

Prologue

Chris slept, sprawled across the old cot in the electronics room at the University of Memphis Seismic Center. All night he had fine-tuned his earthquake prediction model, the basis for his graduate thesis.

His snores harmonized with the hum of the fans. His left hand twitched in response to some unknown stimulus. The unruly blond hair on his large head matched his wrinkled khaki shirt and shorts. One sandal hung on his big toe, the other had already fallen to the concrete floor. He dreamt of his imminent fame, the praise he would receive as a true prophet, the discoverer of the Holy Grail of Seismology: a method for predicting earthquakes.

In forty-nine seconds, at 9:12.04 a.m. Central Daylight Time, a moderate earthquake on the New Madrid Fault would shake Dell, Arkansas. The prediction that Chris Nelson made last week would become fact. His record would stand at two in a row. He would be one step closer to his dream.

Meanwhile, in seventy-one seconds, another temblor, unpredicted, at the north end of the Calaveras Fault, forty-five miles east of San Francisco, California would relieve some of the strain accumulating from the inescapable half-centimeter per month creep of the Pacific Plate along the San Andreas Fault.

Chapter 1: Precursors

Three miles north of the impending epicenter in California, Judy Fox watched the effortless way her husband Tom picked up five plastic sacks of clothes and a bag of groceries to carry from their Danville townhouse to the camper downstairs. His twice-a-week walks of the golf course kept his fifty-two year old body in fine shape.

Tom turned and said, "Hurry with that last sack, then start locking up."

Judy glanced at the mirror and swiveled her hips. Her petite figure looked exceptional for a woman of forty-five. She admired how well Tom's good looks matched her own, considering

his age. "I need to phone Jenny and tell her we're leaving. I have to remind her of when we'll reach Memphis."

The time had come to speak with her daughter face to face. Email and telephone calls handled some issues, but Jenny sounded serious about her graduate student friend, Chris Nelson. Having married a genius herself, and an engineer besides, Judy understood the suffering that ahead lay for Jenny, suffering which her daughter could not yet comprehend.

"Dammit, I wish you'd told me earlier that you planned to call. You know I wanted to hit the road by 7:15, and that's only five minutes away."

"What's so special about 7:15? Why put us in the middle of the commute? Besides, I didn't think you were serious."

"No, it's Saturday." He shifted the bag to his other hip. "Oh well, keep Jenny on the line so I can talk to her, too."

Judy's left eyebrow arched straight up beneath wisps of her short blond hair, flinging virtual daggers at Tom's departing back. That's just like him, find something to bitch about. She snatched the telephone from its cradle, punched the speed-dial for her daughter, and tucked the headset onto her shoulder as she returned to her packing.

The exchange between the two took forty-nine seconds. At a depth of 11.3 kilometers beneath the small farm community of Dell, forty-seven miles north of Memphis, Tennessee, the New Madrid Fault cracked.

Torsional forces in the earth's crust ripped the opposing surfaces of the fault apart. An oval-shaped crack half a square mile in size sliced through the basement rock. At the oval's center the sides of the crack slid almost four inches past each other, nine and a half centimeters to be exact, generating a blast of earthwaves from the magnitude 4.4 temblor. Primary P-waves from the seismic event would reach Memphis in thirteen seconds; the secondary S-waves would take twenty-six.

Twenty-two seconds of peace remained on the Calaveras.

Chris jerked taut on the cot as the alarm bell startled him awake seconds before others in Memphis would feel the earth vibrate. He bolted upright and gaped at the blinking yellow light representing the Dell remote sensing station on the wall-sized map.

"Yellow, that's moderate." Lights glowed green for the frequent smaller temblors, red for the rare larger events.

He stumbled as he stood and stepped on the errant sandal. He sat to arrange his footwear and watched the earthwaves move outward from Dell on the map showing the five state area where the seismic sensor network surrounded the New Madrid Fault. A light representing a second station glowed to report seismic activity, then another and another.

Chris estimated the time sequence. "Dell means less than thirteen seconds before the University seismometer records the P-waves."

The stations transmitted information by radiotelephone back to the University at the speed of light, three hundred thousand kilometers per second. The seismic P-wave produced by the fracture moved through the underlying rock at only six kilometers per second. Chris sprang from the cot to his computer workstation to prepare.

Judy took the headset in hand as her daughter's voice announced the connection. "Hi, Jenny here."

"This is your mother, Jenny. Are you well? How's school going? Do you still like your apartment?" Jenny Fox, a junior in seismology at the University of Memphis, lived just off campus.

"Oh, hi, Mom. I'm doing just fine. My finals have gone okay and everything's fine. I'm finishing breakfast and was about to sit down to do some more cramming. How's Dad? What's up?" Sounds of kitchen clatter filled the background.

"I called to let you know we're heading out. We'll be in Memphis next Saturday. Your father's antsy about getting on the road, like always. He'll be up in a minute to talk with you."

"Okay." Jenny took another bite of her breakfast.

"When do you expect to meet us? We'll stay at the Sundowner RV Park just east of the University. Do you know where it is? I found it in the camping guide. How's the weather been? They say it has full hookups. Have you talked with your friend Chris recently? You're not sleeping with him, are you?"

Jenny blurted her response. "No. Mother. Besides, I wouldn't tell you if I did." Her voice calmed. "I've heard of the Sundowner. It'll be okay for you and Dad. I'll probably be busy if you get in early, but I'll see you by noon. Just sit tight. I'll show up. And Chris is doing fine, though he's awfully busy with his research and hardly makes time for me."

For years the north end of the Calaveras Fault had collected stress without relief from the San Andreas Fault. Molecule slid past molecule, granule past granule, vein past vein in the black basement rock, moving the strain from one point to the next along the fault's trace, but not enough. Six kilometers beneath San Ramon the microscopic molecular flow of solid rock reached its limit. All nearby points along the Calaveras structure reached their yield point, the state where the rock could deform no more. With no stretch left to give, catastrophic failure remained the only option.

In one-sixth of a second, the blink of an eyelid, opposite sides of the fault moved three centimeters past each other. The movement tore a fracture in the rock a half-kilometer long and a quarter-kilometer high, converting the potential energy stored in the ruptured structure into heat and seismic waves characteristic of a magnitude 3.5 event.

The P-wave traveled 12.1 kilometers from the fracture to the surface in Danville in two seconds, its low frequency sound just perceptible to active people. The S-wave arrived in four seconds, snapping the hill under the townhouse from side to side in the physical motion that people most often associate with an earthquake.

"Jenny, you know you'd be much better off not getting involved with that boy. I've always told you that you should wait . . ." Judy stumbled sideways from the jerk. "What?" Judy's voice rose an octave, "Jenny, we're . . . we're having an earthquake."

Jenny's scream came from the handset. "Mom, do you really feel shaking? We're having an earthquake, too. Wow, it's jerking around. Oh boy, this is something. Mom, are you okay? Is yours still going on?" Jenny paused. "Mom, are you there? What's happening?"

For a rare instant Judy could say nothing. Instinctive fright response controlled her body. Blood drained from her skin. Hair at the back of her neck stood straight out.

Tom sprinted through the door. "Honey, are you okay? Did anything fall? I just felt one hell of a jolt coming up the stairs."

Judy sank to the couch, astonishment contorting her face.

"Mom. Dad. Is anyone there?" A tinny voice called from the handset.

Tom grabbed the telephone, "Jenny, is that you?"

Judy stared about the condominium. Everything appeared stable but the room kept spinning.

"Yes, I'm okay, but your Mother must have swallowed an ice cube. She's pale and speechless." He massaged his wife's arm as she looked up in relief. "We just had a really sharp earthquake. We must've been right on top of the fracture." Tom listened then said, "What? You had an earthquake at the same time?"

Judy looked up in surprise. Her daughter had felt the earthquake.

Tom continued, "Yes. . . The shaking here was strong and quick, a couple of really hard snaps, but it stopped. What about yours? . . . Good, your shaking's stopped. But if yours lasted over ten seconds it must have been a pretty big one. Hey, young lady, don't you remember what I told you about the New Madrid Seismic Zone when you talked about going to school in Memphis? . . ."

Judy recalled how Tom's avocation of earthquake watching began six years ago when the family moved to California. It had been pivotal in Jenny's selection of seismology as a major.

"That's right," Tom said. "You're sitting forty-five miles from the most dangerous fault in the country. In the early 1800's three major earthquakes rocked that area in less than two

months, each of them bigger than the 1906 San Francisco earthquake. . . . I know that's why you wanted to go there for school."

Judy swallowed. She imagined her daughter covered by falling buildings, the ground opening around her and pulling her down. Judy's eyes stung.

Tom continued, "Just remember I was the one who first told you someday the New Madrid Fault will shake the hell out of Memphis. Pray you're not there when it does." He glanced down at Judy. "Hey ladies, we can talk more about this later. Your mother and I have to hit the road."

Judy appreciated the pat on the shoulder and the fact that Tom was ending the conversation.

"Jenny, say good-bye to your mother and calm her down so we can travel. And get ready for the Big One like I told you. It's inevitable."

A subdued Judy accepted the telephone as Tom grabbed her half-packed bag of clothes to carry to the camper. Her stomach cramped from worry. Her daughter would hardly be married to some weird genius before she died in an earthquake.

For years the University of Memphis and other Universities surrounding the New Madrid Seismic Zone had placed instruments throughout the region, gathering information about the geological structures each time any small fracture occurred. A few like Chris hoped they would be able to predict when and where the next great New Madrid earthquake would occur. In the meantime, the Universities shared the information they collected and everyone in the program agreed on one thing: another great earthquake was inevitable, and soon.

For three years Chris had labored on his new theory for predicting seismic events with an intensity noted by his peers as remarkable. Larry Snow, one of his fellow-graduate students, declared at a departmental beer-klatch, "Chris, you not only act like a mad scientist, you look and smell like one. We professional seismologists know that it'll never be possible to accurately predict earthquakes. Why can't you understand that?" Larry's opinion carried weight in the department, and Chris felt the growing alienation.

He shared his thoughts and progress less and less as others scoffed at his ideas. Then the fine-tuning paid off. Three weeks ago he had noted in his journal, "Using Nelson Model version 3.04.422 I predict a magnitude 2.7 event at 35.82N, 90.11W

around 3am, April 30." Jenny Fox had witnessed and initialed the entry.

On April 30 he noted: "Success. I met the criteria. Little River experienced a 2.6 at 6:15am: within 5% on magnitude, 3 hours on timing, 2 kilometers on location."

A few days later he asked Robbie Browne, one of the undergraduates in the weekly Geology Lab that was Chris's responsibility as a Teaching Assistant, to witness and initial a new entry: "Using Nelson version 3.05.033 I predict a magnitude 4.3 event at 35.85N, 90.04W at 7am, next Saturday."

He continued in his journal. "With the latest adjustments I now expect over ninety percent of the temblors will occur within the zones I predict. Although the magnitude estimate usually comes within ten percent of the actual value, the estimates for the timing of the temblors have not been good. The model still needs improvement. I still need more computing power."

In the middle of Chris's third year Dr. Paul Kenton, his graduate thesis advisor in the Seismology Department, gave him permission to use the Laboratory's newest Quad 3.8 Gigahertz workstation computer to develop and test his seismic model, the computer program he called Nelson. Chris now spent most nights

and weekends working on his pride and joy, adding to his image as a mad scientist.

"Come on, baby, give me the data. What do you look like? Are you that 4.3 shake I predicted? It's past due." He watched as the computer compiled the initial summary of readings downloaded from the remote seismic stations over the telephone lines. The automated monitoring system did not require that anyone be on duty, but Chris's sleeping habits gave him a unique opportunity to watch the new data arrive and be analyzed.

He bounced on the stool in front of the computer console snapping his fingers in time with the tune running through his head. He made unintelligible sounds to accompany the imaginary music, "Da, da, da-da-da." and tapped a drum roll on the desktop. His hyperactivity masked the shaking of the S-waves.

The screen filled with more and more detail as other stations reported. When data from the large monitoring station at Little Rock was triangulated with that from Memphis, they pinpointed the exact location of the moderate earthquake. "Hot dog, I scored again." His gloating face reflected on the computer screen as he moved the mouse and entered commands on the keyboard. He had enough information to run a detailed analysis with his model.

Even with all four processors working full-bore, the workstation took three minutes to complete its computations. Chris beat time on the desktop and bounced on the stool. "Dum-ditty, dum-ditty, da-da-da."

He shouted when the results flashed on the screen. "That's it. A magnitude 4.4. Over a square kilometer of the fault broke loose, just like I said it would." He pumped his fist into the air in triumph. "And its focus is right on that little asperity south of Dell. I knew it'd be there. Nelson, you're on target again. That's twice in a row.

"Wait 'til they hear 'bout this one." Chris bounced on the stool as he celebrated victory with his computer and scratched his itchy scalp. "Nelson, you're getting better, lots better. One more event like this and I can prove to ever'body that I'm the primo earthquake prophet of the world."

Chapter 2: New Simon

Four hours earlier, the alarm clock had awakened Tina Washington in her apartment in the soon-to-be-shaken town of Dell. The display glared five-fifteen. She moaned and rolled out of bed, muttering. "Fudge, why did I take the early shift. With Daylight Savings Time the sun's not even up."

Tina hurried to shower, dress, and drive sixteen miles to the café on Stateline Road off Interstate-55 at the Missouri and Arkansas border. As the sun rose at six o'clock she arrived for her job as the Saturday day-shift waitress.

"Morning, Cookie," she said. The day cook was a seventy-three year old length of skin and bones who some claimed to be the best short-order cook in the Missouri boot-heel country.

"Hi, Miss Tina." He smiled, showing the gaps in his teeth. "Y'all ready for today?"

Tina smiled back. "Guess so. It's Saturday, so things should be quiet here at Nasty's." She used the nickname for the New Simon Truck Stop.

When Tina had started working at the cafe Cookie related the history of the place. "Originally," he'd told her, "Simon Kenton and his son built a town on the banks of the Mississippi River after he purchased land below New Madrid in 1809. Then during the 1812 earthquake, most of his land slipped into the river and all that remained became a swampy tangle of fallen trees and sand boils. A couple of the settlers moved back to those old Indian mounds behind us. They called the place New Simon.

"My grandpa told me that forty-two souls lived here onct. He said that 'fore things dried up, the truck stop got a reputation as a place to get a good deal on fuel, get work done on your truck, and do shady business at the state line."

He grinned and wiped his hands on the dirty towel. "You see, Stateline Road belongs to the state of Missouri but the truck stop sits on the Arkansas side. Bootleggers used to move from one side of the road to the other depending on which deputy was here.

"Then one night sheriffs from both states showed up at the same time. That gunfight's the real reason this place got its name." He cackled. "That's when things got really NASTY."

Within two weeks Tina realized that in modern times Nasty's still served the same basic functions, but now for different crimes. The action made her uneasy.

At half past eight JQ McCrombie stepped from the small apartment on a back street in Hayti, Missouri. He admired the warm glow of the sun on Loretta's dark arm as he handed her three twenty-dollar bills.

"Y'all come back soon," said Loretta, the sultry black prostitute JQ kept in the small town just off the Interstate in the Missouri boot-heel. She reached up with two fingers to capture the money between her long, painted fingernails.

"Sure, Baby. I'll be back as soon as I can."

JQ sped away, raising a cloud of dust behind his two-year old red Porsche. At thirty-five, his driving ambition and football-hero countenance commanded far more attention than usual for blacks in the Mississippi Delta. He felt utter disdain for anyone who thought it their business where he spent his nights.

He accelerated onto the freeway heading south. With the convertible top down, the wind blew up from the windshield and whipped his short, curly black hair around, streaming it back across his head. At over ninety-five miles per hour he overtook and screamed past an eighteen-wheeler.

Speeding by the Steele exit the wail of a siren pierced the roar of motor and wind. JQ glanced into the rearview mirror to see the flashing red lights of one of Missouri's finest.

"Ah shit, him again." JQ grinned and shoved the accelerator to the floor. The speedometer needle moved past one-fifteen. He laughed. "If Smokey wants to race the five miles to the Arkansas border, let's do it."

With half a mile to go, Carl, a proud member of the Missouri State Patrol, conceded he could not make an arrest in his home state. JQ streaked across the state line as Carl slacked off to take the freeway exit at the border.

Unwilling to admit defeat, the officer called on the radio to his Arkansas counterpart down the road. "Jerald. That damned sonofabitch in the red sports car I been telling you about is heading your way at over a hunnerd miles per hour. Do me a favor and bust his damned ass. Bust it really good."

The sound of a belly chuckle trumpeted back over the radio from the Arkansas patrol officer. "I'll shore do that, Carl. You flush 'em out of Missouri like a good bird dog and I'll bag 'em on the fly."

Past the border, JQ eased off the accelerator and laughed again. Once more he had flipped off the Missouri Patrol. Gearing the sports car down to second, he pulled off at the next exit to return north. Turning left at the top of the ramp, he found his way blocked by a blue and white Arkansas Highway Patrol car parked sideways across the overpass right-of-way. He stopped and waited.

The State Trooper stepped out of his car, his stiff hat perched atop his round face, and with hands on his hips he swaggered towards the offender. "Dammit, JQ, I wish you'd stop tormenting those Missouri officers. Carl just called me on the radio and told me to, quote, get that damned sonofabitch in the red sports car, end-quote. I should'a known it'd turn out to be you."

JQ raised his hand in greeting. "Hi, Jerald. Sorry to interrupt your day, but I'm late for a business meeting back at New Simon." He remembered a rule he had once read that would be helpful in his move ahead: show concern. "How's your wife?"

"Oh, Claretta's okay, but she's dreaming 'bout them earthquakes again. The doctor says if she gets morbid on the subject once more, he's gonna put her in an institution." Jerald placed his hand on the Porsche's door. "I don't know, maybe it'd be best if he did. At least I wouldn't have to listen all the time about how the ground's going to break into pieces and swaller ever'one up."

JQ laughed as he pushed the errant hand from his car. "Jerald, tell Claretta that JQ McCrombie knows ever'thing there is to know about earthquakes, and I say there's nothing going to happen." JQ grew impatient. "Now, hurry up and move your damned car so I can get back to Nasty's for my meeting."

By nine o'clock the Saturday morning crowd had come and gone. Alex Smyth hoped Tina would take more time to chat. As she refilled the coffee cup beside his plate of disappearing biscuits and gravy she said, "Alex, you can't be serious about

this sky-diving thing. You're plumb crazy to be going up in an air-o-plane and jumping out."

Alex's grin dimpled the point of his chin as he looked up. "Tina, I'll only jump when I'm wearing a parachute, I promise. It's perfectly safe. Nothing goes wrong. You can come over and watch if you want. The airfield's only two miles down the road. You'll do that sometime, won't you?"

She looked perplexed, like maybe she wanted to reach out and take hold of him. She seemed so serious trying to find some argument to keep him from going about skydiving.

Alex remembered her from high school, nine years before, in Marked Tree, Arkansas, forty-five miles southwest as the crow flies. He was a senior when she was a sophomore. He recalled how everyone considered him a nerd. He made good grades and went away to college. He was surprised she turned out a lot more intelligent than he remembered.

They had become reacquainted four weeks ago when Alex started coming into the truck stop every Saturday for breakfast. They chatted about old times at school and their lives since leaving Marked Tree. She had been frank with him. "I spent my time in high school as a cheerleader. I dated around and finally became a waitress. I decided to move out of town when all my old

boyfriends got married and started raising families. They kept coming around and suggesting quiet get-togethers, like they didn't have any respect for me."

Last week Alex had spent the entire afternoon sipping coffee and occupying Tina's attention during her slack time. She had looked dismayed when he told her, "I'm a student at the new skydiving field two miles east." It never occurred to him that she would think he possessed a streak of madness.

"And this morning I'm going over to do my first solo jump." Alex sat up straight on the stool and puffed out his chest. "They don't let you go up on one of these jumps without training." He stressed his experience. "I've already been through seven levels of instruction and I've learned how to fall - I mean how to land. I've practiced going out of the plane with the instructor holding onto me and everything.

"Tell you what, if this jump turns out to be so dangerous that I'm killed, I'll drop out of the class and come back and admit that you're right. Okay?" He grinned and reached out to squeeze her hand.

Alex felt electricity when he touched her. She squeezed back and smiled, though traces of worry lined her face. "Alex, I'm concerned about you. I like things better when they're

peaceful and not dangerous." Plucking the unused setting from next to him she moved down the counter to check her other customers.

When Tina brought the coffeepot back for another refill, Alex glanced over his shoulder, surprised to see his employer coming through the café door. He leaned over to whisper. "Whoa, look at that. There's JQ McCrombie. I would'a thought he'd be over in Memphis at his new office building. I wonder what he's doing here, and with a creep like that," He referred to JQ's companion, a small-boned skinny man with slicked black hair and a cigarette drooping under his short moustache.

Tina glanced at the new patrons and back to Alex. "Hey, Mr. McCrombie owns this place so be careful what you say around here. He comes here from time to time for business meetings."

Ignoring her own advice she grumbled. "He gives me the creeps. Sometimes he hits on me and acts like I should give him extra attention." She asked, "Where do you know him from?"

Alex leaned closer. "Really? He's my boss, too. I'm a network computer programmer at McCrombie Enterprises in West Memphis. I had no idea he had an outside business like this truck stop."

Tina dropped her voice. "I don't trust him. He acts like every woman must think he's a god."

"Yeah? Well I've seen how he ogles the secretaries in the office, and a couple of 'em have complained about it. Maybe that's his style." Alex scowled as he watched the two men find an empty corner booth and sit down.

"Tell you what, let's get together and compare notes." Checking the time, he said, "Hey, I gotta go or I'll be late. See you after my jump." Hesitating, unable to muster the nerve to ask until he stood to leave, he stuttered. "And . . . Say . . . Would you like to go see a movie tonight?"

Tina laughed with excitement. "Come back and let's talk about it. Sounds like it might be fun." Alex winked at her as he strode out the door.

"Hey, can't we get service over here?" JQ's loud booming voice jarred Tina's reverie. She grabbed two menus and headed to the booth where JQ and his companion waited.

"I'm sorry, Mr. McCrombie. I was just finishing with my last customer." She put the menus in front of the pair and

stepped back. "I'll get you some water and then take your order. Would you like some coffee?"

"Finishing with your last customer, my ass. I saw you wiggling your butt at him. You go for pipsqueak guys with no muscles like that, huh?"

She blushed at the crude remark and the sound of his laughter.

His smile appeared taunting. "Sure, bring two coffees, donuts for George and eggs over easy with toast for me."

As she left for the coffee she heard JQ speak to George. "Nice legs, don't you think? Someday I'll take the time to try her out. Figure she'll be a nice piece'a ass." Outraged, she blushed even deeper and went into the coffee station, almost picking up a dirty cup for spite.

George Besh stared after the young waitress and tapped the ashes from his cigarette onto the floor. He stretched his pants around his crotch, then his mind returned to the reason for the meeting between him and JQ.

As Tina disappeared behind the plywood partition to hand Cookie the order George leaned closer to JQ and in a guarded, raspy voice asked, "So, are ya buying into this next shipment or

not? It's costing me fifty thousand cash, and I still need twenty thou'. You kin have a fifty-fifty cut if you give me that twenty."

Tina poured coffee on the other side of the thin curtain as George pushed JQ for a decision. She almost dropped the pot when she heard JQ agree, "Okay, I'll get twenty thousand to you this afternoon, but by God you better return me a hunnerd and twenty-five in two weeks or one of my crews'll find a hole to bury you in. That's understood, right?"

"Sure, JQ, sure. Just so long as the creeks don't rise and the Feds keep their booties cool." His voice dropped as he made his last point. "But 'member one thing, if the shipment gets busted you don't get nothing - 'cept nobody tells 'em where the money came from." He leaned back, again tapping his cigarette ashes onto the floor. "That deal work for you?"

While the two conspirators continued to discuss details Tina fled to the kitchen, trying to cleanse her mind of what she had just heard. No doubt it involved a dope shipment. She knew it was not healthy for her to know of whatever the two men discussed.

Cookie dinged the bell and pushed the eggs, toast, and donuts from the kitchen to Tina's side of the serving shelf. He

tilted his head and lowered his voice. "Don't let JQ get under your skin, girl. Just hold your head up." She half-smiled at the old man as she picked up the hot plates and walked to JQ's booth.

As she placed the plate of eggs in front of JQ the earthquake jerked the floor from side to side. The walls creaked. Dust fell from the ceiling. The plate lifted from the table and crashed upside down into JQ's lap.

"Holy shit." JQ jumped from the booth pushing the plate of hot eggs to the floor. The ceiling fans swung. The toothpick holder fell from the counter. The windows rattled. "What the hell's going on?" He looked at the ceiling, at the windows. George held onto the edge of the table and stared.

Tina backed through the swinging doors into the kitchen and clutched at the wall, waiting for her dizziness to end.

The shaking slowed, surged again, and then stopped. Cookie asked, "You all right?"

"I guess so, but what happened?" She held onto his arm in fear.

Cookie had worked many years in San Francisco and recognized the shaking as a temblor. "We just had an earthquake,

honey - a pretty strong earthquake like we had all the time back in Californie." A look of nostalgia swept his face. "Yep, it almost felt like home."

Tina looked at Cookie. She could not understand why he seemed pleased.

Chapter 3: Prediction

Dr. Paul A. Kenton, Ph. D., Associate Professor of Seismic Studies at Memphis University, felt the temblor while eating breakfast, seconds after his beeper alerted him of a seismic alarm at the Seismic Center Laboratory. The duration and strength of the shaking indicated a moderate event and he jumped onto his bicycle to hurry down the path to the cluster of old frame buildings making up the Seismic Center on the south side of campus.

The presence of one of his graduate students surprised Paul when he walked into the Laboratory. Chris handed him a computer

printout with the preliminary analysis of size and location of the morning's event.

"Thanks, Chris." Paul looked over the summary. "Well, it wasn't as large as I guessed after all, so we can put everyone's mind at ease."

Chris explained. "I was here when the alarm sounded and I've been collecting data from the field stations and compiling it with the reports coming from other major seismic stations."

Paul noticed Chris pushing another paper for his attention. "That's fine, Chris. Just let me make this phone call, then we can talk."

Paul dialed the recording system and dictated the generic telephone message, reporting the latest data about the earthquake. "At 9:12 this morning a magnitude 4.4 earthquake occurred at a depth of 11.3 kilometers with an epicenter near Dell, Arkansas. While this temblor is stronger than usual, events like this are a common occurrence on the New Madrid Seismic Zone and there is nothing to worry about."

Finished, Paul turned back to Chris, steeling himself for the onslaught. As he had explained to the Department Head, "While Nelson is a brilliant student, he's excitable and hyperactive to the point of distraction. When I accepted him I

didn't realize what I was letting myself in for. But I do believe he should be allowed to continue this research, even if some of the other faculty thinks it's bogus." The Head was reluctant but agreed.

"Yes, Chris."

"Dr. Kenton, I did a comparison of the waveforms from the Dell temblor with my database and found a match in the mid-range spectrum, just like I thought I would. Do you see the similarity between this event and the 2.6 event further south fourteen days ago?" Chris placed a second summary page from the Little River temblor into Paul's hands and waited, fidgeting.

Paul scanned the two sheets and answered. "No . . . not really." He looked at Chris, his patience wearing thin. "I know you've been checking for trends, but I don't see any relationship. I'm afraid you're letting your desires get in the way of proper scientific methodology."

"But, Dr. Kenton, my computer model shows the relationships between the spectrums. The correlation is three-sigma."

"You know your expectations influence how you designed your model." Paul felt it necessary to expound on the dangers of biased research.

"But the spectral signature two weeks ago showed where . .
. "

"Chris. I don't have time for this right now. If you think your model is showing something, write a paper and submit it to me for approval. Now, I have to get back home to plant my tomatoes."

Paul picked up his satchel and headed out, closing the door behind him, unable to hear Chris blow out his breath and hiss. "Why do I bother. You won't even listen, asshole. My model predicted this Dell event from that temblor two weeks ago. And from the Dell event it predicts another earthquake north at the Missouri border in the next ten days."

Only the walls heard the news. Chris turned and stalked back to the restroom to wash his face. "You want a paper? So, I'll write a paper after this next one. Then you'll listen."

Tom Fox maneuvered the camper through the slower traffic up the grade of Interstate-580 out of California's Livermore Valley. Emerald green hills dotted with white windmills flashed by on each side.

Out of the corner of his eye Tom could see Judy studying some question for a long moment. Then she spoke. "Tom, why are you so sure a big earthquake will happen near Memphis? I thought California was earthquake country, not Tennessee."

Tom leaned back into the seat of the truck. It felt good to be on the road again, and now he had time to explain the temblors they and Jenny had felt.

"Judy, you know I told Jenny about earthquakes around Memphis before she enrolled there. Where there's been one earthquake, expect another. There's one-hundred-fifty miles of the New Madrid Fault northwest of Memphis, and there've been some mighty big earthquakes on it."

"But I haven't heard of any big earthquakes there recently. Maybe the fault quit."

"Have you already forgotten this morning? From what Jenny described, she must have felt a moderate earthquake. It'll make the news. Another shaker like that hit Marked Tree, Arkansas a few years ago. In fact, they record about two hundred and fifty temblors on the New Madrid every year."

Judy sat upright and grabbed the armrest. "Two Hundred and FIFTY. That's more than here in the Bay Area."

Tom shook his head no. "As a matter of fact, the San Francisco Bay Area has twice that many. Most are very small with magnitudes of one or two. People living on top of a fault don't even feel them, but when they happen, seismologists can measure the earthwaves and see where the faults are located and how much they're slipping."

"You didn't bother telling me that five hundred earthquakes happened each year when we moved here from Colorado." Looking outraged, Judy's cheeks turned rosy as her blood pressure rose.

Tom said, "I've read about earthquakes for years and told you lots of things, but you always found something else to think about. You never paid attention."

"Well, you always wanted to lecture and talk over my head." She glared at him. "But now, it's important. I need to know why Jenny's going to have an earthquake."

"Good, listen and I'll explain again." Tom licked a satisfied grin across his lips. "By measuring small earthquakes, scientists can estimate the likelihood of different size earthquakes on a fault. Little earthquakes are the most likely, then mid-sized earthquakes, and the least likely earthquake is . . ." Tom's voice dropped as he said, "the Big One." He looked over and winked.

Judy ignored the attempt at humor and focused on her concern. "So what's the likelihood of Jenny having a big earthquake?"

"Though there've been some recent papers that suggest the chances are lower than previously estimated, I've read that some scientists say there's a thirty percent chance the New Madrid Seismic Zone can expect a magnitude 6.0 to 6.5 earthquake within the next ten years."

"Oh, thank goodness." Judy sighed with relief. "If it's ten years then she has time to move."

With a patronizing smile Tom punctured her optimism. "No, that's not the way it works. When scientists say there's a thirty-percent chance that an earthquake will occur within the ten-year period, they mean it could happen anytime in that ten years: tomorrow, next week, next year. You cannot assume it'll be at the end of the ten years."

"Oh." Cut off from relief, Judy chose alternate logic. "But a 6.0 earthquake isn't that big, is it? I don't think an earthquake that size is enough to hurt Jenny. If that's all the earthquake they'll have I don't need to worry about it."

Tom escalated the issue. "Agreed, a 6.0 magnitude earthquake probably won't hurt Jenny unless she's directly over

the epicenter, but that estimate is for earthquakes of that size. Scientists also say there's a twenty-percent chance of a major earthquake with magnitude greater than 7.6 somewhere on the fault within the next fifty years."

In a plaintive voice Judy asked, "What about the next ten?"

"Well, let's see." Tom did a quick calculation in his head as the road leveled out over the pass. "I suppose you could say there's maybe a four percent chance of it happening in the next ten years. That's one in twenty-five."

Judy manipulated her logic to the conclusion for which she searched. "Good, that's pretty small so I don't have to worry about it." Tom shook his head in amusement, again astounded by Judy's approach to logic.

With the tomato plants all in the ground Paul Kenton draped his lanky body over the wooden deck chair and doodled on the pad of yellow-stickies as he thought about the latest in a series of minor but disturbing confrontations with Chris. He was an excellent student, brilliant but immature. He wanted to be a star when what the world needed were good sound team players, serious workers who would collect the data and grind away on the details.

Paul recalled his graduate days, how he had been a lot like Chris, so sure of being right. It took twelve years of fieldwork and some big screw-ups to convince him he didn't know everything. He was just lucky so few knew about his mistakes.

He chewed on the end of his pencil. I don't know. Maybe I shouldn't be so hard on the boy. After all, his enthusiasm keeps him in the Lab around the clock dealing with the monitoring systems. He's exceptional at installing and maintaining the computers, and I'd trust him with any field installation. He just seems more like a computer whiz than a seismologist. Maybe he chose the wrong vocation. Maybe he should be in a line of work more willing to tolerate genius.

"Tom, why do they make those probability calculations about the earthquakes?" Judy remained focused on earthquakes. "Isn't there some way scientists can just keep them from happening?"

Tom finished his careful scan of the new levees as he crossed the San Joaquin River bridge on Interstate-205. Then he said, "Nope, afraid not. But the calculations help the government figure out how to plan in their zoning regulations and such. It's like planning for the one-hundred-year flood out here on the river. It helps them figure out how big to build

those levees. By knowing the chances of a big earthquake they can establish building codes that will improve survival rates."

"But you said the other day the floods this last winter were five-hundred-year floods, and that's why so much of the valley flooded."

"That's right. People and government agencies plan for some particular level of disaster, but there's always the danger that something bigger will happen. Society trades off the cost of preparation against the chance of failure."

"So just because it's going to cost more money, you're saying they plan for smaller floods in the hopes bigger ones won't happen?"

"You've got it. Very often people's perceptions of how likely it is for something to happen don't jibe with reality. From what I read that's one of the problems in the Memphis area." Tom slapped the steering wheel to emphasize his point. "Lots of people there just don't think an earthquake will happen anytime soon, so they plan and build as if it never will."

The Laboratory alarm bell rang again. "Yipes, another one." Chris watched as the light on the map for Lepanto, Arkansas at

the southern end of the fault glowed green. "Less than 3.0, but it moved stress somewhere. Let's find out if it made a difference."

Chris worked through the noon hour adding data from Lepanto to his database. "Dum-te-dum-dum. Dum-dum." He beat time on the desktop as his Nelson model worked on the new information. "Hot dog. The convergence is more definite. Let's see, now it's three-point-two sigma for the temblor north of Dell. And the time's come in to eight days. Magnitude's still about 4.5."

The door to the Laboratory banged open. "Hey, Chris, whatcha doing here on such a fine Saturday morning?" He looked up to admire the lithe, young body in tight jeans and baggy rugby shirt.

Jenny Fox walked up to look over his shoulder. "You should be at the soccer game," she opined.

"Too busy chasing earthquakes, like always." He leaned back in his chair, pushing away from the computer screen and stretched, pleased to have an opportunity to talk about his recent success.

"That Dell event was just what I expected, and I collected lots of good data this morning. Then a temblor near Lepanto a few minutes ago fit right into the trend that's developing."

"Trend? Does that mean you're still tweaking that theory of yours?" A look of dismay crossed her face. "I heard Larry Snow talking and laughing again over a beer last night about your theories. He wonders when you're going to give up on that dead horse. Jeez. You were almost run out of seminar when you presented your results last quarter."

"I gave that seminar before I made my latest refinements. Now my model fits the data a lot closer," Chris felt defensive and the joy of seeing Jenny ebb in reaction to her comments. "And I really don't give a damn what Larry Snow thinks. He'll never do anything to make himself famous."

"Is that what you want, to be famous? Is that why you're in seismology?"

"Why not? You know, those turkeys at that seminar were all alike." He leaned forward in the chair and stared hard at Jenny. "They've let their collective fear of failure convince them that it's impossible for someone to make predictions. They've decided it's not professional to even try to predict an earthquake."

Jenny barked back, "Well, sometimes you act so smug about it all, like you know everything, like everyone else is a bunch of idiot teenagers. You're going to fall on your face some day, Chris. Why don't you get a life, anyway?"

"This is my life."

She challenged Chris. "I wouldn't be surprised if you told me you predicted this last earthquake."

Chris paused, started to say yes, then hesitated, "Let's just say I'm getting closer and closer to being able to make a valid prediction."

"Do you take into account the position of the sun and moon and the level of the earth-tides?" Jenny taunted.

"No, dammit. Iben Browning made his 1990 New Madrid prediction based on external causes. He was wrong. But just because his prediction received widespread publicity and some people in the town of New Madrid actually moved away in anticipation of the event doesn't mean a legitimate prediction can't be done." Chris pounded the desk for emphasis. "My theory's not based on remote causes. It considers the geological structure and how stresses move along the fault. It's based on science and solid mathematical modeling."

"So what makes you think your ideas are any better than Browning's?"

Chris's anger overcame his better judgement. He blurted the news. "Because it works. You bet I predicted that last

earthquake and if you remember there was the one before that you witnessed. I was right on. And I know the next one's going to be at the Arkansas-Missouri border. He took a deep breath. "I predict a 4.5 in eight days." Chris felt the heat of his sudden disclosure color his face.

Jenny looked incredulous, stunned that what Chris told her might be true. For a long moment she let the thought sink in. "Chris, if anything happens that's even close to what you just said, you'll be famous. But everyone says you can't predict earthquakes."

"There you go again. You don't have any faith in me. Why don't you just get out of here and leave me alone."

Jenny turned and walked out the door, hiding the tears streaming down her cheeks.

Chris realized what he had said and done. She was the only one who came close to understanding. Why did he attack her? Why? Unable to think of a good answer he turned back to the console and shaking his shoulders, forced his thoughts back to the problems with his computer model, a subject he could understand.

Chapter 4: Tensions Build

JQ sat in his booth at Nasty's, doodling on a napkin with his wet spoon as he made notes on his plans for the day. He took a drink of iced tea. George had said before he left that he'd be by West Memphis for the money about six. JQ had half of it at home, but he needed to call Harry the Shark for the rest. He shook his head in disgust. Damn, he hated dealing with the mob. But at least this would give him a big stake to grease the skids on the deals coming up, and nobody would know he had the cash.

In the background Tina and Cookie laughed over some joke, and the sound brought his mind back to the girl. Tina was such a nice piece of ass he wondered about a different relationship.

With things going this well he needed a wife to move up in Memphis culture. People would admire Tina's good looks and body. He and she would look good together. She was definitely higher class than Loretta.

Tina had stayed in the kitchen with Cookie, avoiding JQ as he sat in his booth. But when the mid-morning lull hit full swing she had to refresh the tables for lunch. "Pardon me, Mr. McCrombie, may I have the salt and pepper shakers for refill?"

"Sure, Tina, here you go." He handed her the shakers, touching her hand with his fingertips and smiling with half-closed eyes. "Say, why don't you just call me JQ and drop the Mr. McCrombie thing."

Her face showed a mechanical smile. "Yes, sir."

JQ ignored the look. "Have you recovered from that jolt this morning? It was a real bumper, wasn't it?"

Tina stared at the man with distrust, then answered. "Yes, it came as quite a surprise. A strong earthquake like that hit Marked Tree when I was a kid, but I was visiting my aunt in Atlanta and didn't feel it. Everyone said it rocked things around pretty well. I didn't know what they felt like."

JQ kept Tina's attention with a new subject, "Say, did you know I'm about to open my new office building down in Memphis? I've renovated the old Walker Hotel on the riverfront." He beamed with pride and explained. "The city fathers didn't much like my renaming it, but when I bought the place a few years ago, it was an eyesore and naming rights came along with it. It's now the McCrombie Building."

"That sounds nice, Mr. McCrombie. I guess I did hear Cookie talking about your new building."

"Yes, it's quite a beauty. You can look right out across Mud Island and see the river, and the sunsets are really pretty. And it's JQ, remember?" He winked and asked, "Could I get some more iced tea? I'd really appreciate it."

Tina took his glass. Their fingers touched again and she felt a chill run up her spine. "Sure . . . , JQ, . . . I'll be right back."

When she returned with the refilled glass, JQ persisted. "Look, I'm scheduled to be in Memphis on Tuesday to check how things are going with the renovation. I know it's your day off, so why don't you come down and see my building? I'll buy you lunch."

Tina's stomach tightened when JQ made the invitation.

A smooth smile spread across his face. "There's this really great place on Beale Street to get some gumbo and crawdads if you like cajun." His tongue slipped across his lips. "I really want to see more of you. It's time we got to know each other better." His reptilian eyes stared at Tina.

Tina's fear that JQ would take a direct interest in her had become reality. She did not want to be alone with the man. She did not trust him, and in an empty building with no one else around she would have no hope. But JQ was her boss and her job could be on the line. She lied. "Gee, I don't know. I already have something planned for Tuesday."

He again licked his smiling lips. "Then you'll just have to change your plans, don't you think?"

"Oh, I'd have to check before I did that." She grasped at the hope that Alex could help her think of a good excuse that wouldn't get her in trouble with JQ. "I take a break in a bit and maybe I could let you know after I get back. Is that okay?"

"That's just fine, Tina. You take time to get used to the idea, but I'm sure we need to get together and learn more about each other. You know what I mean." The silkiness of his voice did little to hide the implication behind his words.

Dismissing her, JQ turned his attention back to the papers before him. "I have to make some phone calls and take care of some business in Hayti before I head back to Memphis. Check on your plans and let me know what you've decided when I come back." He picked up his glass of tea and headed for his private office.

Tina stared at his back and shuddered.

"Da, Da, Da. Dum-de-dum." Chris beat the desktop in time with the silent music in his head as the Laboratory's computer workstation pushed the analysis as hard as it could go. He had continued working on the Nelson Model throughout the morning, refining his estimation algorithm, waiting for the workstation to re-compute, plotting the partial results, and checking on convergence.

When not doing music he talked to the monitor. "Oh, Master Computer, why can't you tell me what's with those two asperities northeast of Dell? Are they bends in the fracture path? Are they cross-faults? Are they a change in material?"

His model kept pointing to one or the other locations as the most probable places for the next earthquake to happen. It would not choose. The most probable choice was beneath the old

town of New Simon by a narrow margin over the asperity two and a half kilometers southwest.

"Dum-de-dum. Come on, Nelson, I know there's some fine structure in the fault affecting the results. What is it? Is it their close proximity?" He scratched his head. "Does it really make a difference anyway?"

Alex pushed open the screen door at Nasty's with a flourish, strode into the cool room, and straddled a stool at the counter. "How about a big cold root beer for the newest qualified sky-diver in the Missouri bootheel?"

Reaching over the counter he grabbed Tina's hand and boasted with a wide grin on his face, "I survived the fall to earth without being killed and am now a fully qualified parachutist."

The look on Tina's face was not what he expected. She seemed tense and distant. "Do you really want a root beer, or are you just blowing hot air?" she asked.

Dropping her hand he said, "Sure, I'll take a root beer. It's too early for a real beer. And look, I survived. Now what

do you think?" He grinned at Tina, putting his thumbs under his armpits to hold out his shirt, trying to flirt and be funny.

After another meager response he asked as she went to the soft drink dispenser, "So, what's with the long face?"

"Oh, Alex." She sighed. "Things are just getting to me." Tina set the frosty glass of root beer in front of him and leaned on the counter. "First I got all worried about you jumping out of that silly airplane. Then that earthquake shook us all up. And if that wasn't enough, JQ McCrombie hit on me trying to make a date. I don't know what to do." Teardrops appeared at the corners of her eyes and she sniffled.

Alex covered her hand. "Well now you see you didn't need to worry about me. And yeah, they told me about an earthquake when I got to the field, but I was driving and didn't even feel it." His squeeze was gentle. "You'll have to tell me about this thing with JQ. But hey, nothing's worth crying about. If you have a break coming up we could go for a ride and talk about it." He smiled and tugged on her wrist.

Tina wrapped her other hand over his and stood erect, grinning with spontaneous optimism in spite of her frustration. Alex had a way of making her feel better. "Sure, I'll get my

purse." Pulling off her apron with a flick of her wrist she called. "Cookie, I'm taking my break now. Be back by eleven."

"Okay, Miss Tina. You just take care of yourself and watch out for that young jasper you're with. He looks a little too fresh to me." Cookie smiled at Tina and winked at Alex.

Alex drove east along Stateline Road towards the Mississippi River levee between fields of sprouting soybeans. After pointing out the small airstrip from which the airplane flew for the parachute jumps, he turned off onto a gravel farm road to find a shady spot at the base of the levee three miles beyond. Stopping his car and shifting sideways in the seat, he asked, "What's really bothering you, Tina? You can tell me." He reached over to massage her shoulder.

"Alex, my biggest problem is JQ. He invited me to lunch on Tuesday and says he'll show me his new building. I don't trust him at all, going into an empty building with him and the like. My feelings are all bad about this." She leaned her head on Alex's hand. "I know he'll try to take advantage of me. Alex, he could even try to rape me." Tina's voice mirrored the tension in her face. "But he's my boss, and I'm afraid he'll get even if I don't go with him. I really can't afford to lose this job." Again tears filled Tina's eyes.

Alex rubbed her shoulder and neck. "Oh, come on, Tina, he wouldn't try something like that. You're letting your suspicions get the best of you." Alex rationalized to justify JQ to Tina. "I know he has a bad reputation, but he can't be that bad. He's a respected member of the business community in West Memphis." Yet, despite his attempts to reassure Tina, Alex had a niggling suspicion she could be right.

Tina looked up and pleaded. "Alex, can I tell him that you and I are going together, that I have a date with you so I can't go with him?"

Unprepared for such an emotional request, Alex hesitated. "I don't know, Tina. After all, we haven't even had a date unless you go to the movies with me tonight." Alex felt pressured. "You have to remember, JQ's my boss, too. Don't you think telling him a lie like that could create problems for both of us?"

Tina lost it. "Look, it's just to get me out of this Tuesday date with him. If you let me do that, I'll really be beholden to you." She squeezed his hands in hers and peered into his brown eyes. "Please, for me?"

"Well." Alex hesitated, then her passionate plea overcame his reluctance and better judgement. "I suppose so, but couldn't you just tell him no?"

Alex felt the tension flow from Tina as a soft smile filled her face. "Thank you, Alex, you're so wonderful." He wondered why he now felt so tense.

Alex and Tina returned from their drive to the river and parked in front of the café just as JQ walked out the front door. He stiffened, and marching to Alex's car he clutched the window-ledge and growled past Alex's face at Tina, "Still flirting with this little butt-head, huh?"

Alex drew back. "Hey, JQ, knock it off."

JQ looked down and sneered. "I'm not talking to you, asshole." Looking back at the girl he asked, "Well, Tina, have you checked your schedule? Are you coming down Tuesday to have a good time with me in Memphis?"

Tina leaned against Alex's shoulder and looked up at JQ. "Mr. McCrombie, Alex and I are going together. We already have something else planned for that day, so I just won't be able to meet you." Tina looked for Alex to give his affirmation.

JQ shifted his gaze back to Alex, directing his wrath at the young man. "I know you, Mr. Smyth. You work in my West Memphis office, don't you?" Alex felt a sudden wave of apprehension. "What do you mean butting in where you're not wanted?"

"Now wait a minute, JQ. Tina and I have a date. You're the one who's butting in."

JQ pressed closer to Alex, almost nose to nose, "Tuesday is Tina's day off, not yours. You work for me, but if you take time off for nooners your ass is fired. Pronto. Do you get the message?"

Alex winced. He wanted to help Tina, but at the expense of his own job? "Yes, sir, Mr. McCrombie, I understand. I won't take any time off."

Tina sucked in her breath and looked with dismay at Alex. Alex realized he had forgotten his promise to help her stand up to JQ. Instead of support he had caved in.

"Just you remember."

"I said I won't take time off. Isn't that enough?"

"Stop it." Tina screeched. "Just stop it." Wrenching the handle, she stumbled from the car and slammed the door behind her.

JQ straightened and glared across the car as Tina rushed toward the restaurant. "Well Tina, your baby-butt boyfriend just dried up. Are you gonna meet me to see my new building, or are you still starry-eyed about this sniveling puppy?" JQ's deep-throated chuckle added insult to injury, and Alex gritted his teeth from the abuse.

"Sure, JQ, I'll meet with you in Memphis," Tina shrieked with anger over her shoulder. "I can't expect anything from Alex, not when he's so spineless." She ran into the restaurant. Neither man could see the tears welling in her eyes. Alex blushed when he realized what Tina had said, what she must have thought of his behavior.

Alex looked up and gritted his teeth. "JQ, Tina has the right to choose who she wants to spend time with. If she wants to be with you, that's fine. But if you pressure her or try to force her in any way . . ." He could see JQ's eyes narrowing. ". . . I'll do more than take next Tuesday off. I'll shove my job up your ass and make you pay for it."

JQ squeezed the window-ledge harder and leaned close to Alex, his jaw set. "Mr. Smyth, don't you ever. Ever. Threaten me again. Now head out, and by God, be sure you don't take any time off on Tuesday. I plan to check on it. And I'll give you a prediction: as soon as you get out of line in any way, you're fired on the spot. From now on, that girl's my territory, not yours, d'ya hear?" JQ stepped back from the car.

Alex started the engine and backed out. He spun the tires heading toward the Interstate. His eyes grew cloudy. He felt like shit.