

IMMORTALITY

ONE PERSON WORSHIPS CREATION WHILE
ANOTHER WORSHIPS DESTRUCTION...

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*To Mazelle who helped me polish my dream. To Maxine who left before
the dream was finished. To Dana who helped me dream again.*

PROLOGUE

END OF SLEEP

I – Amazon Forest: January, present day

The rainforest had a humid, earthy smell that reminded him of home. Diego was twenty-two years old. Like most of his village, he'd spent half his life away from home. The bulldozer he was illegally operating was idling in neutral. In front of him were a half dozen control levers and gauges. With a worker's rough hands, he compressed the squeeze-grip on a lever and pushed forward. He heard the sound of grinding gears. The tree cutter failed to engage. The huge dozer was thirty-year-old army surplus. There was a cable problem in the lever he was working. The problem sometimes caused the squeeze-grip to snap shut when the transmission grabbed. If he was not careful, the squeeze-grip could badly pinch his hand. Diego pushed harder on the lever. He could feel teeth missing in the gears from how the lever bucked back against his push. Without warning, the gears dropped into place as the squeeze-grip bit his palm. It was like a vicious dog. An angry welt throbbed in his palm. He cursed the dozer. He cursed the steaming heat. He'd drunk two quarts of water since breakfast, and lunch break was still hours away.

. . .

The rainforest was alive with insects. Diego had never seen this many in all the years he'd illegally logged the deep forests. There was a steady drone which was louder than the diesel engine he controlled. Tiny no-see-em's, biting things, had left a rash across the back of his neck that felt like sunburn. Earlier, he'd scratched it raw but now had a bandanna tied around his neck to remind him to leave it be.

The bulldozer rocked into a depression as the cutter began chewing through the trunk of a mahogany tree. Diego fed more fuel into the beast's engine. The dozer's treads dug in; there was a hesitation. He could feel the strain building. Tons of steel lurched forward pitching him in his seat. Another tree tumbled, its branches snapping like rapid-fire gunshots as it crumpled into the ground. The front of the beast was equipped with a chain driven saw instead of a dozer blade. The fixture had a pair of serrated edges that shimmied back and forth like steel teeth. Pieces of shredded green leaves and bark caught on the teeth's edges. Diego had long ago decided the beast was a sloppy eater.

The insect sounds of the forest had stopped. As far as Diego knew, these insects never stopped. He dropped the beast into neutral then switched it off.

There was silence.

Out of this stillness, a faint crackling sound rose from the distance, then disappeared, and then came again. He listened carefully. It took him a moment to realize the faraway sound was trees falling. The logging company operated a small army of dozers, far apart now; but by evening they would all meet up, connecting each of the separate cutting tracks into a solid plot. Diego swung round in his seat and gazed back. A swath of fallen tropical forest lay behind him: mahogany and cedar and even some rosewood along with countless varieties of plants and bushes. The largest trees were left standing so their canopies would hide the results of his work from the few government scouting

planes that were not on the company's payroll. Heavy tractors would come through later to drag out the good logs. He got paid by the yard for mahogany, rosewood, and cedar; the rest was trash. Today it looked like he would earn a small fortune; tomorrow might bring nothing.

He lit a cigarette and left it hanging in his lips. After starting the engine, he ground the shifter into a forward gear and moved out. He drew cigarette smoke into his lungs then exhaled through his nose. No time to rest. He needed every bit of money he could earn. He didn't blink as a cloud of insects flew into his face as their nest was churned into rubbish by his dozer's teeth.

The humidity was so high that water had begun to evaporate into a fine mist. A steam cloud floated through the tops of the trees blurring the upper canopy into a milky green. Diego swung the beast around in a stationary about-face. The base camp was miles behind him by the river. The camp was a dock and tents with ratty screens. Beside the camp was a tree covered clearing that at night was filled with sleeping dozers and other heavy equipment. By now, a pot of beans would be simmering for lunch. A hunk of flat bread and canned beer would complete the meal. No meat. He'd lived worse. Everything here had been secretly brought in by river barge, including him and the other labors. With luck, he could cut a second swath back toward camp and arrive by lunch. Today would fill his pocket with more than two hundred *Reals*... a new record.

The logging ride out of the forest turned out to be easier than the ride in. The trees in his new path were an ideal size for cutting. Diego began thinking about his wife Carla and their dream. She'd been anxious to come with him into this hell. He had kissed her and told her no... no wife of his would suffer in a place like this. In seven months, he would be a father. The foreign company running this operation was taking good care of her. She'd written last week that the company had paid for a test with a machine that was like an x-ray but used sound. The nurse had told her the baby would be a boy. Diego smiled with that memory... it was a good one. He would have a boy who would grow up to be his friend. That was a new part of the dream; the old part was

still a small house outside Maceio, the coastal city where Diego was born.

Diego instinctively slowed the dozer to the speed of a man's stride. He squinted watching a cloud of rain moving toward him along the path he'd just cut from camp. The rain didn't appear heavy, but when mixed with ground steam it was solid enough to bring a false twilight. Nothing could be seen inside the cloud. The dozer had a roll cage. A piece of corrugated sheet metal had been welded to the top of the cage as a roof. Diego switched on spotlights. Drops started hitting the sheet metal with rhythmic pings. The humidity grew heavier. The air surrounded him like a damp towel. He pulled off his t-shirt and wiped his face with it. A storm of birds fled from some trees his dozer was about to consume. Their colored shapes moved past him at eye level like watercolor paints in fog.

Diego cocked his head to one side. He sensed something wrong. Grinding the shifter into neutral, he idled the machine. As the noise of his engine simmered down, he was able to hear the far off sounds of a dozer racing at top speed. He heard an engine revving at its highest rpm... no, it was two engines. More than one dozer was racing through the forest. This was very unusual. A hollow feeling began gnawing inside his chest. He remembered stories of odd things that happened to people alone in the forest. He heard a different sound like a wet towel hitting the ground in front of him. He leaned forward, squinting into the fog.

A bird tumbled from the air bouncing off the cab, the sound startling Diego badly. The bird fluttered, then righted itself on the ground and took off. He saw another bird fall a couple yards away, then another, and another. They would roll around a bit, then fix themselves and fly off. This was very strange... too strange. He now understood why dozers were racing through the forest. Something very bad was happening.

He shoved the dozer into gear and slammed his feet into the pedals. The beast jumped forward at top power. He heard muck spitting into the air off the backs of the tread-plates. *To devil* with cutting the second

track. *To devil* with the money. He was going to get out of here as fast as this dozer could race. The treads were clanking at an accelerating pace as the beast slowly picked up speed. He disengaged the tree saw to gain a few more drops of power. He plowed through the top of a tree he'd cut earlier, then another. He was doing close to ten miles per hour. A man might run faster, but not through this brush and not for the miles that remained to the camp.

Without warning, he felt dizzy, an ill kind of dizzy. The fingers on his right hand went numb, then paralyzed. He tried to move the fingers, but they were limp. Coldness was spreading up from his hand. The more he tried to flex his fingers, the worse it got. In seconds, his entire right arm was hanging flaccid at his side. Whatever had gotten the birds was working on him. He knew it. The trees kept moving past him in a blur. He realized with an odd disconnect that he was having difficulty drawing breaths.

He thought about Carla and the baby. His jaw squeezed tight. His lips formed a grim line. He would make it for them.

The dozer glanced off a large tree and kept going. The impact rocked him. He wheezed, attempting to draw air into his chest. Maybe two miles remained until base camp. He began veering off the trail. The saw-blade snagged on a mahogany six feet in diameter. Diego was pitched from his seat. Dizzy and unable to hold on, he fell from the cab. His shoulder hit a moving tread-plate, which tossed him off the rig. He was like a paralyzed sack of meat.

"Umph!" He landed on the ground. He thought how odd it was that he'd bounced. He didn't know people could bounce when they hit the ground. The tractor rumbled beside him. Without his feet on the pedals, the dozer had stopped. The left side of his face was a mix of blood and dirt. He tried to draw air into his lungs but failed. His mind felt like it was beginning to evaporate. His entire body tingled. He felt no pain. The muscles that worked his lungs were no longer responding. He thought of calling for help, but without his lungs he could do nothing. He gave up struggling and stared skyward at the treetops and thought of Carla. Moments later, his heart stopped beat-

ing. He felt calm as what was left of his mind faded into a warm nothing.

II – New Jersey: January

Sarah Mayfair opened her eyes. The nightmare was still around her. Her vision was not in this world but in some other. The nightmare was of underground water, great arteries of rivers and streams and lakes. Where the liquid pooled, it was cool and deep. She sensed this water was alive with thoughts, evil thoughts. A teaspoonful of it teemed with plans of death. She was floating deep under the water, staring as drowned people glided past her face sinking into the depths of a bottomless pool. Looking down, she saw a trail of countless tiny bodies slowly pirouetting as they drifted into the yawning darkness below her feet...

Headlights from a car traveled across a wall of her room. The lights dwelled on a wooden credenza, then moved on. She followed the glow with her eyes seeing reality for the first time. The simple act of seeing began to clear the veils of her nightmare. Her breathing slowed. She realized she was covered in sweat.

Outside, a subzero wind was blowing unimpeded through a forest of leafless trees and ice crusted snow. The windowpanes rattled and hummed. Small drafts snuck through the rooms. She shivered as the drafts caressed her dampened skin. She was in the living room of her home. She recognized the shadowy details of furniture and walls. Her boyfriend Kenny was in the bedroom asleep. She remembered getting up and walking out here to be by herself to think. The nightmares had grown worse, more of them with each passing week. She was starting to see the faces of people she knew in these nightmares. She sensed it was some kind of horrible parade of those who would die. She remembered Kenny's image from the dream.

Her body stiffened. A disembodied voice was whispering into her left ear. The words were unintelligible... garbled, but unmistakably

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evil. This can't be happening. She screamed out in frustration and grief at the seeds of budding madness.

1 – Wyoming: October, ten months later.

Mark kept up his pace hiking across the foothill terrain. The exertion had long ago passed from a conscious effort into machine-like automation. A trickle of sweat ran down one side of his face. His build was average, but his legs were nicely muscled and responded well to the exertion. He was wearing hiking boots, jeans, and a Sierra Club sweatshirt. His black hair had thin streaks of gray. A backpack pressed down on his shoulders. A pair of sunglasses hung from his neck by a nylon cord. The sun was extremely bright passing through the thinner air. He squinted but left the glasses off. He wanted to see this place the way it truly looked. He wanted no filters of polarized glass to alter the appearance of what nature had put here.

A breeze swept up the slope, pushing him from behind. The climb had been more difficult than he'd remembered from the trip half a year ago. In Wyoming, what the locals called *a hill* was a solid incline that went on for miles. These were the foothills of the Rockies. The ground was covered with boulders between which sprouted knee high grass

and sage and small plants that carried burrs. Mark looked off into the distance. The rocky terrain ended a mile downhill where it blended into oceans of wild grass. He watched as the wind pushed huge waves through the grassy stalks. The sky was clear except at the horizon where a weather front was moving toward them. The storm was a bruised wall of clouds floating over the plains a hundred miles in the distance.

Six of them were on this expedition. They were doing *paleobiological research*. This was a relatively new science and Mark Freedman was its celebrated genius. At late middle age, he'd accomplished many of his early dreams. The only problem was that with each dream attained, three more had arisen in their place. He was a Nobel Prize winning molecular biologist, yet still worked as a professor at UCLA. He had been happily married but now lived with a female student less than half his age.

His five companions on the expedition were all graduate students from his classes. These expeditions were not games. The work was real. The goals were serious. He could have taken anyone on these outings, but these students were handpicked and brighter than many scientists he knew—and far more eager and easily led.

The destination of this outing was a site Mark had named A4, designating the fourth potential location in the region to be explored. A4 was a half-mile slope along the northeastern rim of the foothills. The terrain that had once been an inland sea was now a sea of grass. He hoped to find fossilized mats of bacteria deposited in the limestone croppings. The mats were remnants of a rare, still existing strain of *Chromatium Omri* bacteria named *Chromatium Omri BIC-3.7*. Mats previously unearthed by Mark had proven this strain was a throwback which had first lived 3.7 billion years ago. As the bacterium's discoverer, Mark had been the one who had named the creature and given it the acronym of COBIC-3.7.

Mark's COBIC was the oldest known form of motile life on Earth, the first cousin to proto-animals, the very nexus of the great kingdoms of plant and animal; it was literally the origin of an evolutionary

branch which would eventually lead to all animals, including humans; and it was still swimming and living among us. Ten years ago, Mark had been able to link living specimens with the fossil mats. That link had proven his theories and earned him a Nobel Prize due to his solid research and a generous dose of luck. Winning this level of acknowledgement had changed his life and given him new reasons to dig even deeper into the questions surrounding this unusual microscopic creature.

Mark had recently developed a novel way of analyzing ground-penetrating radar images from satellites. The new technique revealed geological clues to where COBIC bacterial deposits might exist. The government had been happy to assist an eminent scientist in his work, especially if it might have defense implications. He had been given limited amounts of raw data from an older generation of military surveillance birds. His work with the satellite data had led him to over fifty possible sites, eight of which had already turned out golden, and heavy with mats of COBIC-3.7. That he had found any mats at all was remarkable. His bacterium was a free-swimming creature that resembled a capsule with a tail on it. Why had they ended up tightly packed into clumps of floating dead? In some cases, the mats were dozens of feet long with populations reaching into the countless trillions.

His fieldwork had uncovered the additional surprise that COBIC-3.7 was not as rare as originally theorized. His evidence showed that at one time COBIC had been a dominant species which had almost died out during the same extinction event as the dinosaurs. Mark was certain this line of investigation would earn him his second Nobel Prize. He was convinced the bacteria held an important clue to the mass extinctions of the Cretaceous period. He had formulated a theory that the dying off of his bacteria could have been one of the triggers of the extinction events. The tiny bugs could have been a vital link in ancient food chains; and without them, the greatest beasts of all had perished. By comparing fossil samples from different periods, his investigation had shown the bacteria were going through long cycles of population growth and decay, cycles measured in hundreds of millions

of years. Mark believed that during the final cycle, it was the combined environmental strain of huge animals and climatic shifts that pushed COBIC-3.7 and other bacteria over the edge and took the dinosaurs with them.

Up ahead of Mark, a student named Marie stopped walking to take a drink from her canteen. The weather was far too hot for October, but this had been an odd year of fires and floods and droughts. Global warming was catching up with them. Mark stared at her, imagining the flawless body he knew was hidden beneath her loose-fitting clothes. Marie was one of those blonde haired, blue eyed flowers that grew wild on the beaches of Southern California—in her case, Venice Beach. He had once seen her at the beach in a small bikini and roller-skates, and he'd never forgotten that heart stopping image.

A mild shove came from behind. Mark stumbled half a step forward. Another of the gals had pushed him. "Get going, you dirty old man," she said.

Mark turned and stared at her. She had her hands on her hips and appeared stern, but there was a hint of a smile on her lips and in the corners of her eyes. The smile was contagious. Mark fought to keep a neutral expression.

"You made me into what I am," he said.

"Don't rub it in," she said.

"Love to... Your place or mine?"

The girl puckered her lips into an air-kiss that said, *not a chance*. Her name was Gracy, and Mark was certain he was madly in love with her. They had shared his condo in Marina Del Rey for more than a year. Their relationship had been anything but simple. Gracy was strong-headed and wanted *her way* in everything. Mark was the same, except stronger and more stubborn.

In the beginning, their relationship had been overheated. He was wild about her looks, and she was in lust with his mind and his fame. A year later, she had moved into his place. Gracy had made it clear that she wanted their living arrangement kept a secret at UCLA as much as Mark did. The sneaking around had been fun and had lasted for several

months. But inevitably the word had spread, and now everyone in the department knew their secret. Gracy had been embarrassed by her newfound whispered notoriety. She was the grad-student who had bagged the infamous Professor, the most desirable faculty member on campus. She had tried to blame Mark for the leak, but they both knew the gossip had been spread by her girlfriends whom she'd sworn to secrecy.

Some of the students were straggling behind. Mark slowed, giving them the opportunity to catch up. Gracy continued to walk at her own pace which was taking her out into the lead. Mark loved her most when she was displaying this kind of independence. She was twenty-three years old and had the looks everyone considered the natural California girl. She had a perfect body and long straw colored hair that was real and not from a bottle. She could have been one of those girls seen on a beer commercial, and might have been except for one thing: Gracy was determined to be recognized for her brains, not her looks. She had one of the highest grade point averages at UCLA and was on her way to earning a Ph.D. a year ahead of schedule.

Mark stared at her as she continued to put distance between them. Her clothing was a mix of Wyoming and *The Coast*. She had on jeans, an old silver studded belt, a t-shirt, an insulated vest, and a funky western hat. She was getting too far out in front of him. Mark called back to the stragglers. "Come on folks! When we get there, it's Miller Time!" All he got in response were groans, but the pace did pick up.

The forced march ended at a rocky knoll. Mark laid a map out on the ground and pegged the corners with stones. Gracy sat opposite him and was busy with her field notes. The other students were resting and talking among themselves. Mark suspected the topic was mutiny and smiled. He switched on the high resolution GPS. The device was a military model the size of a cell phone and cost ten times as much as

any cell phone. Most civilians were not allowed to own this kind of military hardware, but a Nobel Prize and called in favors got him altitude and map coordinates accurate to less than an inch.

“This is a good place to set up camp,” he said. “Site A4 is all around us.”

“Groovy... Why don’t I break out the beers?” said Gracy.

“You know I never drink on duty.”

“Sure,” said Gracy. “And you never swear and always hold the door for ladies.”

“Duddly Do-Right at your service.”

Gracy opened the lid of what Mark called his specimen container. The Coleman ice chest would be filled with fossil specimens on the return trip; but right now inside were several blocks of dry ice, four six packs of Miller, and fifteen pounds of frozen ground meat.

The iced beer flowed down Mark’s throat, taking with it any remnant of fatigue. Marie and Tony had gone off in search of wood and, Mark suspected, each other. He gazed around at the vast surroundings. On the west side of his hill were the beginnings of the Rocky Mountains. On the east side was the ocean-sized basin of grass. Gracy had the beer raised to her mouth. Mark reached over and tickled her sides. She spit beer all over him and the map.

“You bastard!” she yelled.

She grabbed him and they wrestled on the ground until he had her pinned. Her cheeks were flushed.

“Give up,” said Mark.

“No!”

Some leaves were tangled in her hair. She squirmed under his weight, but he had her solidly pinned. He felt her muscles relax as she stopped fighting him. He knew she was trying to catch him off guard and didn’t give her a break when she suddenly tried to roll him off.

“All right,” she said. “What’ll it take for you to let me up?”

“A kiss.”

“Never!”

Mark kissed her on the lips then got off her cautiously as if she

were a cat about to strike. Gracy sat up. She removed a leaf that was dangling over her face. Her hair was a mess of blonde tangles. Mark could tell by the look in her eyes she was plotting revenge.



The sun was creeping down toward the western rim of mountains. The storm clouds were half again as close as they had been in the afternoon. The team had been working the site for hours.

Mark looked over another piece of limestone. There had been several fossils of large marine animals but no mats of *Chromatium Omri*. This piece of rock was no different. Gracy had taken charge of the two students responsible for chipping off vertical slabs of limestone. The other three were off scouting.

The bacteria should have been here. Mark turned around and pitched a small piece of limestone down into the valley toward a pair of hawks that were circling in the distance. The hawks were in no danger. The rock sailed far enough out that it landed silently hundreds of yards down the slope.

“Forget it,” he mumbled.

Gracy turned around and stared. Mark said it again, only louder. “Forget it.” The day was shot. They had enough provisions to stay for two nights. If tomorrow was a bust, they would have to hike back into town to re-supply and then out again to a different site. He hated being wrong.

The sun was gone. The base camp was a collection of dome tents scattered across a hillside clearing. The arrangement of tents had been completely random. Several campfires illuminated the surrounding boulders and tents with flickering orange glows.

Mark wore his reading glasses. He was sitting on a folding stool outside his tent. A Coleman lantern hanging from a pole cast a white hot light onto the ground. Arrayed in front of him were poster sized

satellite photographs. The photographs had a slight curl from being stored in a tube. The sensors that had collected these images worked in the infrared region of the spectrum. Plants and trees were a bright red. Ground formations were paler colors of blue.

The sounds of discussions and the sizzle of grilling burgers were drifting from the other side of the camp. The smell of food was working on Mark but he ignored it. Minutes ago he had stopped examining the COBIC sites and was instead looking at a satellite image of the American Northwest forests or, more accurately he thought, *what was left of the northwest forests*. The lumber industry had succeeded in harvesting far too much of that ancient place. Trees hundreds of feet tall and older than western civilization were gone. There were single trees that had been growing for thousands of years. He grew crazed seeing this evidence of mankind's idiocy. Humans were one of the few animals that went merrily along consuming its environment until it no longer supported life, then moved on; locusts were another. Someday there would be no place to move on to. It might take generations, but sooner or later we would run out of something critical, and then what? Look at our oil supply. Fossil fuel would be gone soon, and were we creating a replacement energy source? Not likely. What did we have to show for our concern? Not much except some rich politicians, a bankrupt Middle East policy based on our addiction to oil, and terrorists indirectly funded by our addiction who wanted to annihilate us.

Gracy walked into the wash of lantern light carrying two burgers and two beers. She put the food down in front of him.

"Stop pouting and eat something," she said.

"Look at this scarred earth," said Mark. "We're not going to be happy until the entire country is paved with concrete. Except for the GMO monoculture farms of course, and that land will be so heavily polluted with pesticides and nutrient depleted that we'll all be eating hydroponic Spam or worse."

"I knew I shouldn't let you read before dinner."

"Come on, this is serious." Mark felt his body tensing up. "If it wasn't for endangered species like the Spotted Owl, logging compa-

nies would have clear-cut the last of the Northwest years ago. We have inconsequential endangered species protecting the last of the great forests on legal technicalities. Talk about shaky ground. I just can't fathom those loggers. If we let 'em do what they want and cut the forest, most of them will be out of work in ten years anyway. They want to trade ten years of income for one of the last strongholds of nature in America. What happens when their ten years are up? They'll all be on welfare—with us footing the bill—after they pissed on their own backyard and our national treasure. And what about the loss to science and medicine? In the Brazilian rainforests, every twenty seconds they're rolling the dice on plowing under the cure for cancer. Shit!"

"Cut the rant and eat your hamburger," said Gracy. "You're giving me a headache."

Mark stared at her through sore eyes. What was wrong with her? Didn't she get it? He sighed, then slowly shook his head. She did understand and she was *getting it* better than him. What could he do right now in the middle of nowhere except give himself indigestion? He needed to save it for the real fights that were coming in the years ahead. He had the ear of important people. He could make a difference and already had by working with the Sierra Club and powerful friends like Senator Ann Spector.

"Sorry," he said. "You know I'm a little crazy at times."

"I know," said Gracy. "Part of why I love you is your passion, but sometimes you make me nuts."

Gracy casually pulled a wrinkled joint out of a pocket. She lit it and passed it to him. She had brought along a quarter ounce of reality-altering Hawaiian pot. Mark took a series of hits off the joint, pulling the smoke deep into his chest. The smoke expanded as if pressurizing his lungs. He stared at his nighttime surroundings. This was a place where civilization had never reached. His head lightened. The glowing tents, the boulders, the plants, even the soil looked a little richer in detail. This piece of Earth was unspoiled. He relaxed and picked up the burger. His stomach grumbled with the first bite.

. . .

The fires were out. The lanterns were long ago turned off. Mark and Gracy were sharing a sleeping bag. The bag was unzipped. They had dragged it outside the tent and were enveloped in a world of stars. The air was so clear and thin that the stars no longer twinkled. Mark felt like he was being pulled into the depths of space. Gracy's head was nestled inside the crook of his arm. She was gazing up into the sky with him. He had just finished off the last bits of a second joint. Mark felt uncomfortable for reasons he couldn't understand. Moonlight was casting shadows into the house-sized boulders around them. He thought about his ex-wife and child. No, that was a road he was not going down tonight. To distract himself, he began telling Gracy a story.

"Did I ever tell you about my first political rebellion?"

"No, sweetie," she said dreamily.

"When I turned eighteen it was the middle of the Vietnam war. All I had was a choice between two ways of ruining my life. Either get drafted and play the Me Cong delta lottery or desert to Canada and become a draft resister. There was a great crisis of spirit back then. I had a lot of hate boiling up inside me. Hate for the government. Hate for big business profiting off the war. In my teens, I woke up every morning to news about body-counts, how many guys a little older than me had been killed in Vietnam the previous day. I knew in a couple years that was going to be me. I couldn't see any future. I marched in my first protest when I was fifteen—long hair, bellbottom jeans, and Hell no we won't go. We had to stop the killing."

"I had a history professor who said the peace protesters extended the war," said Gracy. "He believed that during the peace negotiations in Paris, the marchers gave hope to the North Vietnamese that America might pull out. A divided country was a sign of weakness."

"That's ignorance!" said Mark. "Without the protests, there would have been no pressure for Nixon to negotiate in Paris. If it was left up to those political sociopaths, we'd have kept on going until we ran out of kids to kill—or nuked Southeast Asia."

"Maybe you're right?" said Gracy.

"I am right. I was seriously involved back then. I was a radical before I turned eighteen. Later, I became a draft resister and burned my card. I was attending UCLA when things got violent. Students were shot at Kent State and the underground was bombing federal buildings. You can't imagine what it was like unless you were there."

"Sounds like homeland war," said Gracy. "People were killed by the police, right?"

"It was civil war," said Mark. "I got a letter from Uncle Sam telling me to report for selective service or else my butt would end up in Alcatraz. I dropped underground. Later, I met some people who belonged to the SLA and ended up tagging along with them."

"What's the SLA?"

"Symbionese Liberation Army... They're the ones who kidnapped Patty Hearst. Soon, I was breaking worse laws than draft resisting."

Gracy got up on her elbows and stared into Mark's eyes. Her expression changed. She punched him in the stomach.

"You're lying," she squealed. "You creep. I thought you were opening up and it's all a lie!"

"I really did burn my draft card," said Mark. He shrugged weakly. "I just never went underground or hooked up with the SLA."

"Yeah, sure. You're pathological. How can I believe anything you tell me."

"Forgive me?"

"Never!"

"Please."

"You are a bastard."

Gracy started tickling him. Mark laughed while trying to protect himself. The sleeping bag soon had him hopelessly tangled.

"Stop fighting me," said Gracy, "and take your punishment like a man."



Mark awoke with the morning sun in his eyes. The grass was dewy. The air felt crisp. Each breath was like a small drink of life. Gracy had already risen and was off somewhere.

Mark stood up and stretched. Every muscle had been worked during yesterday's hike. He ached with the pleasant sense of a freshly toned body. He ducked inside the tent. Inside his pack was a small plastic box that contained a digital instrument for measuring blood sugar level. In a separate thermal bag, next to a small block of blue-ice, were a bottle of insulin and a bottle of liquid vitamins. He pricked his thumb to draw blood. The meter read a little high. He prepared a small dose of insulin and injected it into his thigh. He'd been diabetic since early adulthood and had been fighting the inner battle ever since.

Mark heard the sounds of someone walking toward the tent. He quickly gathered up his supplies and shoved them into the backpack. Gracy crawled into the tent. She knew about his diabetes, but Mark couldn't stand for her to see the evidence. He couldn't stand for anyone to think of him as less than perfect.

"Ready for breakfast?" she asked.

"Maybe later..."

"You have to eat something. If you don't, you won't get any dessert tonight."

"Well, when you put it like that ..."

Marie, Tony, and Claire—the scouts—had reported they'd found an interesting site a half mile North of where the team had been digging the other day. Mark had decided to go alone to check it out. If it looked promising, he'd relocate the dig. The site was as promised: there were several indicators of a good fossil bed.

After the move, the team fell back into its normal rhythms. Gracy was supervising four students who were peeling off sheets of limestone. A rope grid was laid over the excavation to help identify the locations from which each fossil was removed. Mark was a short distance away with specimens scattered around him on sheets of brown

wrapping paper. He sat on the ground with his specimens. He was examining a confused piece of fossil that contained several different types of marine animals. There were small crablike crustaceans and tiny fish and mussels. The sample looked like it was from the early Cretaceous Period. In one corner was something that might have been a speck of his matted bacteria but there wasn't enough to be certain.

Mark was hungry, and lunch was a missed opportunity from hours ago. The students had stripped down several feet into the limestone and were peeling off segments from an earlier period.

Gracy carried a sheet of limestone over to Mark. A crooked smile was on her lips. Mark caught the expression immediately and got up. The limestone had several trilobite fossils scattered across the two foot piece. He took the fossil from Gracy and began closely examining it. Trilobites were marine arthropods that were plentiful during much of the Paleozoic Era. Mark judged the sample to be from the middle of that Era. This dated the fossil at approximately two hundred million years before the dinosaur extinctions. In the upper left side was a band of fossilized bacterial mat. He saw the signature characteristic of COBIC: a waffled honeycomb of stone that would crumble if pressed too hard. The honeycomb was made of cavities the size of pinpricks and looked more like petrified foam than anything else. The frothy appearance was the result of billions of tiny bacteria having been packed into microscopic globs. Over time, some of the bacteria decayed. What remained was fossilized, leaving behind a fine lattice-work of imprints. The bacteria embedded in the honeycomb could be seen only under a powerful microscope. *Nanofossil* was the technical term for the remains of these microscopic creatures. It was impossible for Mark to lug into the wilderness all the equipment needed to conclusively identify these nanofossils, but this honeycomb structure was good enough for a preliminary identification. No other bacteria produced mats like these except COBIC.

"I need to get an exact date on this strata," said Mark. "It's not the

right age to be extinction matting, but it looks like it'll fit into an earlier COBIC cycle. Tell the gang to move over a few yards and start sampling at the last Cretaceous layer and work down again."

He gently set the fossil on a sheet of wrapping paper, then knelt down and began scribbling notes into his PC Tablet. This was it. He could feel it. Discovering this piece meant they were in the right place. He had never been able to explain why but COBIC mats tended to form in the same location eon after eon like growth rings in some great geological tree. It would only be a matter of time before they found additional fossils. He noticed Gracy's shadow and realized she was still standing next to him.

"I want you to recheck the grid," said Mark. "We can't afford any mistakes. And keep them working at it."

"Yes, sir," she said. "I'll take that as a Job well done, Gracy!"

Mark had filled up the memory card in his digital camera with shots of the fossils. He could see Gracy recording the excavation work at the dig with a second Nikon. He pulled out a length of bubble-pack and started to box up the last sample. It was an excellent specimen. As soon as he got back to UCLA, this one was going under the electron microscope. He wished he could field-inspect the nanofossils. He was convinced this was his COBIC, but nagging doubt always plagued him until all the proof was in.

Two hours later, Mark had a prize specimen. This one was from the late Cretaceous Period, which put it within target range of the dinosaur extinctions. A more accurate date was needed for his work, but the estimate was close enough for now. He had what he was searching for—a huge slab of stone covered with the intricate froth-like patterns of bacterial mats.

The mother lode, thought Mark as he unpacked a field stereoscope. The device had a pair of binoculars eyepieces that were attached to what looked like a stubby microscope stage. The rig was mounted on a boom stand that floated it out over large samples. The scope could

focus on a specimen from six inches away and magnify it a hundred times into a perfect 3D image.

Mark scrutinized every centimeter of the upper half of the slab, the area that contained the best preserved details. The telltale honeycomb structure screamed COBIC. He saw tiny pieces of seaweed twined into the mat and, a few inches away, a small fish that had lived during the Cretaceous Period. He cracked open a victory beer. It was the last one in the cooler.

The winds had picked up. Using the stereoscope, Mark had examined the entire the limestone sheet. A fat raindrop landed on his back. He ignored it. He rubbed blurriness from his eyes, then looked again. The mystery was still there. A piece of fossilized mat had come loose revealing a large insect hidden inside the fossil. He increased the magnification of the scope to fill his view with the prehistoric creature. The insect was embedded head first into the mat. A fossilized air sack and leg segments with fine hairs were visible—definitely a land creature. What was an insect doing in the middle of a marine fossil? Part of the creature's body was splayed out as if it had been crushed under a shoe. From what was visible, he had the impression it was some kind of large almond shaped beetle.

Mark heard crunching footsteps heading toward him. He sensed it was Gracy. He continued peering into the stereoscope. Gracy touched his shoulder. He looked up at her. She gave him a slip of paper, like a judge at the Emmys handing out the name of a winner. He was annoyed at the interruption but started to read. It was a more accurate field dating of the second fossil. The date was solidly in the middle of the dinosaur extinctions. Mark crumbled the paper as he made a fist. Some of that nagging feeling had just vanished.

"Yes!" he yelled. "I've got you!"

Gracy started to laugh. He pulled her down to him and kissed her. Losing her balance, she tumbled into his lap.

2 – Los Angeles: November

Mark set down the can of Pepsi. He was eating lunch by himself. The café was one of his favorites, close enough to UCLA to walk, with the best falafel in the city. The eatery was nothing more than a glass storefront on Kinross Avenue in Westwood, but every lunch hour it was packed and had a waiting line that extended down the sidewalk.

Mark had gotten there early and nabbed one of the prime spots, a small round table next to the only window. On the checkered tablecloth was a copy of the Los Angeles Times folded open to an article he'd been reading. *Children raised in Los Angeles County had twenty percent less lung capacity than the rest of the country.*

The article explained that a UCLA study had established solid links between lung capacity and air pollution. Mark glanced at the folded paper. He thought about all the health food stores and restaurants in Los Angeles...in some areas they actually outnumbered the liquor stores. There was an odd counter-logic to it. The residents of Los Angeles breathed toxic air and swim in polluted bays but eat healthy and exercise as a way of making up for all the things they won't control.

Mark had returned from Wyoming this morning and gone straight to UCLA. The Physical Sciences Department had a scanning electron microscope. There was a waiting list months long for access to the machine. Mark had used his influence to get his specimens moved to the top of the list, even bumping a set of routine work-orders from UCLA Medical Center's Pathology department.

The technician operating the equipment had a set of photographs on Mark's desk an hour later. The black and white prints showed the Nanofossil outline of a single animal with the distinctive capsule shape and flagella tail unique to *Chromatium Omri* 3.7. In some ways, single-celled creatures were as complex as their multi-celled descendants. Even with all the bacteria catalogued by modern science, more were discovered each year with totally new structures and behaviors. Their diversity was as great as the stars in the sky.

There were dozens of strains of living Chromatium Omri beside his COBIC-3.7. The oceans and fresh waters were teeming with Chromatium. He would have liked to work with living COBIC-3.7 again as he had during his days of Noble Prize research. Those had been heady times. The specimens he discovered and collected from hot springs had reproduced and grown into a breeding colony. The colony lived for almost a year in the lab before perishing from an infection of bacteriophages. He had a freezer full of uninfected, cryogenically frozen samples from that colony. All the common strains of Chromatium Omri were highly susceptible to pressure damage from freezing and were typically killed by the process, but COBIC-3.7 was an exception. The bacterium had a thirty percent reanimation rate. All he had to do was thaw some of his colony out to have a live strain again; but there was no scientific reason to do it, no new information to be obtained.

Mark checked his watch. The time was a few minutes past one. He took a last bite of falafel. It was time to drop in on Professor Ann Wilson. She was the dean of the entomology department. He had called and asked her to consult but had offered her no explanation over the phone. They both liked little games of intrigue.

Mark knocked on the open doorframe then walked in. The lab was cluttered with something new. An entire wall was stacked with one-gallon aquariums. Mark peered into a tank with his face almost touching the glass. A six-inch scorpion stared back at him. He'd never seen one that large. Its body was armored in what looked like dull black plastic. The monster skittered backward an inch. Its stinger curled up into the air. The spike was quivering. It looked ready to strike at Mark's face through the glass.

"Starting a pet store?" he called out.

Mark heard Ann Wilson walking over. He turned away from the aquariums and saw her. She was smiling behind a set of Ben Franklin glasses. Her gray hair was frizzed out enough to suggest the appear-

ance of a female Einstein. She wore a white lab coat over a black sweatshirt, black sweatpants, and Nike running shoes.

"They're giant South-Asian scorpions," she said. "One of the most aggressive strains. They've been known to kill and eat small rodents. If your life insurance is paid up, you can pet one."

"Only after it's been stepped on, thank you very much."

"I hope your mystery's going to be entertaining," said Ann. "I had to put off a staff meeting."

"Sorry to drag you away from such an exciting afternoon."

"So what's so important?" she asked.

"A bug."

"I'd have never guessed."

Mark opened a metal lockbox the size of a dictionary. A segment of the fossilized bacterial mat was inside. Ann carefully placed the specimen under a customized stereoscope that was fitted with a video camera. A computer displayed a magnified image of the fossilized insect. She stared at the screen for several minutes, then looked over at Mark.

"My technical analysis is that we have windshield splat," said Ann.

"I think windshield splat's a little too broad in the old taxonomy department to help much," said Mark. "That's a marine fossil and that bug's not an aquatic animal, right?"

"Not unless its air sack was used as a floatation device."

Ann got up and selected a volume from a set of books that occupied an entire wall of her lab. The collection was a reference set that contained photographs and drawings of every known species of insect. With one hand on the stereoscope and the other flipping pages, she went to work identifying the little creature.

"You're lucky the hind legs and air sack are intact," said Ann. "I should be able to figure this one out in no time."

"So how's your husband doing?"

"Don't ask. He dragged me out to a cocktail party the other night. Everyone there was a politician of some type. Harry was in his element. There was this one idiot city councilman who crossed over

into my bailiwick, spouting off about how disorganized a species man was. He said we ought to look at how well run ant-societies were. Can you believe it? He thought we should organize into hives.”

“Ann, the world’s full of loony tunes.”

She blinked a few times as if digesting what he’d said, then continued her story while simultaneously flipping through pages in the reference volume.

“This guy wouldn’t stop ranting about how perfect a machine these ant colonies were. Finally, I just couldn’t take it anymore and interrupted him. I told him that in ant-societies there are workers who sometimes blow a fuse and start dismembering their fellow comrades. Sounds a lot like some postal workers we’ve heard of, right? Anyway I told him how the ant-society deals with these sociopaths: a bunch of soldier ants show up and eat him. I said, I think we’re already too much like ants right now.”

“Sounds like you were the life of the party.”

“Wait a minute,” she motioned him to be quiet. “I think we’ve identified your little friend here... Yeah, I’ve got him.”

Mark leaned closer to the monitor. She adjusted the scope to show a detailed view of the hairs on one of its legs.

“This baby is one of the all time winners in the evolutionary contest,” said Ann. “Maybe that explains what it’s doing mixed in with your marine critters.”

“What is it?”

“Very similar to *Periplaneta Americana*.”

“Hey, that really clears things up for me,” said Mark.

“Study your Latin, my boy. This is the king of all bugs. A giant cockroach. This one was big enough to make a nice pet. I’d say about three inches long.”

Mark felt a twinge in his stomach. That mess was a cockroach. His college job during his sophomore year was at a burger joint that had been infested. He’d hated those scampering vermin ever since, disease-infected rats of the insect world.

“Any guesses on how he got into the depths of an ocean and into my bacterial mat?” asked Mark.

“Who knows,” said Ann. “They get into everything but the ocean... No, someone’s pulling your leg. That fossil can’t be real. Where did you get it?”



After Mark left UCLA, instead of driving home, he rode into Santa Monica. His car was a vintage ‘69 Mustang convertible. He had the top down. It was late afternoon; rush hour was just beginning. The streets were still moving freely. Mark decided the light traffic must have been a gift from the gods. The Santa Ana winds were picking up. The sky was clear except for a haze of pollution at the horizon. A full strength Southern California sun was flooding down. He was listening to NPR on the radio as he bathed in the sun. An interview was being aired with Professor Alan Minasu, a notorious environmentalist and an award winning marine biologist. Minasu had been arrested and served ten years for bombing commercial fishing ships in several states up and down the east and west coasts. For a one-year period of time, Minasu’s presence was felt and feared any place where endangered fisheries were being harvested. The over-fishing practice had slowed and some environments were probably saved. No one knew who was behind the bombings until the end when the FBI apprehended him. To Mark, the man was an eco-terrorist of the worst kind, not a scientist. It was a shame that he was one of the most articulate and brilliant speaker on the environmental scene today. His past behavior had been forgiven. He was the G. Gordon Liddy of the environmentalists, convicted felon reborn as a media personality.

“The problem has been growing for decades with almost no public awareness,” said Minasu. “Today, the Colorado River has

been dammed in so many places and water is siphoned off to such a degree that what flows out into the Gulf of California is often a trickle. For millions of years, the Colorado River provided twenty percent of the fresh water to the Gulf of California wetlands. These were vast breeding grounds for birds and sea life that flourished. Now, the wetlands are a desert of dry clamshells. For hundreds of square miles all you see are plains of these bleached white shells. All of that used to be the fertile bottom of wetlands.

“The Gulf of California is a key location where migratory birds lay over and whales come to give birth to their young. A thriving fishing industry is there, which harvests shrimp and fish. They are an important source of these foods.

“This is both a potential environmental disaster for the world and an economic disaster for Mexico. All it would take to defuse this ticking bomb is to give back a small percentage of the water currently being diverted in the United States. There are hundreds of locations along the Colorado River where water is taken for irrigation and drinking. If each state just took one percent less, this disaster could be averted. Several environmental organizations have been trying for years to get the states along the river to give back one percent. No one is willing to budge. With water rights and water laws in the way, getting one percent back will take an act of Congress. When talking with the individual water authorities for these states, you would think we were asking them for one percent of their tax base instead of what, in many cases, amounts to less than a fraction of a percent of their state’s total water usage...”

Mark shook his head. Minasu was absolutely right and on-target as usual. He didn’t know which was more frustrating: the blind eye we turn toward environmental crisis or having a jerk like Minasu as the representative to the world on such important matters. We were ignoring global warming, loss of topsoil, and water pollution to the

point where we might not be able to feed the world's population by mid-century. What was hardwired so wrongly in us that we were this self-centered, this greedy, knowingly destroying the world our children would inherit?

Mark couldn't stand to listen anymore and turned off the radio. He was almost at his destination anyway. Wilshire Boulevard was sloping down toward the ocean. A man wearing a monk's robe stood by a corner holding a six foot wooden cross. A sign hung around his neck: *'They are threatened by our pillaging! The End is near!'* A small crowd had gathered. Two police officers were getting out of their car. Mark felt sorry for the man. There were damaged people like that in every city of the world. One block from a cliff that dropped off into the Pacific Ocean, he cut over onto Lincoln Boulevard which ran parallel to the coast, then turned west on San Vicente. Mark parked his car on a small side street. Tall trees canopied the midsize houses along the block. The neighborhood was just a fifteen-minute walk from the Pacific, but it could have been a street anywhere in the country.

Mark walked to the end of the block and stopped. The house never seemed to change. It was a small two bedroom with Ivy covered trellises and olive trees. He remembered a moment from years ago...he and Julie in the front yard picking olives. He smiled with the memory. Julie had read a book on how to cure olives. One step was to soak them in lye. He had told her it sounded insane and that the book had to have been written by mad anarchists. Julie had persisted and the olives turned out to be the best he'd ever eaten.

The front door opened. His daughter Mary came running out. She was only nine but already looked so much like Julie. She had her mother's eyes and mouth and hair. She was wearing a private school uniform, a plaid skirt, white socks and shoes.

"Hi daddy!" she screamed.

He knelt down to her height. As she hugged him, he felt all the wonderful times: the picnics on the beach, the trips to the zoo, the endless rides at Disneyland. She whispered, "I love you, Daddy."

He looked past his daughter's hair and saw his ex-wife in the door-

way. She was smiling warmly. He looked into her face. Memories surfaced and his happiness waned. There were the nights he never came home, the expeditions into the field—and always a coed to share the evenings, a different gal for each semester. What had he been looking for? What had he been running from? Julie smiled. She had forgiven him long ago, but he could never forgive himself. She had divorced him saying she loved him—and herself—too much to live like this.

Mary kissed him on the cheek and dragged him off to see her latest work of art. She had it pinned on the refrigerator with pink ladybug magnets. The painting was a watercolor of the ocean and gulls and an island in bright sunlight.

“Daddy, I want to show you my picture of you... I’ll get it. Stay here.”

Julie came into the kitchen. She was wearing a pair of jeans and a red blouse. Her eyes could say more than any woman he knew. Deep brown and moist like pools of warm emotion. They seemed to move over his face, taking in the new lines, the subtle hints.

“You look unhappy,” she said. “Are you all right?”

“I’m fine... I was thinking of taking Mary to the beach this weekend.”

Julie sat down in a chair beside him. She picked up his hand and rested it between hers. A vague sensation of electricity moved along his arm. The feeling was pleasant. She was leaning forward. Her eyes were only inches from his. He leaned back a little. He felt a sensation of dizziness. Had he taken his insulin this morning?

“Something is bothering you,” she said. “I can see it. You’re not drinking again, are you?”

“No, of course not. I know it’s bad for diabetics to drink. Wreaks havoc with the old blood sugar levels.”

“I’m worried about you...”



The sun would be setting in a few hours. The air was still unseasonably warm from the Santa Ana winds. Mark sat in a deckchair on his roof. His townhouse was on the canals in Venice Beach, a block from the Pacific. Over the roof of the building in front of him, he could see the ocean meeting the horizon. The water seemed to reach up to fill half the sky. The brine scented wind conjured memories of him and Julie sailing on the bay. A pitcher of margaritas sat on a glass coffee table. He was fixing himself his third. He wet the rim of the glass, then pressed it into a dish filled with salt. The iced margarita mix was still a cold slush.

His stomach grumbled. Gracy would be home from her classes soon. Maybe they'd go out for something to eat. He'd been on the roof for over an hour watching the ducks swim in the canal. For the first drink or so he'd been thinking about Julie and what he had done to her, but those thoughts had stopped and now he was just happy to sail on pleasant dreams. Occasionally, a few seagulls would show up at the canal's edge, poke around a bit, and then leave. He realized he was enjoyably drunk and slurped some more of his margarita.

The steel door leading to the roof opened with a familiar creaking. Mark looked up. It was Gracy. A gold colored beer can was dangling from one of her fingers by its plastic six-pack loops. She was wearing jeans and one of the tropical shirts that he'd bought her for their trip to the Bahamas. Her fingernails were pink. Her eyes were a coral blue. She was a stunning creature. His world never failed to change in her presence.

"What are you doing?" she asked.

"Having a party—want to join me?"

"I don't know. My mother warned me about guys like you."

"I promise to be good."

"Hope not," she said.