark down there. Cavers have been known to hallucinate when deprived too long of light. I don't know what the ranger would have done if she had known our "battery" was a nuclear device, like those they use to power deep space probes. People sometimes don't think clearly about things like that.

It was a three hour hike. Just past Alice Falls, there was a side valley running off to the right, and on a boulder at the fork in the trail sat a large man with black ponytailed hair and wearing a sleeveless bush jacket. He had arms like legs, and they were decorated with intricate tattooing.

"Our guide," said Luke.

Billy Quiemuth was a Nisqually Indian from down near Fort Lewis. When he saw us coming, he studied us for a moment, then rose and said, "This way," and turned up the side valley. Luke had started to say, "Let's keep moving," but he was saying it already to Billy's back. I think he was a little miffed that the guide hadn't waited for instructions.

Billy's stride could eat miles, but after a few minutes he looked back and saw that, burdened by our equipment, we had fallen behind, and with a shrug, he adjusted his pace to ours. His whole body said, "I ain't in no hurry."

"The cave is an old Indian site," Luke told Cap and me as we struggled behind him. He held up an old browned notebook tied up with a string.

"Sacred?" asked Cap.

"Aren't they always?"

"Naw," said Billy without turning. "That's all done with. I'm a Presbyterian. We used to go to this cave an' smoke weed when I was a kid."

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It was late afternoon when we reached the mouth of the cave. Luke had our "bearers" set the equipment just inside, micromanaging until they had things arranged to suit him. It would be a three-hour hike back for them, and they were not wishful of finishing that hike in the dark. Even with the flashlights that were one of the "Ten Essentials," that would be a chancy thing.

Luke paid the four with checks. It was a Friday afternoon and he paid them with checks. That was so ... so *Luke*.

The first thing we did was arrange our sleeping bags and set up the stove. We would begin our descent in the morning after a meal and a good night's rest. I wondered why Luke had really brought us here. Extremophiles, my left buttock. [Sorry, uncle.]

That evening, after we had eaten, Luke gathered us around the lamp. It was bright—LED, and powered like I said off atomic batteries—but caves have that peculiar property by which their shadows are not dissipated by light, but rather retreat deeper into cracks and crevices. It seemed as if we only illuminated the darkness.

Knobby vibrated so much that I thought his clothing would catch fire. Beside him Cap

sat like one of the rocks he studied, so that between them the two averaged a normal amount of movement. As to the other two members of our group, Billy sat apart with his eyes closed, apparently asleep, while Wendy busied herself running tests on the communication gear. The research as such did not involve them.

Luke unfastened the flap of his bush jacket and extracted that yellow-brown notebook I had seen him reading earlier. He removed the rubber bands that held it together. "This," he explained, "is the journal of Ezra John. He was a naturalist of the old frontier days. He traveled up the Red River, along the Missouri, across the Great Basin and the Rockies, eventually here to the Pacific Northwest. He made literally thousands of observations and sketches of the flora and fauna he saw along the way. He also made geological observations, McConnell, which should interest you, especially of the 'sand blows' in and around Cahokia and the Mississippi Valley."

"Sand blows," said Knobby. It could be taken for an acknowledgment or a question.

Luke nodded to Cap. "Why don't you explain, McConnell?"

Cap grimaced, perhaps wondering if Luke were not trying to catch him out with a pop quiz. "It's a 'sand volcano'," he said. "During earthquakes, water-saturated sediments below ground can liquefy and shoot up through the soil, making a cone of sand, complete with a crater in the top. They can range from a few millimeters to a few meters in diameter. You say this John fellow visited Cahokia. Quite a few sand blows erupted around there during the New Madrid earthquake in, oh, 1810, I think."

"In 1811 and '12," Luke said.

Cap looked at him for a moment and then said, "Yeah. Okay."

"Sand," said Luke in a meditative voice, "is silicon dioxide."

"Mostly," said Cap. "There are limestone sands and gypsum sands and—"

Luke waved his hand. "Not usually inland or outside the tropics. The blows around the New Madrid and other earthquake sites were silicon dioxide." He smiled benignly.

While we waited for enlightenment on this trivial point, Billy spoke up, showing that he had been listening all along. "Ezra John, he was a Choctaw Indian come up from down the Territories, back after the Removal. He lived with the Nisqually for several years. Made quite an impression, because we'd never seen a civilized Indian before. Then he faded from oral history into oral tradition and became a culture hero. There are stories about him. Jeeze, I haven't thought about those stories in years. The tales say the Earth Mother gave him birth. He come up, taught the Nisqually crafts like farming and blacksmithing, then the Earth swallowed him again."

"Blacksmithing, I can understand," I said, "but farming?"

"Ah, that's just how folklore works. Once events are far enough in the past, they all happen at the same time. 'Origin time' instead of 'historical time.' Real people become culture heroes and whatever needs explaining is assigned to one of 'em. De Brazza was a real man when he reached the Congo in 1880, but by 1960 he had become a culture hero to the Tio folk who lived there. Same thing happened to Ezra John. They don't tell *his* story no more; they tell stories *about* him." When he saw us looking at him, he shrugged.

“Anthropology major. Seattle U.” He grinned. “Self-defense. I plan to study the folks who come to study us.”

Luke had listened with the benign patience that said others were doing his work for him. When Billy lapsed into silence, Luke turned his flashlight to the cave wall just above the entrance. There, chiseled into the rock was a symbol: **EJ**

“E J,” he explained, as if we couldn’t see it for ourselves. “His monogram.” Luke wagged the tattered journal he kept in his pocket. “He filled twenty-seven notebooks on his various journeys. This is the last. The twenty-seventh. It describes his journey deep into the earth—and what he found at the bottom.”

I had been silent during this entire discussion, busying myself with our equipment. But I had finally grown tired of Luke’s little games and, just to end the matter, I set the climbing ropes aside. “And what was that?”

Luke smiled at me like I was a dim pupil who had finally asked a bright question. “The answer to the monogenesis problem.”

Doc interrupted. “Monogenesis. You mentioned that before. What is it, exactly?”

Father McGinnity grinned. “In theology, ‘monogenes’ means ‘the only-begotten.’”

Jeanne had been staring vacantly at something invisible and shook herself aware. “Nothing quite so dramatic as *that*, uncle. No. You see if abiogenesis is inherent in the laws of physics and chemistry and not in the whims of chance, then...”

“Then why did it happen only once?” That was Danny, and it surprised us all that he would see it first. “Sure,” he continued in a rush. “If it was so *natural*, so *inevitable*, why didn’t life happen twice right here on Earth? Why isn’t it happening every day? But you say life was only created once—just like Genesis says.”

“What Genesis says,” Father McGinnity told him, “is ‘*producat terra animam viventem in genere suo...*’ That’s the Vulgate. ‘Let *the earth* bring forth all kinds of living things.’ You’ll note *nature* does the bringing forth, and I don’t see that God told her to stop.”

Danny lowered his glass of Harp to the countertop of the bar. “Are you trying to tell me that *evolution is in the Bible?*”

Jeanne winced. “Let *the earth* bring forth?’ No wonder Davischen was so hostile this afternoon!” But she did not then elaborate on the comment.

“Besides,” Doc said, “any lifeforms that got started later would have been gobbled up by the ones already here.”

“The stillbirth theory,” Jeanne said. “That’s one answer.”

“But there are others,” I suggested. “Or you wouldn’t’ve called it the ‘monogenesis *problem*.’”

“Oh, certainly. Through any finite collection of facts you can draw an infinite number of theories. Danny was right to ask why abiogenesis happened only once—if it did. But Doc might be wrong. It’s not always the established lifeforms that win out. In fact, evolution pretty

much says the opposite, doesn't it? The Ediacaran biota are truly weird. They don't fit into the known phyla. The Cambrian biota do—mostly. Did the Ediacarans evolve into the Cambrians? Or were they two separate events, with the Cambrians replacing their predecessors? The fossil record is too sparse to say. And here's a third possibility: All the major modern phyla appear abruptly in the Cambrian Explosion. Would it be so strange if some phyla originated in separate abiogenetic events in different places around the world, established themselves in distinct niches, and then spread out and mingled, giving the impression of an 'explosion'? Sponges and jellyfish really are peculiar compared to the bilaterian rest of us."

Doc waved a hand. "Aah. But those've all got related DNA. Remember when they found those creatures living around the deep ocean thermal vents, and they thought at first that they might represent an *in-de-pen*-dent Tree of Life? But their DNA turned out to be the same as all the rest of us, which proves they share the same origin."

But Jeanne had warmed to her topic. "Doc, if physics and chemistry do set boundary conditions on the DNA, similarity needn't indicate common descent. It may only indicate a limited solution set. The determinism of physics and chemistry takes a big bite out of the randomness of evolution. Sorry, Danny, but it needn't be as improbable as Hoyle insisted. But it also mucks up the molecular clock, and *that* may mean that there are multiple geneses that we simply can't distinguish because their DNA *looks* like they might be related. But I could not imagine that Luke Bonhomme would have so proudly announced that we would find 'the answer to the monogenesis problem' if that answer were that it only happened once. He had to have meant a second genesis, a second tree of life."

* * * *

But Luke was a tease [Jeanne said, taking up the tale once more]. He told us only enough to lead us on. I should have reasoned ahead of him, but all I could foresee was that he had found a clue in John's journal hinting at some deep-in-the-earth extremophile. I didn't see how its DNA would be different enough to settle the matter. The monogenesis advocates would say the DNA showed evidence of common descent. The polygenesis advocates would say the DNA seemed related because there were only so many possible ways that DNA could look.

But of course if I could see that, so could Luke, and he would never have assembled our little expedition if the only thing lurking at the end of it would be a resounding "maybe."

The first descent was the roughest: a nearly sheer chimney, the dead remnant of a volcanic vent. Billy tossed a rock down the center and grinned ferociously while we counted off the seconds before its rattle announced the depth of the tube. He winked at me. "Remember what they say. Gravity is not our friend." But an LED lantern, lowered into the shaft, revealed pitons driven into the rock at intervals. John had gone this way, and what he could do with old-style hemp ropes we could do with modern nylon.

In the two weeks running up to the expedition, I had tested each of our team-members' climbing ability and was satisfied that even Knobby could handle the descent. Billy, I was not sure about, as I had not met him until that day, and I assumed at first that he had only been hired to guide us to the cave. But stepping to the lip of the chimney, he looked into the darkness and grinned at me. "Not as deep as it looks."

"No?"

“Deeper.” He chuckled. “But there’s a ledge about three hundred feet down where we can rest.”

I paused while lowering the rope with our supplies. “You’ve been down there already?”

He nodded. “A little ways.”

“What do you think we’ll find down there?”

“Depends on what you look for, doesn’t it.”

* * * *

We expected the temperature below ground to run around fifty degrees, the mean for this region. We had dressed in thin layers for comfort, and now we pulled on our coveralls—fewer loose edges to catch on things—and donned and checked out climbing harnesses. We said good-bye to Wendy, promised to call in once a day, and went down the chimney.

I won’t go into that climb in any great detail. It was painstaking, but not especially daunting, and a climber who doesn’t take pains can wind up dead. I went first and Billy went last, since we were the more experienced climbers. I did a straight shot, abseiling with my chest rack. On the way down, I passed several old pitons hammered into the rock, and along one stretch, a length of old hemp still hung. Ezra John had evidently left ropes in place, but they had decayed over the years. I warned the others not to grab hold of them and continued down. When I reached the ledge, I belayed for Knobby and Luke. Billy came last and drove in rebelays at intervals to facilitate our return climb.

Like John, we left the ropes in place. I wondered if climbers a century hence would know who we had been when they found their frizzled remains.

It took most of the day to complete the descent, and although Luke was anxious to press on and Knobby was like a bunny with a drum, I insisted we make camp. Luke chafed, but he was smart enough to realize that you don’t bring an expert along in order to ignore her advice. I could see that Billy was ready to back me up, but he kept silent. The last thing a climb leader needs is a second leader.

* * * *

Before turning in, I checked the rest of our equipment, and Knobby attached the fiber-optic cable to a repeater. We had several spools of it and planned to run them out as far as we could. Knobby plugged in the transmitter and called Wendy. It was just a test. We could have hollered up the chimney to her.

I circled the room into which we had come, saw three clefts that seemed to lead out of it, and over one of them was an **EJ**. I turned a lamp into its dark interior, but it didn’t get much lighter.

“It widens out farther down,” Billy told me over my shoulder.

“A good thing, too, given the baggage we’re carrying. Any more pitches like the chimney?”

“One more I know about, but not as long or steep.”

I grunted, then turned to face him. “Any idea what Luke has in store for us?”

He only shrugged. “The elder gods, maybe?”

“The elder gods.”

“These mountains, they were people once. There’s a Nisqually legend about the Beautiful Firekeeper. She kept the peace between two quarrelsome brothers; so when the Great God turned them into mountains, she was turned into a third mountain set between ‘em.”

“Were they, now? Which mountains?”

“The brothers became Mount Adams and Mount Hood. The firekeeper became Mount St. Helens. Appropriate, don’t you think, for a firekeeper? But in the story it was the two brothers who were always blowing their tops. I think Nisqually legends remember a time when the volcanoes were more active.”

“What about Mount Rainier?” I asked him. “Do you have a story for this mountain?”

“The Miser of the Mountain...”

“Supper’s ready,” said Cap, who had volunteered to cook this time. Chicken soup. Red beans and rice. It smelled wonderful.

Luke emerged from the folding tent he had brought along for his lordly privacy and looked around. “Here,” he told Cap. “Look these over and tell me what they say to you.” He plopped a stack of papers beside the geologist, who glanced at them before attending to the soup. Luke tossed his head toward the crack in the rocks. “Quiemuth. Is that the way John took? Never mind. I see his mark. Bryant, come with me.” And then he returned to his sanctum. A few moments later, Knobby ducked inside with him.

Cap did not look up from his cooking. “Maybe he’ll trip and fall down a volcanic tube.”

“That’s a terrible thing to say,” I told Cap.

“The man ain’t a fool, neither,” said Billy.

Cap grumbled some more, served out the food, and hollered to Knobby to come and get it. “The great man can figure the rest out for himself,” he said.

* * * *

After supper, as I was cleaning the plates, Luke held another of his “underground seminars.” His answer to the problem of abiogenesis was a resurrection of the Smith-Cairns hypothesis, which disappointed me, because I had been expecting something more twisted, more novel.

Clays result naturally from silicates in solution, and their fault structure, domain structure and cross-sectional shape are all copied as they accrete. When mechanical

stresses cause them to snap this information is exposed at the ends of both the resulting crystals.

“In other words,” said Luke, “it’s heritable information.”

“Not really,” I told him. “The crystals don’t *build* themselves from it the way biological organisms self-assemble from their DNA.”

“It’s information,” Luke insisted. “And the two fragments get it from the original. Fits *my* definition. Now, suppose one form of clay is stickier and so more likely to silt up a stream bed. That leads to further sedimentation, and to flat areas exposed to the air. The flat areas dry out, the wind blows the dust around, and some of the crystals fall into another stream and start the cycle over. So the sticky clays become more successful. Natural selection.”

“Sticky clays,” said Cap in a voice less than convinced.

“It needn’t be stickiness, McConnell,” Luke said. “Brittleness, weight, speed of growth, anything that expedites replication will make that form of crystal more common.”

“It’s not natural selection, Luke,” I told him. “Not the Darwinian kind. Not every natural sorting mechanism can be called—”

“Oh, quite right, Price. Quite right. But it is a prototype for the real thing, isn’t it? Just like the replication of fracture domains and such is a prototype for ‘heritable information.’ It needn’t be the real thing to be *like* the real thing. I’m glad you see that.”

Luke had a way of turning criticism of his ideas into support for his ideas. You could point out a flaw in his reasoning and the next thing you knew it was part of his reasoning. Laying into him was like punching pillows. Suddenly, nothing happened! The head pat was worst of all.

Knobby said, “But what has that to do with abiogenesis?”

“It’s quite simple, Bryant ... Complex proto-organic molecules can be catalyzed by the surface properties of silicates. You should know this, McConnell. The surface grooves can entrap these carbon polymers, protecting them from UV or wave action that might otherwise disrupt them; and they will be ‘carried along for the ride’ as the crystals grow and fracture. At some point, exaptation occurs and the organic molecules begin to grow and replicate on their own.”

“You mean,” said Cap, “that at some point a miracle occurs. It’s an attractive story, Bonhomme, but all the hand-waving plausibility in the world won’t get you over the empirical hump.”

Knobby rose to his thesis advisor’s defense: “But it makes sense.”

“Yeah? So did antiperistalsis, geocentrism, and the world-flood.”

Luke was accustomed to Knobby’s agreeable nature. Cap rubbed him the wrong way. “The flood is a creationist fable,” he said.

“So is life being formed from the clay of the earth,” Cap answered. “But Xenophanes

never read the Bible. He was a Greek pagan who drew his conclusions from the facts. He'd seen marine fossils in the mountains of Greece, and the only *natural* process he knew of that could deposit ocean life on land was a flood. It was seafloor uplift that would have sounded supernatural to him. He couldn't see it happening."

"You're right," Luke countered blandly, "we mustn't assume that Smith-Cairns is false just because we can't see the process going on today."

That flustered Cap, because he hadn't been drawing that conclusion. Me, I leave philosophy to those trained to do it—and scientists are notoriously rotten philosophers. But I must have made a face of some sort because Luke turned to me. "And what are your thoughts, Price?"

"You have an answer," I told him, "or you think you do, or you wouldn't be dragging us down the rabbit hole with you. So why not just tell us?"

"I told each of you: Follow me here and you can follow me to Stockholm."

"Me too?" said Billy with an impossibly innocent look.

Luke treated the question as a joke, and talk drifted, as it always does among scientists, to the possibility of testing the theory. What would constitute supporting evidence? What would provide falsification? That was not as easy a question as it sounds. The Greeks thought heliocentrism falsified because it contradicted known facts: There was no observable parallax in the fixed stars. Duhem thought Maxwell had been falsified by permanent magnets—and the electron was like an epicycle, a particle-of-convenience tacked on to save the equations. I wondered what Luke thought he had in his back pocket.

And I wondered too what "obvious truths" we held that would give future scientists the chuckles.

I suddenly realized that Cap was the key member of our team. Knobby was along to be Luke's slave, and Billy and I were along to ensure climb safety. But why exactly had Luke Bonhomme dragged Cap into this?

I could only conclude that Luke believed that Ezra John had found a fossilized clay matrix—and we were there to witness its discovery.

* * * *

Of course, what does a fossilized *rock* look like?

* * * *

The next day saw a series of climbs down a few short pitches, into which a flight of steps had been carved. Billy—and Ezra John—had told us about them, but it was still a startling thing to find this far underground.

"Nisqually carve 'em," said Billy, "or whoever come before us."

"Why would they have come down here?" I asked him.

Billy shrugged. "Religion, maybe. The stairs were cut by Those Who Came Early.

Remember I told you how oral tradition has only two eras: historical times and origin times? About the Early Ones, we don't even have origin stories."

The steps led to a gallery of colored crystals that caught all of us short, even Luke, who had known it was ahead. The crystals grew in beds on the wall of the cavern and flickered in ochre and green and red. Knobby so far forgot himself that he whispered, "It's beautiful."

Billy nodded. "I'd've carved those steps myself, just to come here."

"John described this gallery in his journal," said Luke, "but ... I can see that words failed him."

"Fracto-luminescence," Cap told us. "The crystals convert vibrations into light. Hey! Remember crystal radio sets?" The crystals blinked as he spoke. I was reminded of Christmas tree lights, not crystal radio sets. I wondered if these "light echoes" of our words would convince Luke that the crystals had a "language."

"John had two Nisqually guides with him," Luke told us, "and he mentioned how the crystals flickered and flashed to their shouts of amazement."

"Hear that hum?" asked Billy.

The rest of us hadn't noticed any sound until then, and Billy's question led naturally to a comic interval in which we were all crying out "quiet!" and "hush!" until by incremental steps we achieved silence. Luke turned off his lamp as well, and the rest of us followed suit until utter and absolute darkness enveloped us.

There is no more still a place on earth than a deep cavern. The only sound was our own breath; there was not the slightest hint of a breeze.

Sand-strewn caverns, cool and deep,

Where the winds are all asleep.

Sand strewn ... The crystals continued to flicker, but more dimly. I thought I could detect, just beyond the range of my own hearing, a hum like the sigh of a dying organ.

"Subsonics?" Cap guessed. "The Juan de Fuca plate is subducting under the North American plate somewhere down below us. Very low frequency vibrations from the subduction may be inducing light flashes in the crystals."

"I said hush, McConnell." Luke had a laser pointer. I don't know why. Maybe he expected to give a lecture. When he aimed it at a nearby crystal, it began to purr—I don't know how better to describe it—it began to purr like a cat in sunlight.

"It works both ways," he said. "Light induces sound."

The sound of the first crystal induced light in its neighbors, and soon the chain reaction had the crystal bed blinking again. Luke flipped his pointer off, blanketing us once more in absolute darkness as the colors slowly damped out.

This time, before anyone could speak, a ripple of color passed like a glissando

through the crystals, running from our left to a bend just out of sight on our right. At the same time, the floor of the passage trembled. It was like the rumble you sometimes feel on a Manhattan street as a subway train passes beneath you.

“Microquake,” Knobby whispered, and he looked back at the way we had come. I think it had not occurred to him until then what an earthquake might mean underground. Luke, however, looked off into the shadows on our right.

* * * *

When we made camp that night, Luke called Wendy on our land line. Reception was good, considering that we had spliced the repeaters into the line ourselves. Luke reported that all was well and Cap added something about the singing crystals. I think at that point he had a paper in mind to get his tenure. For my own part, I mentioned some fairly ordinary cave-dwellers I had found and written descriptions of, including a species of sightless bat. New species, to be sure, but not new *kinds* of species.

Well, thousands of papers have been written on “discoveries” far less momentous. Quantity, not content, mattered. Darwin or Newton, taking thoughtful years between books, would never have survived in today’s academe. Or they would have been forced by the selective pressures of survival to dribble out their insights in half-formed tidbits.

* * * *

The next day’s descent led to an ancient lava tube that sloped sharply downward. It was hard not to pick up speed as we made our way along it. Knobby forgot himself and stumbled into an awkward canter before he outran his legs and went body surfing on the harsh flooring of the tube. He was badly scraped and bruised, but it could have been much worse. Shortly after, Cap lost his grip on the spool of fiber-optic cable we were unreeling behind us and it clattered ahead into the darkness. Billy grunted and said, “We shoulda thought of that sooner.” He drove a spike into the wall of the tube and hung a motion-activated LED floodlight on it. Cap said, with a sly voice, “We’re not supposed to leave anything behind when we leave.” But Billy only shrugged. “Ranger no like ‘um, she come down an’ take ‘um.”

A moment later, the fiber-optic cable, which had been lying slack on the floor, abruptly straightened and went taut with an audible twang. Cap laughed nervously. “Looks like we caught something.” Luke turned and looked at him, but said nothing.

Billy and I rigged a rope and pulley to the tube wall, and we used that to control our descent down the steep pitch.

* * * *

What had made the fiber-optic cable go taut was that the reel, bouncing and rolling down the tube, had reached a wide crevasse in the rock and had tumbled into it. It hung now like a plumb bob on the end of the cable, pulling it. I was surprised it had not broken loose.

The chasm ran through a chamber whose ceiling was lost in the darkness above and whose floor was lost in the darkness below.

Cap whistled and panned his LED along the fissure. “Deep fault line,” he said. “Part of the Western Rainier Seismic Zone. Secondary cracking in the North American Plate, I

think.” He turned to Billy. “You see, the Juan de Fuca Plate out in the Pacific, it’s subducting ... It’s shoving its way under...” He emphasized this with hand motions. “... *under* the North American Plate, ploughing northeastward at three to four centimeters per year and pitching downward at thirty to sixty degrees. That’s why the Sea-Tac region has so many earthquakes—and why the Cascades are a range of not-so dead volcanoes. The Cascades are the result of crumpling ... Say, that tube we came down was pitched about forty degrees. I bet it tracks the subducting plate beneath us. In fact, I wonder if this crevasse is deep enough that we could actually see the Juan de Fuca itself at the bottom—”

A man suddenly finding himself in his comfort zone can become remarkably loquacious. For me, volcanoes and subduction earthquakes were hardly more comforting than that Rainier’s status as “extinct volcano” was only provisional. St. Helen’s had been extinct, too, until it wasn’t.

But Cap’s sudden silence drew our attention, and we aimed our own lamps to join where his own now rested.

Sixty feet below the lip of the sheer drop and a few dozen yards to our left was a ledge. And on that ledge lay a body.

Clad in heavy flannels and resting on a canvas rucksack, the mummified eyeless thing stared back at us. The unnatural angle of repose bespoke a broken back. The ragged and torn hands and missing fingernails told of a frantic grabbing for handholds that had not been there.

Billy peered over the edge. He saluted the body. “Hello, Ezra.”

The rest of us looked at him. “How do you know it’s him,” Knobby asked after a moment.

Billy shrugged. “How many people ever came down here?”

Luke wagged the daybook like a chastising finger. “If that’s him, how’d his journal make it back to wind up in our library’s collection? There’s a point a little farther to our right where the crevasse closes up to no more than a crack in the ground. That’s the way John describes.”

But Billy only shrugged again. “Okay. Maybe it ain’t him.”

I moved a little to the left, until I was standing directly over the ledge, and played my light across the rocks opposite. There was a tunnel there that looked like the continuation of our lava tube, broken off and offset slightly by the shifting fault at some unimaginable past time. I sensed that someone had come to stand beside me and turned to see Billy.

“A good run,” he said with a toss of his head to the opposite tube, “and a man in top condition could leap across the fissure, easy.”

“But why risk it, if he could just step across farther down?”

“Why, that’s a good question,” said Billy. “And maybe if we learn the answer to it we can avoid joining ol’ Ezra down there on the ledge.”

I tried to see into the darkness of the tube’s continuation, but my lamp only illuminated

the shadows. "What's down that way?"

"Dunno. Never came this far. But the story of the Miser on the Mountain tells us that you can't climb Mt. Rainier without leaving something behind for each thing you take." He looked at the mummy on the ledge. "Don't know if it makes a difference if you climb down instead of up, but whoever that is down there—Ezra or some nameless stranger—he sure left a lot behind. I hope whatever he took was worth it. Come on, we gotta haul the rest of the cable out of the pit."

* * * *

When we continued our downward trek the next day, the sharp edge of Cap's enthusiasm had been dulled, but he did not revert to that sullen temper in which he had begun the trip. "I'll get at least two good papers out of this," he had confided to me once we were in camp and had checked in with Wendy. "That rift gave me some ideas about the Nisqually Quake of 2001."

Luke didn't even look up from his own note taking. "Have you finished studying the seismic charts I gave you?"

He didn't seem to expect an answer, which was a good thing because Cap didn't give him one. If you ever want to take the bloom off a rose or wipe the smile from a baby's face, Luke is your man.

I really do think there is a value to going down now and then on your knees. If I hadn't done so, I would never have seen them.

I was on my knees because Ezra John had taken us through an especially tight passage, and while Knobby could duck-walk with only a scrape to his temple from an unfriendly stalactite, the rest of us had to crawl. That's how I noticed the grotto off to the left.

Perhaps it was the sound of a slight rustle, perhaps it was a hint of motion in the darkness. Perhaps it was the smell. "Hey!" I cried, being last in line in that particular passage. "Which of you guys cut one?" I heard a giggle from up ahead—Knobby, I think—as I played my lamp into the grotto.

The Medusa Grotto, I called it afterward. All along the floor against lefthand wall was a writhing bed of white tubes from which red gill-like structures emerged and retracted. They looked like small crimson snakes trying to strike the rock itself. *Careful*, I remember thinking, *you'll blunt your fangs*. I ran my light around the rest of the grotto, but the strange creatures were nowhere else. "Hey!" I cried more loudly. "Get a load of this!"

From farther ahead I could hear Cap's voice. "What is it?"

"Lipstick applicators dancing the samba." That earned me silence, followed by the sounds of others crawling back up the passageway. Well, they *did* look like lipstick applicators, and their wavy motions would do for dancing. Suddenly, it all clicked into place, and I knew what I was looking at, and I knew it would make my reputation.

"Well, well, well," I whispered. "What are *you* guys doing *here*?"

* * * *

"Tube worms," I told the others when they had crowded with me around the mouth of the grotto. "They were discovered in '77, living around thermal vents in the Pacific. In the deeps, they can grow up to nine meters long. The tube's made of chitin and that red structure absorbs oxygen, carbon dioxide, and hydrogen sulfide from the vent waters."

"That red thing's the worm, then?" asked Knobby. "And it lives inside the tube? Sort of like coral?"

"No the whole thing is the tube worm; but ... the tube worm's not the whole thing. You see, they've no mouth or digestive system. So by themselves they'd be unable to eat. But their blood has the 'superpower' to transport the H₂S from the vent waters to billions of bacteria that inhabit its insides. The bacteria use the H₂S and provide carbon for the worm to grow. In a certain sense, the tube worm isn't even a whole organism—without the resident bacteria, it would be just dead organic matter. But the worm and the bacteria together ... They're on the way to becoming a standalone organism. Don't tell me there are no 'transitional' forms. Don't ever try to tell me that."

I was actually trembling. There is a certain feeling known only to scientists and mathematicians—and perhaps to explorers—when something new swims into their ken.

"Ezra John didn't mention those things," said Luke. "Come along Bryant. We've notes to collate." Crouched at the back of our group, he did not have a clear view, but as an expert in extremophiles he had to be familiar with the Pacific vent creatures. It suddenly occurred to me that Luke Bonhomme was jealous. Cap's discoveries had not threatened him, since they were off his turf, so to speak, and he could always claim that he had led Cap to them. But I had pulled this one out of a hat, and in his own specialty. And in front of witnesses.

Cap and Billy remained behind with me. Cap nodded at the tube worms. "And these are special because ...?"

Billy grunted. "I don't notice any vent waters in there."

"That's right," I told them. "Cap, help me out here. Tube worms have been found on the Galapagos Ridge, the East Pacific Rise, and the Juan de Fuca Ridge. Where would the next underwater ridge be?"

Cap thought about it some and then broke into a grin. "Why, we'd be standing on it right now."

"That's what I figured. As the Juan de Fuca plate jacked everything up, that ridge turned to dry land and this one vent species managed to hold on for the entire ride and become a *terrestrial* form. Volcanoes emit hydrogen sulfide, and these 'Rainier tubeworms' must have somehow learned to harvest it from the air rather than from vent waters."

"Never seen those except around stinkstone," Billy said. "I always thought they were plants of some sort."

"When did you see tubeworms before? You said you'd never gone beyond the Nisqually Stairs."

"Oh, they're in other chambers, down ways John never took. Besides, I got a tradition to uphold."

“What tradition?”

He grunted and assumed his “Noble Redman” pose. “White man find new thing, but Injun know it long ago.”

Cap frowned. “What is ‘stinkstone’?”

Billy cocked his head and grinned. “Stone that stinks. That’s the—watchum callit—strata, those worm things are touching.” He indicated a band of greasy-looking rock. Cap inched into the grotto to get a better look.

“Foid,” I heard him mutter. I thought it was some sort of geological cuss word, but he explained that a “foid” was an igneous rock that contained more than sixty percent feldspathoid, and that feldspathoids were tectosilicates that resembled feldspars. He did not explain “tectosilicate,” which was just as well, or the terminological dominoes would still be toppling.

He did add that such foids were both rare and unusual. At that point, he invoked “alkali hydrosulfides” and other like occult terms, but I fell to thinking that a rare species of igneous rock and a rare species of terrestrial tube-worm would not be cohabiting by chance alone. That would be rare to the second power.

“Why do you call it ‘stinkstone,’” I asked Billy.

Our guide grinned and, opening his canteen, he took a sip and spat it at the rock.

Cap ducked back. “Oh, man! What the...” Then he sniffed more deliberately, as a chemist does when confronting an uncertain vapor. “Hydrogen sulfide!”

Billy nodded. “The rock farts when you squirt water on it. We thought it was great fun when I was a teenager. If you light a match—”

“We get the picture,” I told him.

Cap used the claw of his rock hammer to break out a specimen from the vein. He had to lean close to do it, and his nose wrinkled in disgust. “I’ll bet the ore contains sodium sulfide or one of its hydrates. Those emit hydrogen sulfide in moist air. There must be a constant miasma diffusing out from the rock.”

“Stinkstone,” said Billy with a nod. “Like I said.”

“Hydrogen sulfide is a lot like water,” Cap commented when he had let out his breath and backed away. He put the rock in a plastic specimen bag, sealed it, and wrote a time, place, and context on the label. “Except it’s a gas, and water’s a liquid. And water’s necessary to life and this stuff’s poison—except to your buddies here.”

“Yeah,” I said. “Except for being a poisonous gas instead of a life-sustaining liquid, I can see where they’d be a lot alike.”

Cap took a digital image and wrote the image number on the label. “Joke all you like. But S falls just below O on the periodic table, so if you replace H₂O with H₂S...” He fell suddenly silent.

I cried out. "That's it! That's it!" But Cap was still staring at nothing, so I turned to Billy, who obligingly asked, "What's 'it'?"

"Around the ocean vents, tube worms stick their 'gills' into the vent plume and harvest the hydrogen sulfide. This species teases the H₂S out of the rock by dabbing the surface with their moist gills. That's why it survived when this ridge was uplifted out of the ocean. Oh, that's *beautiful!*"

Billy grunted, looked at the nest of tube worms, but made no comment on my concept of beauty.

Abruptly, Cap said, "That bastard!"

We did not ask him who he meant. Neither did he elaborate. Instead he pushed past us and crawled down the passage to our camp.

"What was that all about?" I asked Billy. It was a rhetorical question and I did not expect an answer. Still, when I did not get one, I turned to him and found him shining his lamp into one dark pocket and fissure after another.

"What is it?" I asked him.

He shook his head. "I felt like we were being watched."

His lamp reflected off the rocks, shining chips of mica seemed like eyes. But what needs eyes in a lightless cavern? I studied the tube worms and suddenly noticed that many of the nearer ones, instead of licking the stinkstone, had begun "licking" the air in our direction. Coming on the heels of Billy's premonition, their action seemed unnerving. Then I laughed a little at my fright. "It senses our body heat," I told Billy. "And somewhere deep in its genetic memory are the warm waters of the thermal vents."

* * * *

When I reached the camp, I noticed Cap sitting up by the lamp and reading the printouts that Luke had given him that first day. He had unfolded a map of the Cascades across his knees and was tapping on it arhythmically with a pen, deep in thought. Luke was watching him with a quiet curl on his lips.

I turned my attention to the dissection of a tube worm specimen. Whatever his plans were, Luke evidently believed everything was going according to them. But I would be damned if I would give him the satisfaction of asking him what they were.

Billy had that useful "superpower" that enabled him to do exactly nothing. It was disconcerting in a way. He could sit there, not talking, not reading, not looking at anything in particular. I can't even be sure he was thinking. It was as if he were simply waiting, and it crossed my mind that, if I could only figure out what he was waiting for, I would have teased out the secret of the universe.

But I suppose that nothing can grow boring even for those most practiced in its skills. After a while, Billy "turned on," rose from the rock on which he had been sitting and strolled over to kneel beside Luke, then, after receiving a pointed look, he moved on to Cap and studied the maps that Cap was marking up. Finally, he came and stood behind me to watch me cut up the worm.

“Boss says we should reach the bottom tomorrow,” Billy commented.

“Unh-huh,” I answered absently. Dissection by lamplight in a cavern who-knew-how-deep below ground, in the chill and damp, was neither the easiest nor most graceful way to do it. I had additional specimens that I planned to dissect in the lab once we got back to the surface, but how could I not take a quick peek. Billy glanced at my notebook, where I was sketching the tube worm’s anatomy. Then he squatted beside me.

“Wish I knew what the boss was reading in that notebook of John’s.”

I glanced at him, glanced at Luke, who was reading the journal with a thin, secret smile. “You don’t trust Luke.”

Billy didn’t even bother to laugh. “We’re following him and he’s following an old dead Injun. Me, I’d rather be led by a live man than a dead one.”

“You don’t trust John?”

“Never met ‘im. But I’d rather not follow him until I know where he wound up.” He paused and scowled. “You, I trust.”

I waited for him to name Cap, too, but he didn’t. The weight settled on my shoulders. It’s damn heavy, the trust of others.

* * * *

When we awoke, we did not break camp. Luke told us that John’s destination was close by, within a day’s climb. So we could make our way down and back without lugging our equipment. “Just take your sampling equipment.” He opened his notebook to record the day’s activities. “Price, what time is it?”

I looked at my watch and started. “It’s ten o’clock already! Day’s almost gone!”

“Ten a.m. or p.m.?” Luke asked.

I started to say “a.m.” because we were just waking up; but then I realized that I really had no idea. Down here, it was always night, and you could slip out of the diurnal rhythm without even noticing.

Billy hefted his knapsack to his back. “Ten *p.m.*, boss.”

Luke’s scowl seemed Mephistophelean in the LED lamplight. “How can you be so sure?”

Billy composed his face into what I had begun to think of as his Injun Act. “Injun always know’um time. Have’um deep roots in nature.” As he turned away, he added *sotto voce* to me, “and have’um twenty-four hour watch.”

* * * *

The next pitch was narrow and steep, but strewn with broken rocks. We called them the Giants’ Steps. We did not need our ropes to descend. We could clamber down.

But at the bottom we found ourselves in a chamber with five exits—and none of them were marked: Two were in the floor of the chamber and led farther down into the earth. Two others were at or near the “floor” level, and a fifth was inset higher up in the wall. We fanned our lights around each passageway, but could find no sign of the **EJ** monograms we had been following until then.

“So. Which way?” Cap demanded.

Luke flipped the pages of the journal, puzzled. “John doesn’t mention this place.” Then he looked helplessly from crevasse to tunnel. Nisqually signs had petered out a long ways back. Now our nineteenth century guide had failed us as well.

A Luke Bonhomme fallen back on his own devices was a less certain being than a Luke Bonhomme with a cheat sheet. He knew he had to make a decision and make one soon. “This one,” he said, choosing the larger crack in the floor.

But Cap said, “No!” He was standing by one of the passages that ran off about two feet above the floor level. “This is the way.”

Luke came over with his light and peered inside. “No. It goes up, not down.”

But Cap was adamant. “Take a look at the walls; feel the draft. What do you feel?”

“Warm air,” said Luke.

“And there’s no ice on the walls. Hot air rises. Something at the bottom of this passageway is generating a lot of heat.”

“Well,” said Knobby. “We *are* inside a volcano.”

“Warm air...” said Luke.

Cap cocked his head. “You want to tell them, or should I?”

Luke snapped to and cocked his head at our geologist. “You’ve figured it out, then?”

“The other day, when Jeannie showed us her worms.”

That surprised me. And it angered me just a little. Cap had seen what I had seen, but he had seen one thing more, and like Luke, he had kept it to himself.

“You told us,” Cap said to Luke, “that we’d find the answer to the monogenesis problem down here.”

“Yes. And ...?”

“The answer is no.”

Luke nodded slowly, then more vigorously. Then he said, “Thank you, for confirming that.”

“We haven’t *confirmed* anything, yet,” said Cap.

“Will someone explain what’s going on?” Knobby pleaded.

Cap looked at Luke, who deferred to him. “Go ahead, McConnell. I want to hear this.”

“All right,” said Cap. “Gather ‘round, folks, and I’ll tell you a tale.”

This was a more confident Cap than the one who had started out. Facing the end of his contract and with no publications ready, he had been a man defeated and grasping for straws. Now, he radiated not only confidence but joy. I saw in his face the same emotions I had felt in the Medusa Grotto.

“Jeannie,” he said when we had arranged ourselves, “what was the final phase in the Smith-Cairns model Luke was explaining the other day?”

“Umm. The carbon polymers were protected by the replicating clay crystals until they’d developed to the point where they could replicate and survive on their own. Then they went their own way and evolved into worms and flowers and dinosaurs until finally achieving an evolutionary peak in Luke Bonhomme.” [Luke smiled at this. I think he missed the sarcasm.]

“And what happened,” Cap said, “to the replicating clays they left behind?”

I opened my mouth, then rocked back. “Oh. Wow...”

“Yeah. Wow.”

* * * *

“Remember when I made that off-hand comment comparing water to hydrogen sulfide? I said that H_2O is necessary to life, while H_2S is poisonous. Except for your tube worms. They couldn’t use it themselves, but they had found a way to handle it safely. Now, I’m no biologist, but I know all life is based on hydrates of carbon. We inhale oxygen, oxidize the carbohydrates, and breathe out carbon dioxide. So I got to thinking ... Silicon’s right below carbon in the periodic table, just like sulfur’s below oxygen, and it has a chemistry very much like carbon. Silane instead of methane, for example. It forms long chain molecules—silicohydrates—similar to carbohydrates. They aren’t as long or complex, and they lack the chirality that gives carbon-based enzymes such specificity, but still ... Why not a kind of life based on silicon polymers? Something that ‘drinks’ hydrogen sulfide instead of water; that eats silicohydrates instead of carbohydrates and oxidizes them to ‘exhale’ silicon dioxide instead of carbon dioxide.”

“But,” I objected, “how can they exhale silica? Carbon dioxide is a gas, but sand is a solid.”

Luke and Cap exchanged glances, and, so help me, they smiled at each other. Then Cap said, “Sand blows.”

“Silicon beings wouldn’t ‘breathe’ very rapidly,” Luke added. “They’d work their way through faults and cracks toward the surface and blow like whales. Easier to blow sand into open air than into surrounding rock.”

Knobby started. “But that would...”

“Cause an earthquake. Yes. New Madrid must have been a whole herd surfacing together.”

Billy scratched his head. “Sounds crazy.”

“It’s not a new idea,” said Luke. “Reynolds suggested it in 1893, when he noted that the heat stability of silicon compounds could allow silicon-based creatures to live at very high temperatures. I learned that during my graduate research on extremophiles. Later, J. B. S. Haldane suggested that life could exist deep inside the earth, based on partly molten silicates and energized by the oxidation of iron. The wildest of speculations! But they fascinated me. ‘Silicolife.’ The ultimate in extremophiles! It’s been my dream since grad school to find them, but where to look? Where to look?”

The idea that Luke was a dreamer, that he was *capable* of dreams rather than schemes, surprised me. “You decided to look under Mount Rainier,” I said, “because of something Ezra John wrote.”

“Yes. Would you like to hear it?” He flipped the journal open to a page near the end:

“The living rock! Praise my Savior !! that He has led me to see such things! I have seen sharp, crystalline creatures and those of semi-molten plastic rock moving under their own power—slowly, oh so slowly, as befits beings made of stone. But swift betimes. I saw one such extend a—I must call it a limb, a hand—to snatch a second creature to its bosom. To consume it? To embrace it? Oh, on what stony grasses might viscous cattle browse below our feet! What whales swim through the porous earth?”

* * * *

“John concluded by saying he planned to return and collect a sample of their flesh,” said Luke. “But if he made a second descent of these caves, he left no record.”

“These land whales leave a sort of ‘wake’ behind them,” Cap added. “A trail of microquakes. ‘Earthwakes.’” He grimaced. “It took me a while to see them in the seismic records. Most of the earthquakes are just that, and Luke wouldn’t drop any hints what I was supposed to be looking for.”

“You’d not have believed me if I had. You had to find the patterns yourself.”

For a moment, the old irritation was there in Cap’s face. “Yeah. It was like cutting a path through the wilderness, only to find Bonhomme sitting at trail’s end on a lawn chair with an iced tea in his hand.”

Luke shrugged. “But you can honestly claim it as your own discovery. And I can claim it as independent verification.”

To put the matter less kindly, Luke had kept mum about his theory until someone else stepped up to second it. *In numbers, strength*. Now he had Cap’s concurrence, but he also had priority and could still step out in front: a new Darwin to Cap’s Wallace.

“I extrapolated the trails of these ‘earthwakes’ northward along the fault lines, and estimated that one—School? Pod? Herd?—would be passing under Rainier this month.”

“Then that rumble we felt in the Gallery of Crystals...” suggested Knobby.

“Was almost certainly the lead elements,” Luke assured him. “Don’t worry. They’re slow. We won’t miss them.”

“But earthquakes...” Knobby said.

“Not earth*quakes*,” Cap said. “Earth*wakes*.’ They’re relatively minor tremblors.”

“Unless the whales surface,” added Luke.

Cap shook his head. “They already did that at Mount St. Helens. They won’t need to exhale for a long time yet.”

* * * *

What adventure is not spiced by the possibility of danger? Earthquakes? Would any sober person have marched down that vent believing what we did? But we were giddy-drunk with the possibilities. Silicolife? There wasn’t much that could have held us back.

Not even the skeletal forearm that lay on the smooth, frozen-lava floor.

We could not suppose that Ezra John had been our only predecessor in these caverns; some deaths are too distant and impersonal to elicit even the pity we had felt for the thing on the ledge in the Great Crevasse.

Except Billy, for whom the border where biology faded into geology meant little—and the bones of those who went before meant much. I remembered Billy had a degree in anthropology, and thought it somehow proper that we should come across something in his line of work. He went to his knees and studied the fleshless forearm. “Burned,” he said almost to himself. “Only scraps of flesh and gristle ... And those stones around the wrist. Those are Nisqually work. Thong burnt away, but it must have been a bracelet. But where’s the rest of ‘im? Why only a forearm? Scavengers? Down here?”

“Come on, Billy,” I urged him. The others had already passed by, but I had lingered. “It’ll still be here when we come back.”

He looked at me without comprehension. “Ezra John came down with two Nisquallies. One of ‘em made it back with his journal. This is the other. I got to take ‘im to home ground.” The anthropologist in him captured some digital images of the context first, placing a measuring rod beside the ulna for scale. Then the Nisqually in him gathered up the bones. The radius and bones of the hand lay loose on the rock, but the charred ulna, when he tried to lift it, snapped right off.

With a cry, he dropped the rest—and carpals and knucklebones clattered on the hard lava of the passage like a game of dice. Then, on hands and knees, he studied the point where the bone had broken. He pointed to the bulging lava of the floor. “Do you see where it broke off? That stub sticking out of the stone. He’s *inside* the God-damned lava!”

He pulled a rock hammer from his harness and struck the rock repeatedly, struck so hard I thought the handle would break. Feldspar flew in reluctant chips and splinters, but Billy hammered away, oblivious to the flakes. “There,” he said after a minute or two. “Do you see?”

From farther down the tunnel I heard shouts, and once more I stood to go and join them. But Billy grabbed the sleeve of my jacket. “Do you see?”

A part of the face had been revealed—burnt to a husk, gaping mouth stone-filled, flesh and fat melted but, sealed in stone as it had been, protected from decay. It was a different kind of mummification than what had befallen Crevasse Man. Faster than the gradual starvation and desiccation that had overtaken the paralyzed man on the ledge, but more horribly painful—as if pain must be a constant and its intensity corrected for its duration.

“He was running from the lava flow,” Billy said as he studied how the body lay. “But he looked back, and tripped, and fell on his back, and he was turned, not to a pillar of salt, but a bed of ... of...”

“Feldspar,” I suggested.

But Billy shook his head. “Mother Earth swallowed him up.”

“Come on,” I said gently. “We’d best join the others.”

Billy looked up to me. “Something bad happened here, and until we know what it was, the same thing could happen to us.”

* * * *

At the end of the tube was a wide lava dome, oblate and tilted forward to where a kind of slot in the rocks led to farther depths. To our left and right, the room vanished into blackness, save near the slot, where it glowed sullen red. Heat rolled from the slot like an ocean’s wave. There would be no more descents; not on this route.

The entire chamber reeked of rotten eggs. Thick beds of tubeworms carpeted floor and walls under multiple bands of stinkstone. These were larger than the ones I had seen before, and their chitin tubes were thicker. A different species perhaps. Evolution had been at work here, however sluggishly, and the tubes had become thicker in a co-evolutionary race with ... What?

With creatures of stone and crystal. With things that were like spiders and like insects and like lizards, but were like none of them. Neither Luke nor Cap paid us the least attention when Billy and I entered the cavern. But Knobby turned around and cried out, “Have you ever seen anything like it?”

No. No one ever had, save Ezra John and his companions. I knew immediately why the old naturalist had recognized them as living things. They could be nothing else, for what mere stone can bite and chew, however slowly? They grazed on the tubeworms, drinking up the H₂S in their blood. I saw how some of the tubes survived the bites and marked one of the evolutionary drivers in this system. There were also things like flowers, with petals of shimmering mica, and these too were fodder for the things that grazed upon them, gobbling down the silicohydrates.

Some of those grazers were lumpishly rock-like; others, sleek and metallic almost like insectoid robots, all angles and glacies with antennae of supple aluminum. In place of chitin, they possessed what I later supposed was a silicon-cellulose material analogous to it.

Thiselton Dyer had written in *Nature* in 1887 of a silicohydrate called tabasheer, found in the joints of bamboo. His investigations revealed that hydrated silicas appeared in not a few plants, and that Count Castracase had speculated on the possibility of a silicon-cellulose. "It still remains an unsolved problem," he wrote, "why, when no adaptive end is involved, plants should take up such relatively enormous quantities of silica."

Maybe they hadn't "taken it up." Maybe they had always had it—a survival of the old clay matrix—and hadn't yet put it down.

Our floodlights revealed chips that might have been eyes, though they could not have evolved to receive light. I remembered what Cap had said in passing about crystal radios back in the Crystal Grotto, and I wondered...

* * * *

I wondered. What else was there to do in that place but wonder?

Whence their energy? No photosynthesis, obviously. Thermal, of course, from the volcanic vents. While their cousins had stayed with the vents submerged on the seafloor, these had been uplifted with other vents onto dry land.

This was it, I realized: the answer to the monogenesis problem. And the answer was, as Cap had said, No. Life had not begun one time only. It had been a polygenesis, after all, or at least a duogenesis. Here were the denizens of another tree of life entirely.

A slow, low-energy evolution. How often do rocks mate? I thought these "silicreatures" were still in the Permian Age of their kind. They moved for the most part sluggishly, although, like Ezra John, I saw one or two lunge swiftly to seize a prey before returning to a state of rest.

Luke and Cap had gotten floodlights set up and were busily taking pictures and writing notes. I don't think the silicreatures could have sensed the light, but I thought there was a slow movement away from the floods and into the shadows.

I turned away from the others and set myself to study those large, hard tubeworms. *Riftia terrestria robustus*? Carbon-based as they were, they seemed as cozy as sisters.

Knobby sniffed. "What's that smell?"

"Sulfur," said Cap absently. He was using a rock hammer to pick off one of the micalike "flowers," which he placed in a specimen bag. "Stinkstone makes hydrogen sulfide, remember?" His pen made vague gestures in my direction.

"It's getting stronger."

It was getting warmer, too. The floor rumbled slightly, but we had gotten used to these transients. Siliwhales "swimming" below us.

"Boss," said Billy. "I think we should get out of here." His worried glances had quartered the chamber and now rested on the slot in the far end where roof curved down to meet floor.

Luke made a face and said something I did not catch about primitive superstitions.

Even Cap looked disappointed. “Bryant,” said Luke. “I have some collapsible specimen boxes in my bags. Be a good fellow and fetch them here.” He handed Knobby his notebook and reached for one of the insectoids, a giant silinsect about the size of his fist and all bristles and spines.

All bristles and spines that had evolved as protection against predators with jaws of stone.

Upon being handled, the creature’s spines thrust out and its antennae whipsawed. They pierced mere flesh with ease. Luke howled, and I could see that the alumino-silicate spikes had impaled both his hands, and the antennae were flailing his wrists and forearms like a cat-o’-nine-tails.

“Drop it, Luke!” Cap cried, and Luke wailed.

“I can’t! It’s nailed itself to me!”

Knobby and I rushed to him, but it was too late. Perhaps we could have somehow pulled his hands off without becoming impaled ourselves. Perhaps Luke might not have bled out from his slashed wrists right then and there, and he might even have managed the climb back up to the surface with Billy and me to help. But for every prey, its predator.

A dun rock lunged suddenly forward, revealing in its gaping jaws gleaming teeth of adamantine. Jaws that had evolved to chew on rock engulfed the silinsect, Luke’s hands, and his forearms up to nearly his elbows. Luke shrieked and danced away, waving two stumps from which jets of blood shot across the chamber.

“Tourniquets!” cried Billy. “Grab him!”

Luke seemed not to comprehend what was happening. He pulled away from us when we tried to take hold and could not turn his horrified eyes from his arms. Shock, and the drop in blood pressure, felled him then, and he collapsed suddenly unconscious to the floor of the chamber.

Billy strapped his arms using his own belt and Knobby’s. But I think it was too late even then. Luke’s legs jerked spasmodically, then he lay still. Billy listened for the sounds of breathing, pounded double-fisted on his chest; but the battle had been lost before it had been joined, and shortly, Billy rocked back on his heels and said nothing.

Behind us, the stone crocodile spat out the mashed remnants of Luke’s arms. Carbon-based life was not in its diet. Cap grunted and said, “He always was hard to swallow.”

That’s when I slapped Cap McConnell right across the face.

* * * *

We stood for a while over Luke’s body, wondering what to do. The climb down had been hard enough. The climb back up—with a body—would be well nigh impossible. Billy finally said, “He deserves to rest among his people.” No one wanted to say otherwise. I cleared my throat. Cap muttered, “Leave Nothing Behind.”

But Knobby said, “Hey! Where’d they all go?”

He meant the silicolife. The rock that had killed Luke was gone. So were the remaining silinsects and the other browsers. Even the tube worms had retreated into their chitin fastnesses. Only the mica “flowers” remained, their petals shimmering in the breeze created by the heat from the slot.

“It’s brighter,” said Billy. He meant the slot at the end of the cave. A ruddy luminescence shimmered there. Knobby said, “Guys ...?”

Something bright and crimson-yellow crawled out of the pit on a thousand spindle-spiked legs. There was something of the millipede in it—I could make out segmentations in its body—but it was far larger than any millipede had a right to be. It was about the size of a wolf and moved swiftly for a thing made of living stone. Its many legs rippled in a complex wave and, as it neared one of the niches in the rock wherein the silinsects had retreated, one of its legs whipped about and, stretching like white-hot taffy, shot into the hole. It emerged with a fist-sized silinsect in its grasp furiously stinging and spiking the lavalike tentacle that had seized it—but to far less avail than it had against poor Luke. It began to smoke, and we smelled the acrid scent of burning rock.

Knobby cried, “There’s another!”

We turned and saw that two more of the creatures had emerged from the vent and were stalking the cavern. The four of us backed away slowly, fearful yet fascinated. These two parted and moved forward along the two sides of the cavern. The mop-brush swirling of their peculiar feet seemed almost comical, but there was nothing funny about their deliberate approach. A fourth creature had emerged and took the center, so that the three were moving toward us in a V-formation.

“Pack hunters,” I said. “They’re cooperating.” I had been wrong. These things had evolved beyond the silicon Permian. These were what? The dimetrodons of their kind?

Billy said, “We can’t let them block our exit. I don’t know how far those ‘lariats’ of theirs can throw; but I ain’t about to test it, neither. Let’s bug outta here.”

“But we need the specimens,” Cap wailed. “All our proof!” His own samples, and mine, were now well within the V of the approaching “wolf pack.” And I suspected that every square inch within that V was within the reach of their tentacles.

“Don’t try it!” I said. Cap was inching forward, arm outstretched.

“We’re faster than they are,” he pleaded. “Carbon beats sand on speed. I can duck in, grab my sample bag, and duck back out before they can even react.”

Knobby and Billy were already out the exit. Knobby turned. “Come *on!*”

After one reluctant look, Cap joined us at the entrance of the chamber, the one through which, with such shouts of joy, he and Luke had entered a scant hour ago. “This whole trip will be a failure,” he complained, “if we don’t have those specimens.”

I looked back over my shoulder one last time and saw that Luke’s corpse was now aflame from the molten creature crawling over him. But the creatures on the two flanks seemed to be shrinking back. The fourth one, the one that had seized the silinsect was thrusting itself into one of the crevasses in the rock wall. Its body, plastic from its own internal

heat, squeezed into the hole.

Billy cried out from lava tube: "Hurry!" Cap slapped me on the rear, "Go! Go!"

I scrambled up after them, then twisted about, my heart dropping in sudden realization.

Cap had not followed. "They're retreating," he called from the opening. "Maybe they can't stay out of the heat sink too long. I'll bet I can snatch the bags..." He stepped forward and reached for the straps.

But the creatures had not been backing away. They had been crouching. Like springs ratcheted back, their plastic bodies had stored energy that was now released in great leaps.

The one on the right got him.

A leopard leaping so might bear a man down, but such a man could shield himself, however poorly and however briefly, with his arms. But that was against mere teeth and claws. Against a creature of white-hot, semi-plastic rock what defense can there be? Cap was engulfed faster than he could even scream. If his mouth opened in the effort, it had been quickly stuffed with magma. He flailed for but a moment, yet one that seemed to go one forever, before he fell, first to his knees, then on his face, his clothes and flesh aflame. Somehow, that swift and silent struggle was more terrible than even Luke's horrible end, and I felt as if a great, paralyzing electric bolt had stunned me.

The other two—what should I call them? What name would conjure up the horror? Stone leopards? Molten tigers? *Tyger, tyger, burning bright...*

Billy yanked me sharply by the arm. "Later," he said. "We can mourn later."

And I saw that the spring of the other two creatures had brought them near the entry to the lava tube and that they had resumed their implacable and terrible waddle. The third, having found Cap not to its taste, had rejoined the stalk.

Two entered the tunnel behind us; the other climbed into another vent. Off the scent? Or...

"It may know shortcuts," Billy warned us. "Small passages that its kind can squeeze through. Let's hope it finds enough food in the vents to slake its hunger."

We passed by the dead Nisqually's bones, and I knew how he had come to be entombed there. I could picture him and his comrade and Ezra John scrambling up the tube as we were even now. Engulfed like Cap by a burning tiger, the Indian had somehow managed to pin his attacker down until it froze around him in the cool of the cavern.

That was the good news. If we could stay ahead of our pursuers, they would either lose interest or they would be turned back by a cold to them both deadly and unimaginable.

Easily said. Less easily done. Perhaps these were more robust than whatever had killed the old Nisqually. They did not abandon the stalk. We could easily outpace them when they waddled. But they *never* stopped, and we grew short of breath.

And every now and then they sprang forward, closing the distance.

It was a mad and deadly re-envisioning of the tortoise and the hare, with our pursuers combining the features of both. But unlike the hare, we were afraid to rest and catch our breath, for it might be the last one we caught.

And they knew shortcuts.

* * * *

We passed though the chamber with many exits, clambered up the Giants' Staircase, through the chamber where our base camp sat. We grabbed what we could—climbing gear, mostly—but we dared not linger and, passing the Medusa Grotto, we could smell behind us the faintly acrid scent of melting polyester. All my careful dissections, laid out in neatly labeled boxes, now no more than smoke and ash.

What had taken us a day to descend took us only hours to climb back up. Granted, we had descended in slow, careful stages, and we had been carrying a great deal of now-abandoned equipment, but we took the ascents as quickly as we dared. Haste could be dangerous in a cave, but in this case tardiness, as well. Twice the pack stalking us appeared from unexpected quarters, oozing from cracks in the rocks. A whiplike tentacle brushed Knobby's calf and he screamed, staggered, and with superhuman effort continued to jog.

There was a short, vertical ascent just past the Medusa Grotto, and we had left ropes hanging in place.

Someone had to go up last.

The first shall be last. Right, uncle? "Billy," I said. "You first. Then Knobby. Hurry!"

It made sense to put the most experienced climbers first and last, and it made sense to send Billy—the strongest of us—to the top first. I wish I could say it was the logical thing to do, or that I was brave. But the truth was I was scared silly, and if I had stopped to think, I could have rationalized why I should have gone up first.

Waiting at the bottom took forever. The burn on Knobby's calf made it hard for him to use his legs in the climb, and he seemed to inch his way up. "Hurry," I said again. Uselessly. No one was slacking.

I felt a wave of heat on the back of my neck and leapt for the rope before Knobby was even off it. But twisting as I snaked up the rope, I could see that there were only two of the pack behind us now and both were glowing more sullenly red, with black scabby crusting. They were losing heat. "Go home," I told them. "You'll catch cold!"

Astonishingly, one of the stalkers turned about and squeezed into the crack from which he'd come. "You, too!" I told the other. But this one did not heed me. It crouched at the base of the pitch and sprang.

But I was already above its range. The bottom of the rope caught fire, but Billy and Knobby pulled me up and onto the ledge and I lay there gasping while they laughed at me. "Go home?" said Billy. "You'll catch cold?" He thought it hysterically funny.

"It worked," I said, not unreasonably.

"I think he's giving up," said Knobby, who had moved to the edge of the precipice. "He's chowing down on some rocks, getting brighter. Its ... Its digestion must give off heat." He leaned out to get a better look.

I grabbed Knobby by his jacket and pulled him down. "*Are you crazy?* Didn't you see what happened to ... What happened to Cap?"

He yanked himself from my grip and turned away from me. "Yeah," he said. "Yeah. I saw. And I saw Professor Bonhomme, too." I think his eyes may have been a little glazed, but he did not go back near the edge.

Billy clapped his hands, already heading for the tight crack we had to pass to reach the next chamber up. "And if we don't keep moving, we'll get to see what happens to us. I think your buddy down there was stoking up his fires so he could continue the chase."

"That's odd for an animal," I said. "They usually don't have the concentration. Out of sight is literally out of mind."

"Yeah? But I've heard the saying 'patient as a rock,' so maybe the rules don't apply."

"I wonder," said Knobby. "I wonder if he's just plain curious about us. Maybe he means us no harm."

I pushed him into the crack after Billy. "Ask Cap."

* * * *

The crack was a tight climb, not quite vertical, and we could use hands and feet to brace ourselves against the opposite wall. I kept thinking that the silitiger—or whatever we might call our pursuer—could squeeze through other crack systems suitable to one of his size and plasticity and emerge from the very walls of this chimney. I found myself staring into each crack in the wall that I passed, looking for the tell-tale glow of his coming. I said nothing to the others and they said nothing to me, but I have to suppose they were thinking the same.

At last we came to the larger passage that led to the Great Crevasse and, even though it was illogical to do so, we relaxed just a little bit. We had seen no sign of the creature for the better part of two hours. We had no reason to suppose he had continued the pursuit after his companion had turned back, but we had no reason to suppose he had given up, either.

"Let's hurry," I said. "The sooner we're out of this hell hole, the better. Every time we stop and rest, he catches up a little more." I wasn't telling them anything they did not already know, but Billy only nodded.

"You take the point."

Exhausted by this time, we walked as swiftly as we could. I had no idea how far the creature could come without freezing. It had already come farther than I had thought possible. Coming to the lip of the crevasse, I turned left along the ledge to where the edges pinched together and I stepped across. When I had come back to the point where the tunnel continued, I looked back and saw Knobby still making his way along the ledge and Billy

coming up the tunnel.

And behind him was the silitiger, moving fast.

“Billy!” I cried. “Behind you!”

Billy turned and saw the thing retracting for a leap—and he was too close.

He ran. I don’t know where he found the reserve of speed, but he ran. Yet, we had learned that while we could outrun the creature’s comical waddle, we could not outrun his leap.

I don’t know if, concentrated as he was on his pursuer, Billy simply forgot about the Crevasse or, knowing it, tried what Ezra John had tried in what I had to imagine now were nearly identical circumstances.

He leaped for his life.

Knobby had reached me by then and I seized him by the arm and squeezed, unable to speak.

“A good run,” Billy had said with a toss of his head, “and a man in top condition could leap across the fissure, easy.”

But our climbing and scrambling for almost twenty consecutive hours had taken their toll. He was not in top condition. He didn’t quite make it.

He struck the surface on our side of the crevasse and grabbed onto rocks with his arms, but his legs dangled out over emptiness, pulling him back, pulling him down. I went to my belly and reached for him, seizing him by the wrists. I could hear his feet kicking for purchase on the cliff face.

The silitiger had sprung as well. But it, too, had wearied, if the ruddy black crusting was any indication. It was freezing to death, but fixated for some reason on the pursuit. And it had leapt at Billy from much farther back in the tunnel.

It fell almost dead center into the bottomless pit.

There was no shriek—or none that our ears could detect—and after a time came a sound like an impact, followed shortly by a subsonic growl and a slight tremor in the ground.

A slight tremor? I almost lost Billy. His hips slid off the edge. And I slid a little forward with his weight. “Knobby!” I cried. “Help!” But Knobby went running up the steeply slanted lava tube that led to the Crystal Gallery.

Billy managed a grin. “It’s no use,” he said. “Look. Maybe if I drop just right I can land on Ezra’s ledge. If I land on my feet, and if I can keep my balance, and...”

“Too many ‘ifs,’ Billy. Find a foothold. Concentrate on that. If you can just find a footing and take the weight off...”

“Ezra’s been almighty lonely down there. He could use some company.”

“Stop talking crazy.”

“Under the circumstances, what other way is there to talk? Jeannie, I don’t want to die.”

“Then don’t.”

“Might not be my choice. If you let go...”

“I won’t.”

“But if you don’t, then I drag you over the lip with me, and as much as I don’t want to die, I don’t want you to die with me.”

I was searching with my legs for some leverage, something I could anchor onto. But this part of the ledge was too smooth. Ezra’s ledge was several feet to Billy’s right. There was no way he could drop down to it. I wondered if he knew that.

And then Knobby was there, and he had the ropes we had run through pulleys in the wall of the lava tube. He clipped one end onto a ring in Billy’s climbing harness and hauled with all his might on the other. Slowly, using the mechanical advantage of the pulley, he pulled Billy up over the lip of the crevasse. Even so, I did not let go of Billy’s wrists until he was safely on level rock. Billy let out a shaky sob, and Knobby, he kept pulling on that rope and dragged poor Billy two yards farther up the tube before he, too, collapsed and began to cry.

* * * *

“And that’s how I went down with Luke Bonhomme,” Jeanne Price said. And this time she did pick up her last glass of bitters and drank it down. “But I’ve no evidence. It’s all been lost. ‘Leave Nothing Behind!’ Oh, God, what we left behind!”

“You could,” said Doc, who coughed and tried again. “You could go back and try again. You’ll know what to expect.”

But Jeanne was shaking her head. “No, I could never go back. Neither can Billy and Knobby. We agreed on that on our way out. And what would be the point? At the conference this afternoon, I tried to tell Davischen what had happened and he lit into me. ‘Let the earth bring forth...’ I hadn’t realized why he got so hot. The others at the conference didn’t get angry. They didn’t share Davischen’s prejudices, but they didn’t believe me either, and I had to pretend the whole thing was a joke. Two dead. Some joke. Officially—climbing accident; and that’s the reason the Park Service gave for closing the cave off. But I think they cared more about our ‘defacing’ the cave than about the two men who died. Still, I know what I saw, and so do Billy and Knobby. We won’t go near that crevasse ever again.”

“Sure,” said Himself, “and it was a fearsome experience.”

“No. No, what we saw was not the worst. That silicon tiger that stalked us? When it fell into the pit ... something far below growled and the earth trembled. Whatever was down at the bottom—the Beautiful Firekeeper or one of her relatives—I don’t ever want to make it angry. Down in the deeps are the creatures Haldane foretold. Creatures of molten silicates, and their breath isn’t sand, but fire and liquid stone. When the land whales rise from the abyss, whole mountains explode.”

The Irish Pub had fallen silent and only the rumble of the traffic could be heard. "I fear," said Himself. "If what you say ... I fear your whales of stone are not the greatest of these creatures."

Jeanne Price wiped the tears from her face. "Which, then?" she asked.

"You said this Juan de Fuca plate was pushing under the North American plate? No, I think North America is *eating* Juan de Fuca; the earthquakes are the grinding of its teeth."

We looked each of us at the other, and what we saw were but mites living upon the carapace of a gigantic beast, one of the great world-turtles that the ancients so presciently imagined.

It was then that The O Neill, returning from his rehearsal, pushed through the doorway of the Irish Pub and burst into song:

"The hills are alive..."

And was cut short by the sudden cry of terror that greeted him.