# THE SWENSON CODE

## A Land Surface Modeling Thriller

**by R. Koster**

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"She's disappeared! And she's taken her equations with her!"

The words tumbled over each other as they raced out of the small man's mouth. His hands clasped and unclasped each other with such force that I worried about him breaking a finger. The wild gray hair that outlined his bald head bounced over the rims of his heavy black glasses with each facial tic. A thick bead of sweat had formed on his brow, and now it was dripping down the side of his face. The drip in itself was telling. It was November, and my office was far too cold for people to be sweating. Obviously, the poor fellow's mind was running hot.

I crossed my arms and leaned back in my own chair, behind my desk. "Suppose you start at the beginning, Professor Chamberlain," I said, in a quiet and commanding tone. "When you're ready," I added, several seconds later.

He wiped his brow with the palm of his hand and looked down at the dampness in nervous confusion. A full minute passed before he looked up and spoke. His speech was now slow and deliberate. "I need your help, Mr. Wells. I need you to find someone." He stopped to close his eyes and take some more deep breaths. The last bits of tension were lifting from his face. The fit, if that's what it was, was passing.

"I might be able to help you," I said, encouragingly. "Who are we talking about?"

Another big breath. "Connie Swenson," he croaked. He took a few quick looks around my office, eyeing it as though he hadn't noticed it when he first came in – and I'm sure he hadn't. He looked at the old gray file cabinets, the battered spider plant, and the wall calendar from the deli down the street, the one featuring, each month, a woman in a bikini holding a sandwich from somewhere around the world. This month, November, the sandwich was a pfaffenglueck from Germany. Next month it would be a panini from Italy. I was looking forward to next month.

The professor wiped his sweaty hands on a pants leg and looked back up at me. With relief, I found that he was now ready to talk. "Please excuse me," he said. "I'm a little out of breath. It's Connie Swenson. She's vanished! I need you to find her."

I nodded. "Go on," I said.

"She came to us from Stanford, last year." Another breath. "She had written a brilliant dissertation on the impacts of vegetation canopy structure on effective large-scale transpiration conductance. Our group was impressed, and we offered her an assistant professorship upon her graduation. We also offered a healthy amount of start-up money. She accepted. She was glad not to have to follow the usual post-doc route."

I nodded again. Yes, now we were getting somewhere. I rolled my chair back a little and stretched out my legs, and my feet found the small wooden box I keep under the desk as a footrest. "So she joined your group?" I asked.

"Yes, she did. And she lived up to expectations. She was working on a new approach to land surface modeling for large-scale atmospheric models. Her goal was to…" He stopped suddenly and looked at me. He frowned a little. Somehow, the frown, set in that little face of his, seemed squeaky.

"Yes?" I said.

"You probably think I'm talking in riddles," he said. "All this talk about transpiration conductance and atmospheric models." He paused and considered. "Unfortunately, if you're going to take this case, you'll have to know what I'm talking about. Maybe coming here was a mistake." His mouth twitched. He bit his lip.

"Try me," I said encouragingly.

He sighed. "Okay. Are you familiar with general circulation models, or GCMs – the computer models that scientists use to predict weather and global warming?"

"Yes," I said.

He seemed unconvinced, but he pressed on. "The land surface component of a GCM has to do a number of things. For example, it has to maintain an energy balance – the energy that comes in must go out. More specifically, the model has to decide how to partition the radiative energy incident on the land surface into energy terms such as latent heat, sensible heat, and ground heating. Let me explain. You can think of sensible heat as the transfer of warmth – a warm surface heats up the air just above it. Latent heat refers to the energy needed to change water from the liquid phase to the gaseous phase."

I tried to look attentive, as though I were a willing student, but it wasn't easy. Evening was settling in, and though I needed the work badly and was happy to talk to a potential client, I didn't want to spend the whole night in a lecture with the professor. I needed to hurry things along. "Or from the solid phase to the gaseous phase, during sublimation," I offered.

That one startled him. "Um, yes, that's right."

"And," I went on, "if you do have snow, you'll need some energy to melt it, and you didn't mention the upwelling longwave radiation. That's always there, and it isn't a forcing – the land model will have to compute that, based on the updated prognostic surface or skin temperature."

He stared at me dumbly, his mouth slightly open. I watched him, amused. Confusion was pushing aside the last traces of his anxiousness. "Yes, yes, quite right. But you're a detective! How do you know so much about…?"

I let it slide. "So Dr. Swenson was devising a new kind of land surface model?"

"Um, uh, yes. She was." He shifted awkwardly in his chair. "Yes. It was a powerful model, absolutely without parallel in the field. Unfortunately, she was rather secretive about what went into it. She just kept working on it, revising her equations, generating new code, and running simulation after simulation on her PC." He paused, suddenly lost in thought.

"And you say the model was good?" I prompted. "How do you know that, if she was so secretive?"

"From the RMSEs," he said. "That's a measure of model performance. It stands for …"

"Root mean square error," I said. "So then, how did you know about the RMSEs?"

I was flustering him. I could tell. And I was loving it. "She showed them to us at a group meeting," he said slowly. "She showed us several diurnal cycles of the energy balance terms, simulations versus observations. The agreement was striking – absolutely amazing. Every term, at every time step throughout several diurnal cycles, matched the observations well within observational error. She showed results for many, many test sites, covering a wide variety of climates and vegetation structures, and the model, time after time, performed perfectly. Unfortunately, she wouldn't describe to us the structure of her model – not then. We had to wait, she said, until she wrote it up. She promised us it would be soon."

"A bit of a tease," I said.

"Yes, she was. We all thought so. Anyway, the next day, she didn't show up for work. We thought she was sick. When she didn't show up the day after that and missed teaching her class, we tried calling her at home. Her phone was disconnected! You can imagine our surprise. We opened her office and found that it had been cleared out. She was gone without a trace. No forwarding address, and no word to any of us. And no clue whatsoever about what went into her model. The model…" His right hand suddenly grabbed his left and squeezed. He looked at me imploringly as he began to fidget again. "Do you have any idea," he said, his voice bleeding with tension, "just how valuable a model like that is? How utterly priceless?" His eyes started to cloud up, and his breathing quickened.

"I do," I said. "Now calm down. Deep breaths!" He closed his eyes. I let him inhale three times before I asked the obvious. "Professor Chamberlain," I said, leaning forward so that my elbows were on the desk. "Did you ever consider that Dr. Swenson might be a fraud? That her results might be phony? It's easy to fake data. What's difficult – even

impossible – is maintaining the deception, since all results in science must be reproducible. At some point, the deception will catch up to the deceiver, and the deceiver must run. Perhaps Dr. Swanson is on the run."

The professor shook his head. "No," he said. "The model is real. I can guarantee it. I used it myself on some data that she didn't even know about, and the results were every bit as good as the ones she showed."

It was my turn to be surprised. "What?" I said, frowning. "But if you have the model…"

"I don't have the code," he interrupted. "I have the executable."

He looked at me and waited. He was testing me, to see if I made the connection. I did. "The executable," I said. "She wrote the code in some common computer language that could be understood by anyone, and then she compiled it into a language that only the computer can understand. It's the compiled version that she gave to you. You don't have the original."

The professor nodded. He was impressed.

"And so now you're stuck with a black box and a hell of an inverse problem," I added.

The professor took off his glasses and wiped them on his shirtsleeve before putting them back on to stare at me some more. "Mr. Wells, who are you?" he asked. "How do you know so much about all this?"

"I make it my business to know," I said.

"But…"

"And I'll make it my business to solve your problem. Because yes, I'll take the case."

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I ate well that night: sirloin steak, mashed potatoes with garlic and onions, asparagus tips in butter sauce, and a large mug of draft beer, all at Bernie's Tavern, about three blocks from my apartment downtown. I hadn't had a client for weeks, and lately I'd been filling out my meals with cheap noodles. Now, though, I had a promising case and a pocketful of expense money. I was ready for a real meal.

I had no one but myself to blame for my recent lack of work. I'm the only detective around that specializes in Earth science crime, and if I wanted, I could be working nonstop, with clients to spare. Unfortunately, though, I won't touch the lion's share of the cases that come my way. Most of my potential clients want me to do something loathsome: they want me to identify the reviewer that trashed their paper or proposal. I refuse to do that kind of work. Nine times out of ten, when you get a bad review, you deserve it.

The good cases are few and far between, and I was glad that one finally showed up. I took a last bite of steak and scraped up the last of the potatoes. Then I stood up, grabbed the large, thick volume that sat on the bench beside me, and hoofed it over to the far side of the room, to the bar. I sat on my usual stool and opened the book.

Alf was there as usual, tending bar. "Beer, Mike?"

"Yeah."

He didn't have to ask me what kind. He knew. He drew it and brought it over. "Haven't seen you for a month," he said. "Got a case?"

I glanced down at the volume and grinned. "Pretty obvious, huh?"

"I recognize the signs," he said, good-naturedly. "What's it this time? Data tampering? Sensor fraud? You aren't facing the proposal rush yet, are you?"

No one understood my business like Alf. I appreciated his questions, and I had no worries about his discretion. "No, nothing like that," I said. "I've got a missing person on my hands." I slid a couple of photographs out from the inside cover of the book and passed them to him. They each showed a full-length picture of Connie Swenson – one in which she sat at a computer, turned halfway around in her chair, and one in which she was standing with several of her fellow professors at a Christmas party, holding a glass of eggnog. She had long, flowing hair, a dazzling smile, and a figure that could divert regional air traffic. "This is her," I said, pointing. "The blonde."

"My god!" said Alf, staring at the photos. "She's gorgeous!"

I had to agree. I had, in fact, spent some time staring at those photos myself, and not for wholly professional reasons. "Yes," I said. "She's that. And she has a parameterization that could knock your socks off!"

Alf said nothing for a while. He just whistled low. He finally looked up from the photos and pointed at my book. "And that?"

"That's her thesis," I said. "Got it from my client. I gotta read it tonight and understand it."

He nodded in understanding. "You read!" he said. "I'll keep bringing the beers!"

…

My plan had two phases. Phase 1 involved tracking down Connie Swenson. Phase 2 involved flushing out whoever had scared her into hiding. For that's what I assumed had happened. Someone had got wind of Connie's land model and wanted it badly. Connie, in fear for her life, made herself scarce. Of course, I could be wrong; there could be some other explanation for her disappearance. I didn't think so, though. I have an instinct for this kind of thing – for how the average scientist thinks and behaves. I long ago learned to trust it.

Maybe 'phase' is the wrong word, since I'd be working on both phases at the same time. I'll have to check the dictionary. Anyway, reading the thesis was part of executing Phase 1. The text was long and complex, and I still hadn't finished it when the bar closed at 2:00AM. I walked home through the dimly lit and lonely streets to my apartment and forced myself to stay awake and read. I finally reached the last page at about four in the morning. By then, my head was swimming in a sea of equations, parameters, and approximations. I certainly hadn't caught every nuance of the work. Far from it! I had gleaned enough, though, to see that Professor Chamberlain was right on the money about the missing woman – she was utterly brilliant. She was indeed capable of creating a land model that others would find irresistible, to the point of stepping beyond the bounds of the ethical and civic law.

I fell into bed and dropped off to sleep instantly, still thinking about the thesis. In my dream that night, Connie was lecturing to a huge hall of scientists, each one wearing a lab coat. I was on the stage with her. I was wearing a lab coat, too. I got to erase her chalkboards. That was my job. It was all I was qualified to do.

I slept until ten, when some knucklehead driver on the street below tried to see how many times he could honk before his horn wore out. "I've got to move to the country," I mumbled to myself. I opened my eyes and then covered them against the bright sunshine streaming through the window. With a grunt, I crawled out of bed, fumbled to the

kitchen, and put on the coffee. Then I found my laptop computer. I had some writing to do.

I pecked away at the keyboard for most of the day, referring now and then to the thesis. At four o'clock, I looked at what I had written. It was good. It would work. Now, it was time to call in a favor. I picked up the phone, looked up a number and punched it in.

"American Geophysical Union," came a woman's voice.

"Can you patch me through to Tom Waring?" I asked her.

"Please hold," she said. I waited for Tom's voice to come on the line. I hated to do this to old Tom; he was sometimes a reasonable guy. More often, though, he was overly bureaucratic, overly caught up with details that had nothing to do with the true advancement of science. His kind was one of the reasons I bailed out of the research arena in the first place. Also, he owed me a few favors, and he would never come through with one if I didn't press him for it.

"Hello?"

"Tom! It's Mike Wells."

"Mike! Wow! Where've you been lately? And how's business?"

"Business? Very slow, until yesterday," I said. "Now I'm working on something big, and I need your help. I need you to insert an article into the very next issue of Eos."

I expected a loud, surprised, and indignant response, and I got it. "WHAT?!" he cried. "Are you NUTS?" Eos is the weekly newsletter of the AGU, and Tom is one of the editors. He takes his job very seriously.

"It'll be a high quality article," I said placatingly. "You'll see. If you think it's inferior and refuse it for that reason, I'll understand."

"Mike, for crying out loud! That's not the point! You know how it is! These things have to go through process! Peer review, editorial meetings..."

"Yeah, yeah. Look, Tom," I said quietly, "do I have to remind you how I saved your ass last spring on that plagiarism deal? How I kept you from publishing – or rather republishing – that article on climate transition? If it weren't for me, you'd be editing grocery lists right now!"

Tom's voice softened. "Yes, I know that, Mike, and I do appreciate it. Really I do! But…"

It was time to play hardball. "Look," I said. "I'm not asking for much. Very little, in fact. I'm just asking you to be a little flexible." I added a menacing edge, slight but distinct, to my voice. "And I'll tell you this about that plagiarism story. I know some editors at BAMS who would love to hear all about it. They'd find it *most* amusing. You know what I mean?" My words hit hard, and I knew it. BAMS is the Bulletin of the American Meteorological Society, a publication sort of like EOS, only monthly. Tom would not want me talking to those guys about his near-fatal mistake. "All I'm asking for is a little favor," I continued, the edge gone and my voice now smooth as silk. "Just take a look at my article and see what you think."

"But the other editors will never…"

"You can stick it in at the last minute. They won't know who did it. Besides, most of the others owe me favors, too."

I waited through a long pause. Finally, I heard Tom sigh. "Okay, send it over," he said. "I can't promise anything, though."

I clicked a button on my laptop. "I just sent it," I said.

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Phase 1 was off to a good start. I wasn't worried too much about it. Phase 2, though, would be trickier – and dangerous.

I spent most of the next day in a small office at the university, down the hall from Professor Chamberlain. The secretary, at my request, changed the nameplate on the door from "Visiting Scientist" to "Karl Edwards" – my alias during the investigation. I was supposed to be an expatriate American specializing in land surface modeling at an obscure university in Belgium. Our story was that I had met Professor Chamberlain at a European conference and that he invited me to spend several months with him in his department. I had gratefully accepted.

People came by all day to welcome me. I took advantage of this. I engaged them in conversation, slyly steering the conversation to Connie Swenson. "I read a copy of her thesis in Belgium," I would say. "And I know she worked here. What's going on?" All of them – secretaries, janitors, financial analysts, students, and professors alike – were quick to relate their experiences with Connie and their own ideas about what had happened to her. Their ideas, I knew, had been evolving for weeks now. Connie was undoubtedly the chief topic of conversation around here. People were especially glad to have someone new and fresh available – me – to listen to their ideas.

I learned a lot about Connie this way. I learned what panels she sat on, how many students she had, when she came to work and when she left for home, what kind of car she drove, what she ate for lunch, and even her favorite kind of doughnut: chocolate sprinkle. I learned that she preferred to code in Fortran 90 and that she had borrowed three books on vegetation structure, now overdue, from the campus library. I learned that when she walked down the hall, her feet shuffled in a way that was easy to recognize – you always knew when she was heading for your office before she got there. And, perhaps most important of all, I learned that she was well liked, by everyone but especially by her students, and that she was now sorely missed.

In all my conversations, though, I learned nothing that would help me find her. And that was fine – I didn't expect to.

No, I had another reason for hanging around the department. I was bait.

Professor Chamberlain stopped by to see me late that first day. He looked much less anxious than he did two days before, but still more anxious than almost anyone else I knew. "Okay, it's done," he said.

"Exactly as we discussed?" I asked.

"Yes, yes. For the most part. Can I sit down?"

I motioned to the spare chair. "Who was on the telecon?" I asked.

He sat. His foot began tapping randomly on the floor. I couldn't see the foot, but I could hear it. "Several of the big names in the field were on the line," he said. "We're writing a white paper on… Well, never mind about that. Anyway, once everyone was on, I mentioned offhand that I have a land modeler from Belgium visiting me, one who has got his hands on a copy of Connie Swenson's new land surface code. I didn't try to explain how you managed that."

"Good," I said. "Did anyone respond?"

"Yes, several of them did," the professor said. "A few expressed surprise. Then Ed Cornes from MIT asked for your name, and I told him. Well, of course I told him the name 'Karl Edwards'. Wally Kline from UCLA asked if I was sure that it was the real code, and I told him that yes, I was sure. Pradhur Singh of Princeton asked why he had never heard of you before. I had to finesse that one, and I think I was successful. Anyway, they now know that you have the code, and I also mentioned that you'll be keeping it to yourself – that you won't be distributing it."

"Good," I said again. "And soon the whole community will know. Word will spread, just like it did before."

The professor suddenly looked pained. "Like it did before…" he said, his voice trailing off. His breathing rate increased, and his hand began to twitch. "It was my fault," he said morosely. "My fault that Connie's gone in the first place. If I hadn't e-mailed her powerpoint file around to some of my friends, they wouldn't have seen those model results and sent them around even further…"

I shook my head. "What's done is done. Let's focus now on getting her back."

…

I had to wait three days for something to happen. I spent most of that time on the phone in my temporary university office, trying all the traditional ways of locating a missing person: checking with the police, speaking with relatives and friends, speaking with her bank, landlord, and utilities, and so on. I found nothing that way. No surprise there – Professor Chamberlain, with the help of the police, had already exhausted those approaches, long before he called me.

On the third day – actually near midnight on the third night, Monday night – I found myself chatting with some graduate students in the break room. The late night students are always the ones most tuned in to the seamy side of the sciences, since they're the ones who do most of the labor supporting it. I didn't want to miss a chance to talk with them, especially at this hour, when the upper tiers of the academic establishment had long since gone home.

I talked that night, not all at the same time, to two of Connie Swenson's students and to seven other students. Connie's students had no idea where she was and knew nothing at all about her land model code. "We knew she was working on something big," one of them said, "but she was very secretive about it!" "Perhaps", I thought to myself, "she was just trying to protect you." The students gave me a broad picture of the dog-eat-dog world of present-day earth system science, of the infighting that permeated university departments and government laboratories alike. Researchers were constantly scrambling for limited funds – there simply wasn't enough money to go around. My stomach reeled as I sat and listened. I remembered my own days as a scientist, struggling valiantly, and sometimes in vain, to convince program managers of the importance of my work. A large part of me was very glad when the last student stood up and said he had to go home. It was 12:30AM. I heard the student leave the building downstairs. The building suddenly seemed huge and utterly deserted.

I walked downstairs to my own – Karl's own – office and sat down, exhausted. I had a lot to think about. Part of me also wanted to lean back and drift off to sleep. I almost didn't catch it – I almost didn't hear the soft sound of the restroom door closing, down the hall.

My mind immediately sprang into focus. I jumped up and made a quick adjustment to the bookcase near the computer. Then I sat down at the keyboard and banged away at it. Normally I type fast, but now I typed slowly and loudly, as if using the 'hunt and peck' method. I wanted to sound as if I were too busy to pay attention to anything. I also wanted some short quiet periods – the time between the taps on the keyboard – to listen intently for sounds outside my open door. I soon heard some. Someone was trying to walk noiselessly down the hall, toward my office.

I smelled him before I saw him. He wore some kind of strong cologne, something he probably considered manly. That, mingled with the smell of unwashed sweat, produced an odor that was a powerful weapon in itself.

Not that he needed a weapon. I was unpleasantly surprised – okay, shocked – when I turned around and saw him. He was a huge, lumbering brute, at least six and a half feet tall and (it seemed to me at first) almost that wide, all muscle. He seemed to have muscles everywhere – even on his scalp, which was large and naturally bald above bushy eyebrows. I guessed that the plaid suitcoat and striped shirt combination was his own idea. Based on his facial expression, I also guessed that I could easily beat him in a game of chess. Hell, I thought to myself, the average 7-year-old could probably beat him in a game of chess. I didn't think, though, that I could work a chess game into our upcoming conversation.

"Yes?" I said. "Can I help you?"

"You Karl Edwards?" he growled.

"Yes. That's right."

He stepped into my office. He didn't actually have to turn sideways to do so, but it was close. He pulled something small – about the size of a small cigarette lighter – out of his pocket and held it out to me. I took it and recognized it immediately. It was a memory stick. "My boss told me to make you put a… a…" He stopped, pulled a sheet of paper out of another pocket, and squinted at it for a while, as if reading were difficult. "A land surface model code onto that stick," he continued. "He said that you'll know which one." He put the paper back into his pocket. Then he glared at me. If I had thought before about asking him to join me later for a beer, that glare changed my mind.

"The code," I said, looking down at the memory stick and still trying to sound in control. "What happens if I don't have it with me?"

The gorilla responded with a smile that made him look even uglier. "In that case," he said menacingly, "I've been told to jam that stick up your nose – all the way!"

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Yes, I was a little scared. Fortunately, though, I knew how to handle him. In my line of work – science crime – I see his type all the time.

I wasn't quite scared enough to tremble, so I forced a tremble into my voice. "I might know what code you're talking about," I said, "but I'm not sure." I wiped my brow, mostly for show, as I turned back to the computer, grabbed the mouse, and slid the cursor around. I found the right icon and double-clicked. This brought to the screen a dummy land model code, one I had written myself just three days earlier. The font size of the editor window was set to its smallest value; as a result, the words in the window were just barely legible.

He was hovering over me now. The smell seemed to attack me from all sides. I forced back a gag and said, "Okay. This might be it. Is this what you're looking for?" I looked straight up at the bottom of his chin. Ugly. I slid out of my chair and stepped to the side so that he could face the screen directly.

He made no effort to study it, though. "I dunno," he said irritably, looking at me rather than at the screen. "How would I know? The boss said *you* would know!"

I shrugged. "It might be right. Should I put it on the stick?"

The brute glared at me. He hadn't counted on uncertainty. He wasn't sure what to do, and he wasn't pleased about it. The large muscles in his face slowly flexed into a frown. He looked down at the memory stick and then at my left nostril. This time, I trembled for real.

I regained my composure. "You have to tell me what you want!" I said simply.

"You scientists are assholes," he muttered angrily. "All of you! Assholes!" He spit on the floor at my feet. I didn't pay any attention. If my plan worked, there would be time later to disinfect my shoes. He pulled out a cell phone and the same piece of paper he had pulled out earlier. He looked at the paper and angrily punched in a number.

"Want me to talk to your boss?" I suggested.

"Shut up!" he snarled. "And stay right there!" Then, into the phone, he said, almost calmly, "Sir? Me. I'm in his office right now. He got something on the screen here that might be what you want, but I don't know." He paused and listened. "Uh-huh." Pause. "Uh-huh."

He turned to me. "This it here?" he said, pointing to the editor window on the screen.

"Yes," I said. "Want me to describe it to him?"

"Shut up!" he snapped again. He looked at the screen. Grimacing, he strained his eyes and looked closer as he spoke into the phone. "Uh… It says, uh.. 'subroutine flux…'"

He was squinting hard now, focusing with difficulty on the tiny print. Apparently tired of crouching over, he slowly sat down in the chair, making sure that he remained between me and the door. He didn't have to worry about me running away, though. Running away would be suicide – I had noticed the bulge of a gun under his coat, and a long, straight empty hallway separated me from the exit stairs. So, when I stepped aside earlier, I had slid into the corner of the room farthest from the door – the corner behind the bookcase that stood to the side of the desk and computer.

The bookcase. That's exactly where I wanted to be. I watched him struggle to read the words on the screen. "How do I know if it's got inline documentation?" he said impatiently into the phone. "I don't even know what the hell that means!" This was my chance. My foot felt around for the loop of twine I had positioned a few minutes earlier near the bottom shelf. Keeping my upper body motionless, since he was eyeing me from time to time, I placed my foot in the loop. I gave it a sharp tug.

The loop was at the end of a much longer piece of twine, one that was connected, via a series of small metal hoops I had arranged two days before, to the single pin that held up the front edge of the top shelf of the bookcase. With the kick of my foot and the pull of the twine, the pin, which was already positioned precariously in its hole, was yanked out. This caused the front of the bookshelf to drop. The bound journals that filled the shelf slid forward and tumbled down en masse.

The gorilla, of course, heard the sound of the dropping shelf and turned quickly to face it, ready to attack. He could do nothing, though – he was too big to move quickly from the chair, and the journal volumes came down too fast. He batted one away, and then another, but yet another huge one came down behind them and bounced off his head, stunning him. Two others crashed into the terminal and somehow blew out the screen, sending glass shards forward in a flurry of blue sparks.

I had grabbed one of the volumes before it fell too far. Now, holding it with two hands, I brought it down hard on the stunned thug's head. He was no longer stunned. He was out cold.

I looked at the journal volume in my hand. Science. There's irony in there somewhere, I thought to myself.

…

I was in my own office downtown the next morning, collecting my mail, when Jake Kelly called. Jake is a police lieutenant and an occasional good friend of mine. I say 'occasional' because sometimes, when our paths cross on a case, I get in his way. Probably what annoys him the most is that I get do things my own way, according to my own set of rules. Poor Jake has to follow the book.

Today, he did not seem annoyed. "Meet me for lunch at Libby's," he said gruffly. "Noon. You're buying."

"I'll be there," I said. "We'll go Dutch." I hung up.

I spent the rest of the morning at the university, talking to campus security. I learned that they had delivered my gorilla friend to the downtown cops, since they had no idea what to do with him. In fact, the poor security guard who answered my call the previous night had barely known what to do when he got to my office. He had even started to panic a little when we noticed the gorilla stirring. That's when I handed the guard the gorilla's gun, which I had confiscated earlier. The huge thug was soon on his feet, and he was led, cursing, out of the building.

I arrived at Libby's five minutes late. Jake was already at a table. He looked rumpled and tired. This doesn't mean anything, because he always looks rumpled and tired. He waved me over.

"I hear you ran into an acquaintance of mine," I said, sitting down. "Big fellow. Moonlights as a building."

Jake grunted. "How you always seem to find these people is beyond me," he said. "Yeah, we've got him. Can't get much out of him, though."

"He say anything?"

"No, nothing at all. He doesn't even want to talk to a lawyer. He just sits there and seethes."

"Well," I said, "I can tell you one thing. His boss lives in Baltimore. Or, at least, his boss was in Baltimore last night."

Jake looked at me – hard. I grinned and drew a paper out of my shirt pocket. "I found this in the thug's pocket last night, before the security guard showed up. See the phone number? The thug had called it earlier. The area code is for Baltimore. The number itself is for a pay phone in the lobby of a hotel down by the harbor there. I found *that* out this morning. The thug's boss must have been hanging around the phone at the prearranged time. "

"You checked his pockets?" Jake said, disgusted.

"Calm down!" I said. "If you or one of your people were coming over to get him last night, I would have left him alone. But I don't know anything about these campus cops. I couldn't take any chances."

"Bullshit," he said, shaking his head. "Anyway, sounds like you've got a lead. Baltimore, eh?"

"Yeah, Baltimore. And you know what ? It's starting to fit together. One of the professors who sat in on my client's telecon – a fellow named Owen Clexley – works in Baltimore. Not at Hopkins, but at Hemple Tech. I've heard some of the students talk about him. He's a big name in the land modeling field, but he's a bad one, a nasty piece of work."

The waiter came and took our orders. I asked for the grilled chicken sandwich, and Jake ordered the roast beef. We both ordered beer. "How nasty?" he asked, when the waiter had left us alone.

I shrugged. "I don't know. I'm going to go and find out. I'm leaving this afternoon."

Jake sighed. The look he sent me was a mixture of exasperation, disapproval, and concern. "Well, don't be an idiot about it this time," he said. "Do I have to remind you what happened last year, with that gambling ring?"

"No," I said. I remembered it plenty well, for it was quite a case. A group at Stanford was taking bets from around the country as to which proposals in a given call would be funded. Harmless fun, you might think, except that a high level professor was coerced into writing a proposal with conflicting hypotheses, so that the proposal would be canned. In essence, he was forced to take a fall, and some bettors scored big. "I got them, didn't I?" I said.

"Yeah. And you also almost got two slugs in your head," Jake said.

I shrugged again.

"All I'm saying is," he said, "be careful. Don't be your usual idiot self!"

**-5-**

The Hemple Institute of Technology is probably the youngest full-scale research institute in the country. It was started less than 20 years ago by Wallace Hemple, a multi-billionaire with an interest in science and a vision that in a hundred years or so, when people talked casually about high-powered science schools, the words "Hemple Tech" would come to mind as quickly as "MIT" or "Caltech". The fledgling institute had already climbed several rungs of the ladder of prestige. It had hired three Nobel laureates, one in physics and two in chemistry, to lead major research labs. A world-class genetics program, complete with a new building, the most powerful computers and equipment, and another Nobel laureate to lead it, was now in the works.

Though Earth science at Hemple Tech took a back seat to the more 'sexy' sciences, the Department of Earth Science there was still a powerhouse. Wallace himself oversaw the hiring of several leaders in the field, luring them from their home institutions with powerful salaries. Owen Clexley was one of those leaders. He had been at Hemple Tech for about five years now. He was ambitious and influential, and he had already taken over much of Hemple's climate studies program.

All this I knew before my plane even touched down at BWI airport, and, of course, I would be learning much more very soon. Because the plane was late, though, I couldn't start work that evening. Instead I drove my rental car straight to a hotel, found a restaurant that offered crabcakes, and soaked myself in the hotel's hot tub until about ten. I padded barefoot back to my room, channel-surfed to nowhere, and fell asleep.

Parking at Hemple Tech the next morning was impossible, reflecting a universal college law. So, I parked illegally in front of the earth sciences building, knowing that I could always charge a ticket, or even towing, to 'expenses'. I stepped out of the car and looked around. The view was sadly unimpressive. Maybe in a hundred years, the ivy would be in place on the walls, and the stone steps leading up to the front door of the building would be worn down under the tread of millions upon millions of shoes. Right now, though, all of the buildings and all of the stone steps looked new and sterile, and most of the trees were shorter than I was. At least the campus was vibrant enough; there seemed to be plenty of students milling around. I shrugged and started up the steps. The directory in the building's lobby soon led me to Clexley's office.

Suddenly, the view was impressive. "You wish to speak to Professor Clexley?" she asked. Her fingers had just been dancing across a keyboard faster than I would have thought possible. Now they were at rest, for she had turned her chair to face me. She had long, dark hair, a tanned, young, healthy face, fine proportions, and brown eyes that shone brightly below thin eyebrows that arched upward as she talked. She flashed me a smile that seemed utterly genuine. I'm not much of a smiler, but I smiled back.

Somehow, I trusted her immediately. I didn't know her, and I strongly suspected that her boss was a vicious, no-good snake, but I trusted her.

"Yes. Thanks!" I said. "I'm Karl Edwards, and I'm a hydrologist working this year with Phil Chamberlain. I think Professor Clexley has heard of me. Is he in?"

"He's in a meeting, I'm afraid," she said. "Is it urgent?" She looked me over as she talked. She seemed to approve of what she saw. I noticed her glance briefly at my ringless left hand.

"No, I can wait," I said.

She surveyed me again, this time more subtly. A trace of mischief entered her smile, and she said, coyly, "Are you sure you're a scientist? You don't look like any scientist I've ever seen! "

"What do you mean?" I asked.

"Well, for one thing, your clothes don't clash." Her eyes sparkled as she talked.

"It takes all kinds," I said simply. Then, grinning, I added, "I guess you know your scientists!"

"Only too well," she said. "And another thing – it looks like you work out. How can you be a scientist if you find time to work out?"

"Oh, that!" I said, with exaggerated modesty. "Well, I've got a computer terminal attached to my treadmill. That way, my jobs and I can run together."

She liked that answer. "Well," she said, "you're a lot better looking than any of the professors around here. Maybe you could…" The phone rang, interrupting her. She picked it up. "Hello?" Pause. "Oh, yes, Ma'am. Thank you for calling back. Can you hold on for just one second?" She pressed the phone's mute button and turned to face me again. "Do you have a cell phone?" she asked. I nodded. "Good," she said. "Give me the number, and I'll call you when the professor is free." She smiled again, slyly. "And maybe I'll hold on to the number – just in case!"

…

As I suspected, Owen Clexley did want to see me. I got the call at 11:00, while I was studying, out of boredom, the buildings that faced the main quad near the student union. I made it back to Clexley's office in less than five minutes. I gave Rita – that was the secretary's name – a conspiratorial smile as I stepped into the inner office.

Owen Clexley eyed me with interest. "Karl Edwards?" he asked, from his chair. I nodded. "Please have a seat," he said, motioning to a chair across the desk from him. His tone was polite, but he made no effort to stand up and shake my hand.

He was in his mid-fifties, with dark, sharp, penetrating eyes behind wire-rimmed glasses. His beard circled his mouth but did not climb the sides of his face toward his ears; instead, the hairs jutted downward into a sharp perfect point below his chin. His forehead was pronounced below thinning black hair, strangely suggestive of a massive brain. His mouth was a small, straight horizontal line below a thin, pointy nose.

We weren't alone. Two football players – or so I thought when I first saw them – were sitting in chairs against the wall. "Allow me to introduce two of my students," the professor said. "Mr. Robert Ortman, and Mr. Jo-Kim Hong. They wanted to meet you, too." I got up from my chair to shake their hands. Both were huge, all muscle. Neither was as large as the gorilla from two nights before, but the two of them, working together, could do much more damage. They looked sullen, and they shook hands without enthusiasm. I don't think I impressed them very much, and I had a hard time believing they truly wanted to meet me.

Both had powerful grips, and my hand was aching when I sat down again. "Robert and Jo-Kim," I thought to myself. "More like Rocco and Jocko, the thinking man's thugs!"

Owen Clexley interrupted my thoughts with a question, or rather a statement. "I understand from Phil Chamberlain that you have a copy of the Swenson code, the amazing new land surface model," he said flatly.

"Yes," I said. "That's right."

"Is it all it's cracked up to be?" He stared at me intently.

"Absolutely!" I said. I warmed up to the subject, filling my voice with enthusiasm. "Connie's approach is completely counterintuitive when you first look at it, but the more you study it, the more you see its brilliance. It's going to revolutionize the way we do things, I'm sure of it!"

"And just what is her approach?"

I shook my head and said, "Sorry, but when she let me have the code, she swore me to secrecy. I'm afraid you're going to have to wait for her paper to come out. Maybe she'll give you a preprint."

Clexley's thin line of a mouth didn't frown, but I could sense his disgust. "Well," he said icily, "perhaps you've heard that I'm developing my own non-traditional land surface modeling approach. It may be that, when all is said and done, *my* approach will be the most revolutionary, the most powerful. We'll just have to wait and see, won't we."

I nodded, not knowing how else to respond. Anyway, I was making progress – I'd learned that Clexley was an egotistical jerk. Now, it was time to find out if he was responsible for the gorilla. And I had to play it right, or all was lost.

"An amazing thing happened to me the other night," I said. "It was well past midnight, and I was all alone in the building, working on Connie's code, when suddenly I was faced with a huge incoming mass flux. It came out of nowhere and threatened to ruin everything."

I watched him carefully. Not a muscle on his face moved, and yet somehow, something changed. Maybe it was the precise shade of the paleness of his skin, or maybe it was the way the light from the window reflected off his eyes. Whatever it was, suddenly I knew that I had him. He knew what I meant when I said 'huge incoming mass flux'. He knew that I wasn't talking about some land model simulation.

"So, what did you do?" he asked casually.

"I got rid of it!" I said. "Some mass was trying to infiltrate when it wasn't supposed to. I made it run off instead."

Clexley nodded. He curved his straight mouth into a wry, unfriendly smile. "Well, don't get too overconfident," he said. "That kind of problem pops up all the time. Without warning."

I said, "I can handle it."

"Are you sure, now?" He leaned back in his chair and eyed me coldly. "Are you ready for all potential problems? For all the instabilities, for example, that may intrude upon you?"

"Oh, sure," I said with confidence. "Instabilities are easy to avoid. Usually, I just have to focus on interception."

Clexley shook his head. "That can only do so much," he said. "There are some things in the land modeling world that simply can't be avoided. Let me give you another example – one more to the point. Suppose that you're a land surface model, and you have some water in your soil layers. Now suppose I'm the atmosphere, and I want that water. I want it bad. Can you keep me from taking that water?"

We were playing an interesting game. He knew what I was saying, and he knew that I knew what *he* was saying. "I guess," I answered, "I would just increase my canopy resistance. I'd also increase my resistance to bare soil evaporation."

"Do that," Clexley scoffed. "Do that all you want! I'll just increase my downwelling radiation flux and decrease my near surface specific humidity, and before long the vapor pressure gradient will be so large that I'll get my flux. I'll overcome any paltry resistance you might throw in my way. You wouldn't stand a chance. When I control the forcings, you have to answer to them."

"Not," I said, "if I store the water in some deep reservoir that's essentially disconnected from the root zone and surface, with a time scale of transfer of, say, 1000 years."

He laughed derisively. "Fine! Fine! Then you won't have access to the water yourself!"

"If that's the price I have to pay," I said simply, "I'll pay it." To be honest, I only sort of knew what I meant by that last crack. I know it sounded good. Clexley seemed to think so too, since he didn't have an answer.

"Well," he said finally, sitting up straight. His body language was obvious. He was through with me. "I hope you've enjoyed your visit here. Are you planning to stay through the afternoon?"

"Maybe," I said. "I haven't decided yet."

His eyebrows slanted downward slightly but menacingly. "If you do," he said, "Robert will show you some of his modeling work. He's an expert at applying stress terms to resistance functions. He can make things wilt like you wouldn't believe!" I looked over at Rocco. He had been silent throughout the conversation. Now he grunted.

"And Jo-Kim," continued Clexley, "is doing some field work here in the city. He can show you first hand what he's learned about the roughness length of urban surfaces." I glanced over and watched Jocko clench and unclench his fists.

I took the hint. I stood up and stared down at Clexley. "Thanks very much for meeting with me," I said. "And I appreciate the offer of time with your students. I suppose they're both experts on tortuosity, as well?"

Clexley nodded grimly. "Absolutely."

"I don't doubt it," I said. "Have a good day, sir." I felt three pairs of eyes burn with hatred into my back as I left the office.

**-6-**

"You took her out?" Alf asked incredulously, as he handed me my beer.

It was several days later – Monday of Thanksgiving week. I was down at Bernie's Tavern, eating dinner at the bar. Alf let me do that sometimes, when the manager wasn't around. "No," I told him, "it was more like, *she* took *me* out. She called me on my cell phone right after I left Clexley's office. 'How'd you like a private tour around Charm City tonight?' she asked me. I told her that I'd like that, but that I'd have at least one ulterior motive – I'd be asking her all kinds of questions about her boss. 'No problem,' she said. 'My boss is an ass'."

"But Mike!" Alf protested. "That's crazy! It could have been a trap! This Rocco and Jocko you mentioned could have been waiting for you, wherever she took you!"

I shook my head. "No. She wouldn't have done that. She was good-looking, and fun, and she was very, very fast, but of course that's another story…"

I paused, lost for a moment in a pleasant memory. "Yeah, yeah! Go on!" Alf said eagerly.

"Another story, for another time," I continued. "Anyway, she was all those things, but she was no… How can I put it? She was no villain."

"If she went out with you," said a gruff voice from behind me, "then she couldn't be no genius, either." I turned. Jake Kelly, rumpled clothes and all, stood there staring at me, shaking his head. He sidled onto the next stool.

"You're late," I admonished.

"And you're a pain in the butt," he answered. He turned toward Alf. "Can I have a Miller Lite, Alf? Thanks." He turned back to me. "Look," he said. "This better be good. I have a real job, you know. Just today I was slapped with three more homicides. I can't just drop everything and come whenever you call."

"Well, you did come. I guess I must mean something."

Jake said a rather colorful word. "I was on my way home, anyway," he added, "after 14 hours at work. Now what is it you want?"

I took a swig of beer. "All I want," I said, "is to fill you in on what's been happening. The Swenson case is taking me to California tomorrow, and things might get a bit dicey out there."

"Yeah?" Jake said. "Dicey? So you saying you may not come back alive, and you want to tell me what you've learned in case you finally do get that slug in the head?" He grunted. "You not coming back. That would be too much to wish for."

I said nothing. Jake obviously had had a long day at the precinct and was in one of his moods. Finally, he sighed a long deep sigh. "All right," he said. "Tell me what you got."

"Thanks," I said. I described my trip to Hemple Tech and my interview with Clexley. Jake, to his credit, listened with interest. When I finished, however, he seemed unimpressed. "So, you talked to each other in riddles? Is that all? I don't suppose you have any real proof that he sent that thug to your office?" I shrugged and shook my head. "I assume," he continued, "that you found the pay phone that the thug called that night, and that you asked people in that hotel if they recognized Clexley's picture."

"Of course," I said. "I got his picture off the internet. Nobody remembers anything."

"Well, it sounds to me like you don't…"

"Hold on, now!" I said. "I haven't told you yet what I learned from Rita."

"Rita? Who's Rita?"

"That's the hot, fast woman who's after Mike," Alf offered, from behind the bar. He had been listening in while wiping glasses dry for storage.

I frowned at Alf. "She's not after me. We just went out and had a good time. Anyway, listen to this. Rita told me that recently – just a few days after Connie disappeared – Clexley went way out of his way to hire a young woman named Jennifer Taylor as a post-doc. Jennifer was Connie Swenson's best friend back at Stanford. From what I hear, Jennifer is competent enough, but she's no superstar like Connie. Why would Clexley work so hard to get her? He offered her a huge salary, almost twice what is usually paid to a post-doc. Why?"

"Okay, okay. It's obvious," Jake said. "He wanted to use her to get to this Swenson dame."

"Exactly," I said. "When Jennifer arrived at Hemple, she was given an office and a computer account. Then, within days, Clexley sent her off to ECMWF in England, to work on a special project."

"ECW… What?" Jake said.

"ECMWF," I said. "The European Centre for Medium-Range Weather Forecasts."

"ECM…WF", Jake said, looking disgusted. "That's absolutely and without a doubt the ugliest damned acronym I've ever heard in my life."

"Yeah, it's bad," I agreed. "Anyway, that's where Jennifer is now. The way I figure it, Clexley sent her there to make her difficult to reach, except by e-mail. He must be paying someone at Hemple to let him monitor her e-mail account. Clexley probably thinks that Connie will eventually find Jennifer's e-mail address on the department website and send her a message, one that will tell him where she – Connie – is."

Jake nodded. "Maybe," he said. "But that would be a long shot. What if Swenson didn't even know that her friend went to Hemple?"

I grimaced. "Yeah, it was a long shot, though people do learn these things pretty easily. He also might have had some other ideas for using Jennifer to get at Connie. Anyway, I think the e-mail thing paid off. I haven't told you the bad news yet. Rita called me at lunch today. According to her, Clexley was looking unnaturally satisfied this morning. He called Rocco and Jocko into his office, and they met with him for about twenty minutes. She later found out that the two students were leaving town right away and might not be back for several days. The worst thing is, she has no idea where they're going. Clexley won't tell her."

"So, you think he found her?" Jake asked, already knowing the answer.

"That's what it looks like."

"Wait!" Alf said. "You said you're going to California. Is that where they're going? Is she back at Stanford?"

I shook my head. "They're going to Califonia, but not to Stanford. She's in San Luis Obispo."

"And you know this because…" Jake let it hang, waiting for my answer.

"Because," I said, "I had a lucky break. Believe it or not, Connie herself told me where she was, just this afternoon. Only she doesn't know it yet!"

…

I looked out the window of the tiny aircraft. The mountains of central California were a dark, warm green, so they must have seen rain recently. No rain was falling today, though – the sky was crystal blue, empty of clouds. Directly below me was the Pacific, looking pacific, and between the ocean and the mountains ran a strip of shoreline with a ribbon of freeway, bright and glinty and unnatural. I stared wistfully at its tiny cars. I would be on that freeway right now, I thought, if I had more time. I'd have much preferred driving north from L.A. to flying on this puddle jumper, with its cramped seats

and the loud, grating drone of its engines hammering at my brain. Oh, well. No one said this job was easy.

I pulled out the copy of the e-mail Connie me sent the day before:

> *Dear Dr. Edwards,*
>
> *I just read your recent EOS article with interest. I'm glad you included your e-mail address with it, as I feel compelled to offer my two cents. I hope you don't mind. First, let me say that your plans to populate the subcanopy of a birch forest with heat and vapor flux sensors is ambitious and impressive. I must caution you, though, on the placement of these sensors. Due to remarkable spatial regularities in the patterns of fluxes below the canopy (spatial regularities that very few people know about, in fact), your stated plans to use a regular three-dimensional grid may lead to an inaccurate estimation of the areally-averaged fluxes. This is especially problematic with the resolution you propose, which is similar to the wavelength of the spatial flux pattern. I think I can help you, though. If you send me the precise specifications of your site, I could provide you with the optimal sensor placement.*
>
> *As you must have guessed by now, I would love to hear more about your plans. I have some experience in this field, and I think you'd find my ideas useful. I'll send more detailed comments later, with references! Anyway, please feel free to respond to this address. Unfortunately, I won't be able to respond back for a few days. They're planning to revamp our system, and they'll be bringing it down, along with my e-mail connection, any minute now.*
>
> *Yours, -- Blinky Myers.*

Blinky Myers, I knew, was really Connie Swenson. No one but Connie could have spotted the flaw in the experimental plan I described in Eos , a subtle yet critical flaw suggested by the unique findings in her thesis. No matter where she was and how well hidden she wanted to stay, I guessed that she would want to keep her feet wet in her field of study. I guessed that she would be scanning EOS regularly – probably in a library somewhere – and would read my article once she saw it. I also guessed that she would be unable to resist pointing out the flaw, if only to be helpful. Happily, all of my guesses proved correct.

The return e-mail address was blinky@calpoly.slo.edu, meaning that she was somewhere in San Luis Obispo, working or studying at Cal Poly, the local university. That was all I knew, and I hoped it would be enough. If my hunch about Clexley's scheme regarding Jennifer Taylor was correct, it was probably all he knew, too. I had to assume that he sent Rocco and Jocko to Cal Poly to find her, with as little information as I had. We would be racing against each other to find her. Two against one.

We touched down in San Luis Obispo shortly after 1:00PM. From the door of the plane, I stepped onto a portable stairway that led down to the open pavement, warm in the noonday sun. I found my bag in the terminal, rented a car, and drove through the center of the surprisingly crowded town to the Cal Poly campus.

To my amazement, they had a visitor lot that was easy to find and use. I parked the car legally and found my way to the registrar's office.

"I'm looking for a female staff member, or maybe even a student, with the last name of Myers," I said to someone who may have been the registrar, a bored-looking, middle-aged woman with thick, rimless glasses, the ends of which were buried in a mass of frizzy red-gray hair. I pulled my wallet out of my pocket, opened the outside flap, and showed her my private investigator's license.

Her eyes widened when she realized what the license was. She sat up and looked at me with interest. All traces of boredom were gone. "Can I look at that card more carefully?" she said, a little eagerly.

I nodded, pulled the license out of its holder, and handed it to her. She examined it closely under the light, as a renowned entomologist might examine some newly discovered bug. Then, handing back the card, she began to study *me* in detail. I stood there and took it. Perhaps, I thought, she had been watching and admiring detectives on TV for years but had never met one in real life. "Are you really a detective?" she asked, trying not to sound impressed.

"Yes, ma'am. About Ms. Myers? It's important." I found myself speaking like Jack Webb doing Joe Friday. It seemed like the right approach in her case.

It worked. "One second please," she said, eager to help. "I should be able to help you. I have access here to information on just about everybody on campus." She typed something into the computer and stared at the screen. "Do you want file photographs?" she asked brightly, without looking up.

"That would be particularly helpful, ma'am," I said

"Okay. Just a second then." She typed and clicked and typed some more. It was more than just a second – I waited patiently for almost ten minutes. While she typed, she tried to get me to talk about my case. I responded with a businesslike smile and some vague, unhelpful words. Finally, when she was done, she looked back up at me and smiled with excitement. "We have six females on campus named Myers – three students, two staff, and one faculty. Here's the picture of the first one. The rest are queued up behind it." She swung the screen around for me to see.

The first picture showed a squirrelly-looking girl of about eighteen. I strongly suspected that Connie Swenson, when she went into hiding, had changed her appearance drastically, but not this much. I asked the woman to show me the next picture, and then the next. Soon we went through all of them. Connie did not appear.

This did not surprise me. I had halfway guessed that Myers wasn't her standard phony name. She could be living and working on campus under any name, using Myers only

for communications with me. And, of course, "Blinky" was just a name she used in her e-mail address, a name purposefully made vague.

I thanked the woman – tersely, just like Joe Friday. I was turning to leave when an idea struck me – a crazy idea, completely ridiculous, but I couldn't think of any reason for not trying it. I faced her again. "One more thing, ma'am. Would you check to see if there's a Connie Swenson on campus?"

She stared at me in astonishment. "No!"

Her response surprised me. "Excuse me, ma'am?"

"Sorry! I mean, no, there is no Connie Swenson here!"

"What?!" I blurted. I was flummoxed out of character. I gaped at her. "How on earth do you know that?"

"Because," she said, her eyes wider than ever, "I looked up that name just half an hour ago, for her cousin!" Her eyebrows drew together as a worried frown filled her face. A second later, when she spoke again, she was whispering. "He seemed like such a nice gentleman. Was he lying to me? Is he evil?"

"Was it a big guy, and did he have an Asian friend with him, also big?"

"Why, yes!" she whispered. "What is he? Some kind of hit man?"

"He's a Ph.D. candidate. With an attitude!" I grinned at her enigmatically, and, with a nod, I turned and left. More like Joe Mannix than Joe Friday, I guess. I can do 'em all.

## -7-

I started with the Earth and Soil Science department, since it's the closest thing Cal Poly has to Connie's field. That turned out to be a mistake. I wasn't in the building five minutes when I spotted Jocko coming down the hall toward me, from the other direction. He would have seen me, but at that moment he was looking down at a campus map. I slipped unseen into a room I was passing. It was the women's restroom. I was lucky, for no one was in it at the time.

I waited a few minutes and then slipped out of the room and out of the building unseen. It was time for a new approach. Because they didn't know where Connie was any more than I did – their visit to the registrar told me that – they would probably comb the whole campus searching for her. Wisdom and experience told me to stay out of their way, if I could help it.

That's why I decided to take my search off campus, following up on some potentially useful facts I knew about her, things I learned from her colleagues back east. I stopped first at Downtown Doughnuts, a shop just outside of campus. I knew Connie was fond of chocolate sprinkle doughnuts. Yes, it was a long shot, but it was worth a look. Happily, I struck gold. The moment I saw the doughnuts in the display case, I knew I was on to something.

"I'm a toroidasucrologist," I said to the clerk behind the counter, a blond girl of about 18 with a large, flat, bored face.

"A what?" she asked.

"Toroidosucrologist," I repeated. "I study doughnuts. And I have to say, I'm fascinated by the ones you have here."

"You're kidding," she said blankly.

"No, I'm not. I'm amazed, for example, by these chocolate sprinkle doughnuts. They look different from the others – they're less misshapen, and see the frosting on top? It's been carefully swirled into perfect, gentle circles. You get the impression that someone spent a long time making them look nice."

"Yeah, I guess so," she said.

"And someone even spent a long time stacking them into neat, perfect rows," I continued. "Because look over here, at all the other doughnuts. They're piled about haphazardly. And none of them look as perfect as the chocolate sprinkle ones."

The girl's curiosity was piqued, if only slightly. "Yeah, you're right. That's odd."

"These doughnuts may prove a theory I've been developing, one that may make me famous. And rich, if I'm lucky. Can you tell me about them?"

She looked at me as if I were nuts. Apparently against her better judgment, though, she turned around, stuck her head through the door to the kitchen area, and called out, "Hey, Jim! What's up with the chocolate sprinkle doughnuts? You made them this morning, didn't you? Before classes? Why do they look so nice?"

Jim, a thin, pimply student who was making the mistake of trying to grow a beard, came out and looked at the display case. He looked at me. "Who wants to know?" he asked the girl.

The girl told him that I was a doughnut scientist. He didn't look convinced. "So what if they look nice?" he said. "What's the big deal?"

Something in his voice – some nuance, nothing I could pinpoint – struck a nerve. He was on the defensive. But why? I decided to take a chance. I pulled out a photograph of Connie, the one taken at the holiday party. "Her name is Lena Pelschow," I said, holding up the photograph. "Believe it or not, she's the one who invented the chocolate sprinkle doughnut, about 10 years ago. I have reason to believe she's doing background research here in San Luis Obispo. She's undoubtedly undercover, using a phony name."

Jim looked at the picture and gaped. He didn't look very intelligent when he gaped. "Wow!" he said. "Her name is Lena? I thought it was Ellen." He was speaking freely now. As he spoke, he stared at the photo, as if trying to understand something. "Where'd you get this?" he said. "She isn't blond, at least not now, and her hair isn't this long. It's short and brown!"

Things were going well – very, very well. It was time for some reasoned guesses. "She comes here every morning for a chocolate sprinkle doughnut. Am I right?"

Jim nodded slowly and uncertainly.

"And you make sure the doughnuts look particularly good, to keep her coming back. I mean, she is a looker, isn't she?"

Jim just stood there, looking embarrassed. He didn't admit it, but he didn't deny it, either. The girl clerk was laughing into her hands.

"Look," I said. "I don't care about all that. I just need to find her. I have some important new data on sprinkle density ratios that she must see – immediately, before it's too late." My voice sounded appropriately urgent. I hoped that he wasn't thinking too hard about what I was saying.

Jim looked down at his feet. Finally he looked back up again. "I don't know much about her, really," he stammered. "I mean, I don't know her last name, or where she works.

She sometimes carries a totebag that says "Cal Poly Landscape Architecture" on it. That's all I know." He grinned sheepishly. "Sorry I can't help you."

I nodded gratefully. "Thanks," I said. "Actually, you've been a great help." It wasn't a lie, for now I knew a lot: she was using the name Ellen, and she was probably working in Landscape Architecture. That should be enough. I thanked them both and left. I headed back toward campus.

Thrilling to my good fortune and my magnificent sleuthing, I wasn't being careful right then – a mistake I regret to this day. I turned the corner of some building on the way back to the registrar's office and came face-to-face with an unpleasant surprise. "You!" he said. "What the hell are you doing here?!"

Robert "Rocco" Ortman was standing in front of me, his arms folded and his mouth curled into a vicious snarl. I was startled, of course, but I didn't let it show. I shrugged good-naturedly. "They had a seminar this afternoon on genetically altered soybeans, the kind that produce a spongier tofu," I said. "I flew in for it. You too?"

"Why, I oughtta…"

I laughed good-naturedly. "Nice impression! You a Stooge fan?"

Rocco scowled even more fiercely. "Get ready," he said, clenching his fists, "for some transfer of momentum!"

My face went serious. I eyed him coldly. I was ready, and I wasn't too worried. "You can try," I said. "But you may find that I'm more of a challenge than you think."

He grinned ominously. "Big talk." he said. "Fortunately, my buddy Jo-Kim is standing right behind you. That makes it two against one."

"So I'm supposed to turn around?" I scoffed. "I didn't get this far falling for …" I didn't finish the sentence. Something hard slammed into the back of my head. Suddenly, everything went black.

…

A deep, throbbing fog of pain wrenched at the back of my head as I came to. For some seconds, I thought of only one thing – the need to get past the fog, to ignore it long enough to get my bearings, to find out where I was and whether I was in danger. With my eyes still closed, I took some deep breaths. That helped a little. It was all coming back to me now. Memories of my carelessness began to pour in, like salty lemon juice on a fresh wound. I groaned, mentally kicking myself.

I suddenly realized, with a start, that I couldn't move. I also realized that something thick had been crammed into my mouth. I slowly opened my eyes and gazed around. Though

my head was still filled with fog, I could tell now that I was sitting in a chair and that my hands were tied tightly behind me – I could feel thick loops of rope pressing into my wrists. I looked down along the side of the chair. Rope held my waist to the chair's back and my legs to the chair's legs. The thing in my mouth, of course, was a gag. I was glad I didn't have a cold.

I blinked hard a few times. The whole room was coming into focus. I appeared to be in a student chemistry lab. Counters, or lab benches, were spaced evenly across the room, and each held a sink, beakers, bunsen burners, test tube racks, electronic equipment, and all the other trappings of a well-stocked lab. I recognized the smell, too – the unavoidable, unmistakable sulfury smell that permeates every chem lab in the world. The sky beyond the windows to my left was dark. I wondered how long I had been out.

My eyes finally rested on the balance scale sitting on the lab bench directly in front of me. It seemed to have been put there on purpose, for my benefit. That confused me. It was one of those old-fashioned, non-electronic balance scales, with two large dishes on either side of an upward pointing arrow. A small potted plant sat on the dish to the right. It was balanced almost perfectly by a set of metal weights on the dish to the left. I say 'almost' because the arrow was not pointing straight up; it leaned slightly toward the plant.

'That's odd,' I thought. I noticed then that beside the scale, to the left, a small glass beaker was balanced precariously on the edge of the bench, almost half of it lying over empty space. The beaker held about 50 milliliters of a clear fluid. A thin stick was positioned between the base of the beaker and the underside of the leftmost dish of the scale, the dish holding the weights. I looked up. A heat lamp hung over the contraption, radiating its energy downward.

A chill rushed through me when I realized what it was. In an instant, I started working furiously at my bonds, the ones holding my wrists. I must have grunted a little, for I caught the attention of someone behind me.

"Hey! He's awake!" said a voice.

"Finally!" said the other. The second voice was Rocco. The first must have been Jocko. I heard footsteps. Soon they stood before me.

"Like it?" Rocco said, motioning his head at the scale. "We call it the 'lysimeter from Hell'." He grinned evilly. In all my years as a detective, I had never seen a grin quite so evil.

His question, of course, was ridiculous. I didn't like it at all.

"We worked on the idea," Jocko said, " just for fun, after you left our boss's office. We had no idea that we'd ever get to use it, that you'd be dumb enough to walk into our hands!"

"Or that we'd find one of these old non-electronic scales lying around," finished Rocco. "You see how it works, right? This plant is your land surface. This lamp is the sun." He pointed up at the heat lamp. "As the transpiration, and bare soil evaporation, proceeds, the potted plant will lighten, and this dish over here, with the weights, will sink down. That will push on this stick, which will push this beaker off the bench and into this bucket on the floor. When the liquid in the beaker meets the liquid in the bucket, you'll get chlorine gas!"

"It may or may not kill you," Jocko added quickly "No matter what, it *will* make your life exceedingly unpleasant. You'll *wish* you were dead!"

I glared at them. I had nothing to say, and with the gag in my mouth, I couldn't say it anyway.

"You don't have to worry about it, though," Jocko said. "Really. You're free to go whenever you want. All you have to do is give us a little bit of information." He stepped behind me. "Here, let me take off your gag. Don't make any noise, or your headache – I assume you've got a headache – will double. I'll bet you've got a tender spot on the back of your head the size of Utah." He removed the gag. I worked my mouth around, wetting my gums and lips.

"Where is Connie Swenson?" Rocco asked, his arms folded in front of him.

I said nothing.

"You realize, of course," he continued, "that we'll leave you here with the lysimeter while we continue our search. That's why we set it up. How does that strike you?"

I took a breath and calmly answered, "Like an episode of Batman that was just too stupid to air."

Rocco laughed. "Batman always got away," he said. "But you won't. Nobody will be using this lab tonight, and there's nothing you can do! So. One last chance. Where is Connie Swenson?"

I glared at him. My mouth was clamped down tight.

"Have it your way," Rocco said, shrugging. "Gag him up!" I felt the gag push open my clenched mouth. Soon it was tightly in place. "We'll come back in a while, after you've sweated over your situation a bit," Rocco continued. "You may be more willing to talk to us then. That is, if we come back in time!" He reached up and pulled down the heat lamp, so that it was much closer to the plant.

“I’ve written the wattage of the lamp on the chalkboard over there,” Jocko said, “along with the temperature, humidity, and all kinds of other data. Maybe, while you’re sitting there, you can figure out how much time you have left!”

Rocco laughed. The idea amused him. “So long, sucker!” he said. They walked past me. I heard the door behind me close.

All was quiet now. I stared at the scale. Lysimeters – devices that measure evaporation by measuring changes in the weight of a plot of soil over time – were valuable devices, when used for good. When used for evil, though… I shuddered.

It was a land surface modeler’s worst nightmare, come true. All in a day’s work, I thought ruefully.

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The pot holding the plant had a radius of about ten centimeters. I did a quick mental calculation. Given the species and condition of the plant, the ambient conditions as printed on the chalkboard, and the position and wattage of the heat lamp, I estimated that water would evaporate from the pot at a rate of just less than a millimeter per hour. That meant that in an hour, the "land surface" on the right dish of the scale would lose some 25 grams – probably enough for a tiny, yet tremendous, push on the beaker. I didn't have much time.

I had to reduce the flux somehow. But how? I stared wistfully at the Bunsen burner two benches down. If I could just use it to boil down some flasks of water, I could increase the specific humidity in the room and reduce the flux from the plant. I reproved myself immediately. "God, I'm an idiot!" I thought. "If I were able to boil the water, I'd be able to push back the beaker, a far more effective strategy!" I could do neither, of course. I was tied to a chair, and my feet were tied so that I couldn't use them to inch around the room. With renewed vigor, I struggled against my bonds. No luck. They held tight.

For the first time, I craned my neck and looked behind me. I saw nothing but a closed door and a barren wall about a meter and a half away. Well, the wall wasn't completely barren. A periodic table hung high up on the right. Intrinsically interesting, but not useful to me at that moment.

Keep looking, I told myself. There must be a way out of this! I knew, of course, that there didn't have to be a way out of it, but that's no attitude to take when you're in that kind of situation. My eyes scoured the wall. To my amazement, I suddenly saw it, plain as day. It was near the door, right below the light switch – something that gave me instant hope.

Yes! It just might work! I would need something else, though. It could be almost anything, as long as… I looked more carefully on the floor behind me. Again, my heart leapt! A small, dirty brush for cleaning test tubes lay on the floor, not far from the wall. I had missed it before.

My plan crystallized in an instant. I gritted my teeth, for the first part would be especially dangerous. I somehow had to tilt the chair backwards and land with a crash, a crash that wouldn't upset the beaker on the bench. I looked down. The floor seemed solid, probably with a cement base. It was worth the risk.

I lunged backward. The chair tilted back slightly, but not far enough. I lunged again, this time forward and then mightily backward. The chair tipped back farther, slowed down, and then accelerated again as it went over the crest and kept falling. I lunged sideways as it fell so that my left shoulder hit the ground first, muffling the crash.

I peered over at the beaker with some dread. It sat on the bench, gloriously undisturbed. I let myself breathe again.

I was not far from the wall. By working my shoulder against the ground, I moved my body and the chair around so that I faced the middle of the room. Then, at an agonizingly slow rate, my shoulder inched me toward the test tube cleaner. My hands behind me found it. My wrists were tied together, but my fingers were free. I worked the metal in the wire handle until it got hot and broke. Now I had a single, free wire.

My aching shoulder now inched me toward the electrical outlet I had seen below the light switch. I found it with my fingers. I held my breath. This wasn't going to be pleasant. I fumbled with the wire until I could feel it entering one of the holes in the outlet. I pushed it in hard.

I cried out into my gag as the shock ripped through me. It hurt like hell, but it wouldn't kill me, not with the GFCI – the ground fault circuit interrupter – built into the circuit. I'd seen the recessed red button for the GFCI between the two sets of outlet holes when I was scanning the wall. That's what had given me so much hope. The red button popped out, and the circuit was broken. All of the overhead lights in the room went out. To my tremendous relief, the heat lamp went out, too. By good fortune, the lamp was on the disrupted circuit. I was counting on that kind of luck, for I had run out of other options.

I took a deep breath and let it out slowly. I had successfully cut off the main source of energy incident on the plant system. I had even shut off the PAR, the photosynthetically active radiation. I had bought myself some precious time.

…

The shorting of the circuit had another positive effect. I had lain there in the dark for some fifteen minutes, wondering what to do next, when I heard footsteps in the hall behind me. "Maybe it's in here," said a husky voice outside the door. The knob rattled. "Locked," said the voice.

"I've got a key," said another voice, slightly higher pitched.

Within seconds the door opened, bumping into the legs of the chair. A flashlight illuminated the chair and then my body. "Hey!" said the first voice. "That's a… Someone's in here! He's… He's tied up!" They pushed their way in, moving the chair forward. The flashlight beam found my face.

"Just a second," said the second voice. I heard some metallic clicks, and soon I felt the cold back edge of a jackknife blade against my cheek. With a snap, the sharp edge of the blade cut through the gag.

I wetted my mouth and lips quickly. "Thanks!" I said, as soon as I could. "There's a beaker balanced precariously on the bench over there. If it falls, we're in for a chemical disaster!" The flashlight beam shot over me and, after meandering a bit, found the beaker. The fellow without the flashlight stepped over me and gingerly approached it. He cupped the beaker from below and set it far back on the bench. With that taken care

of, the first fellow, the one with the husky voice, went to work on my bonds with his knife.

In less than a minute I could move my arms over my head and stretch out my legs. "You guys are the greatest!" I said gratefully. Before standing up, I reached over, felt around on the wall for the outlet, and pushed in the red button. The pitch-black room suddenly blazed with light.

"The lights'll be back on in my office too," said the first fellow, nodding. "When they went out, I found Ernie here, the custodian, and we started looking for the reason. You must be the reason!"

"I've got to go," I said quickly.

The words stunned them. Ernie looked at me in disbelief. "But…"

"I'll talk to your security guys later. Here's my card." I pulled one out from my wallet and handed it to them. "Listen – do either of you know where the landscape architecture building is?"

"Landscape? That's Building 15," Ernie said, still not comprehending. "Five… no, six buildings over, to the north. But you can't…"

"I gotta go!" I repeated. I thanked them profusely as I ran out the door.

…

Immobility had stiffened my legs, but I managed to sprint out of the building and run fast across campus to Building 15. The campus seemed dark and deserted. According to my watch, it was ten o'clock – ten PM, on the Tuesday of Thanksgiving week. Only the die-hards would be working right now, die-hards like that fellow in the chemistry building whose room was on the same circuit as my own. I thanked my lucky stars for die-hards like him.

It's funny how the mind works. As I ran, I thought about the many close calls I'd had in recent years. I thought, for example, about my recent duel to the death with a corrupt field site technician atop a 40-meter flux tower, high above a birch forest canopy. Another time, late at night, I was ambushed in an alley by a ring of computer system administrators who were running a "protection racket", threatening their users with corrupted data. I once came face-to-face with the psychotic, homicidal software engineer who ran "Labster", an internet piracy operation that allowed scientists to download PDFs of papers willy-nilly, without benefit of a journal subscription. My darkest hour, though, came the previous summer, when I was investigating sabotage on the "tau array" of ocean temperature sensors in the equatorial Pacific. On that case, I found myself abandoned on a floating buoy far out at sea – quite a story in itself, one I can tell only after certain principals in physical oceanography have retired.

My mind went through these incidents, and others, one by one. I started questioning my motivation for being a detective in Earth science, for exposing myself to such danger. Was it worth it? Was I fooling myself? Were my days numbered? Suddenly, though, I thought of Connie, and my doubts disappeared. Without people like me, people like her would be left to deal with the Owen Clexleys of the world alone. The world of science would be an untamed Wild West, with outlaws riding herd on innocent, hardworking theorists, modelers, and experimentalists. Unacceptable.

I know my limitations. I'm not the smartest guy in the world, or the strongest, or the cleverest. I'm good, though, at what I do. And someone has to do it.

Thus, it was with renewed determination that I opened the unlocked door of Building 15 and stepped into the lobby, panting from my run. A memo board stood front and center, and pinned to the board was a sheet of paper listing the building occupants and their room and telephone numbers. I scanned the list quickly and found only one Ellen: Ellen Durwell, Room 214. I raced up the stairs three steps at a time.

I had a hunch she'd be in. She'd probably have to work on her land surface modeling at night, after doing some other kind of work during the day. Also, since she was in hiding, she'd probably keep to herself and not go out much. It was just a hunch, but I was right. Light streamed into the dim upstairs hall from only one open door. I counted the doors. The open room was Room 214.

I thought about how to approach her. The direct approach was probably best. I'd step into her room, close the door behind me, and say, "Ms. Swenson? You're in grave danger!" I'd make her listen. Then, once I convinced her, I'd sneak her off campus, to safety.

Unfortunately, it would not be that simple. I stopped dead in my tracks halfway down the hall when I heard a voice from the open room: a woman's voice, soft and mellifluous, and yet filled with desperation. "But I don't have the code with me!" it pleaded.

I stepped closer without a sound. The woman's voice was followed by a man's voice, low and steady. I recognized it. Rocco.

"Bullshit. Of course you've got the code. And you'll do what we say," he said. "You'll run your model with our parameters and our forcing data. If your outputs match our observations, we'll take your code and leave you alone. However…" He paused.

"However, what?" gasped the woman.

Rocco spoke menacingly. "If the RMSE for latent heat flux exceeds, say, 20 $W/m^2$, you're toast!"

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I stepped silently backward through the hall. I needed to find an empty room, close the door, and call campus security. Once I knew that help was on its way, I'd return to Connie's office to see what I could do.

Of course, the way my luck was going that night, nothing would be that easy. Before I got far, Jocko stuck his head out into the hall and spotted me. "Hey! It's Edwards!" he cried. "He got out!"

There went the element of surprise, my chief advantage. Rocco's voice, from inside the office, was loud and unworried. "Come on in here, Edwards. Right now! I'm sure you don't want Ms. Swenson to be harmed!" I had no choice. I gave up on the phone call idea. It was time for Plan B. I was not looking forward to Plan B. Plan B was risky, and the odds were strong against me.

I returned down the hall and leaned against Connie's doorframe, exuding false confidence. "There's no need to get rough," I said. "No need for anyone to get hurt. As you know, I've got my own copy of the code. In fact, I've got it right here. You can have it."

Yes, believe it or not, that was the first part of my plan. The offer produced the expected results. They gawked at me – all three of them. Rocco and Jocko sneered as they gawked. Connie – for it definitely *was* her, though under very different hair – gawked with a mixture of relief and confusion. I noticed in an instant that her pictures didn't do her justice. She looked great, even gawking. Between her shorts and her sandals were probably the finest pair of legs I'd ever seen. I promised myself to notice her some more later, when I had more time.

Her office was large; apparently three people sat in there during the day, each in a different corner, each with their own desk, bookshelves, and computers. Connie's desk was in the near corner, to the right of the door. The books on her shelves had library markings on them and were all about vegetation structure, microclimate, and turbulence theory. So, either she was continuing her original research, or she was offering the landscape architecture department some radically new ideas. She was sitting in her chair before the computer, and Rocco and Jocko were standing over her. The other two desks were empty.

"How *did* you get out?" Rocco asked.

"When I get angry," I said, "I become the Hulk. You made me angry."

Rocco snorted. He considered me for a while. "Okay, Edwards," he finally said. "I've got a better way to deal with you. Since Ms. Swenson here is being so stubborn, we'll try your copy of the code, and we'll see how it does. If it doesn't perform well – if it doesn't pass our RMSE test – you'll suffer for it. Understand?"

I nodded.

"And Ms. Swenson here will be forced to watch," he added. "That'll make her think again about cooperating, 'cuz it'll be her turn next." He turned to Jocko. "What do you think?"

"Should work," Jocko agreed. "Can't hurt, anyway. I'll get ready." He reached into his pocket and pulled out some brass knuckles. A large set. He put them on his large right hand and flexed the bulging muscles on his large right arm.

"Okay. I'm good with that," I said, not meaning it. I put up a warning hand. "Now don't get jumpy. I'm just going to reach into my pocket for my memory stick. That's where the code is." I slowly and unthreateningly retrieved it. "I'm going to have to install it on your computer," I said to Connie. "Do you have access to a Fortran compiler?"

She nodded quietly, staring at me in amazement. "There's one on the PC," she said uncertainly. I moved toward the chair. She gave me her seat at the computer.

Rocco and Jocko hovered over me. They were watching my every move with suspicion. Connie stepped away, for lack of room. "You'll stay here," Rocco told her, without turning around, "or we brain this guy right now!" She sat down quietly on the edge of the desk. She probably could have saved herself if she had run. But, thank God, she didn't run. She stayed put, for my benefit. The woman had courage.

I found the port and inserted the stick. Rocco and Jocko watched as I copied my fake land surface code – the one I had used to fool the gorilla thug some days earlier – to the desktop. "I'm going to need your parameter set and your forcing data," I said to them. "Give me their formats, and tell me how you want the output, and I'll throw together a quick driver."

"Yeah, yeah. It's all right here," Rocco said, handing me his own memory stick. "Don't transfer anything, though. It's not your data. Just run off the stick." He gave me the name of the parameter file and the forcing file. He told me to produce accumulated latent heat flux at ten-minute intervals for three simulation days. "And don't get any bright ideas about sending out an e-mail for help," he added, as he removed a cable from the back of the computer. "Her internet just went down!"

"Fine," I said carelessly. I removed my stick and inserted his. "Okay," I said. "Just give me 20 minutes to make the driver and debug it."

"You have 15 minutes, Smart Boy," Rocco said. "Starting now."

I shrugged and started coding – coding for my life.

…

Connie was smart, and not just book-smart. She knew I didn't have a copy of her land model, so she knew I was working up some scam. She realized instantly that I needed her to divert attention from what I was doing. So, about 30 seconds into my coding session, when I looked up and our eyes met for the briefest of moments, she anticipated the subtle message in my expression, and she answered in kind. She understood. I turned back to the screen with a secret sigh of relief.

"You're Owen Clexley's students, right?" she asked the goons, moments later. Her voice was pleasant but certain. "No point denying it. Clexley's the one who's been after my code from the beginning."

"That's no concern of yours," said Jocko.

A hint of derision entered Connie's voice. "That guy is something. Has he ever told you about the error he made in his last paper, an error that pretty much invalidates the entire work?"

"Your full of shit!" Rocco said, quickly and hotly. "The professor doesn't make errors."

What a woman! A bulls-eye on the first try! "Oh no?" she said. "I'll show you. I have the paper right over here somewhere." She walked past them to a bookshelf on the other side of the office. I could sense both their heads turning to watch her. I wondered if they did so purely out of concern for their advisor's reputation.

"It's here somewhere," she continued, riffling through a stack of papers. Several seconds went by. "Well, maybe it isn't, but I remember it well enough." I heard her pick up a piece of chalk and start writing on the chalkboard that filled most of the wall. "As I remember, he obtained closure in the turbulence equations by…" She went on speaking as she wrote, enmeshing Rocco and Jocko in an intricate web of equations. They were quick to interrupt her and argue about every other term, and she was quick to argue back. "Thank you, Connie!" I said quietly to myself. She had given me the privacy I desperately needed. I clicked and dragged the mouse, and I began typing in earnest.

Now that the goons were distracted, I could focus on my plan. I could focus on a coding session more hellish than any I had ever experienced in my life. I had to write a tricky piece of code in a very short amount of time, with essentially no time to debug. I had to get it right on the first try. One mismatched parenthesis could mean the difference between freedom and a crushed skull. Sweat poured from my brow as I glanced at my watch. I typed on.

Hellish as it was, though, I also felt the strange, exhilarating thrill I always felt when faced with imminent danger. Ten minutes went by. Connie, Rocco, and Jocko were arguing loudly, and a quick glance behind me showed me that Rocco was now wielding his own piece of chalk, scribbling his own equations on the chalkboard. Thirteen

minutes. I studied the file I had transferred to make sure. Did I have it right? Fourteen minutes. My read statements seemed fine. I tried compiling, but the compilation failed – I was missing an ENDDO! Frantically, I studied the nested loops. I found it.

Fifteen minutes. "Times up!" Rocco said, dropping his chalk into the chalkboard tray. Apparently he had been keeping track of the time. "You ready?"

"I think so," I said. All three gathered around the computer. I successfully compiled the code. "Thank God!" I thought to myself. I ran it. To my further amazement and relief, it didn't bomb.

"The output is in an ascii file called 'lat.dat'", I told them. "Each line holds a 10-minute accumulated latent heat flux."

"Okay. Get out of my way," Rocco said. He took my place. He opened the main directory on his memory stick and began editing a file. I watched, with some dread. My program did compile, and it did run, but did it work right? "Here we go," Rocco said. "Let's see if Jo-Kim gets to use your head as a punching bag!" He typed something and pressed 'ENTER'. The screen immediately spit back an answer.

"Well, I'll be damned!" he said pensively, staring at the screen.

"What is it?" Jocko said.

"His RMSE is only 8 $W/m^2$! I never expected that… Could the code really be that good? Maybe I did something wrong." He turned to Connie. "You have EXCEL on this machine?" She nodded, and he went to work. Soon the screen showed two curves, each representing three diurnal cycles of latent heat flux. "The red curve is observations," Rocco said. "The blue is what you just produced. Look at that agreement! Incredible! I never saw anything like this."

"So I can't punch him?" Jocko whined.

Rocco shook his head. "Naahh. It would be satisfying, but there's no need." He replaced his memory stick with mine in the machine and rechecked the directory. Then he removed my stick and stuck it in his pocket. "We got the code, and that's what we came for! We'll e-mail it to the professor tonight, from the hotel." He turned to Connie and me. "Go ahead and complain about what we've done, if you want. It won't do you any good. It would be your word against the professor's as to who wrote the code in the first place. The professor has powerful friends. And he has an army of people who'll back him up!"

Connie and I were silent as Rocco turned and left the office. Jocko, looking disappointed, followed him. I turned to Connie and put a finger to my lips. I stepped to the window and peered through the blinds. Soon they were on the path outside the building, heading toward the registrar's office. They had probably parked where I did.

“They’re gone,” I said simply.

“How did you…”

“Quite simple, really,” I said. “They were careless. I knew they had the observed latent heat fluxes on their stick somewhere, since they needed something to evaluate the model results.”

Connie caught on quickly. “So you wrote a program that read the validation file directly, adding error…”

“Temporally correlated error,” I interjected.

“You added temporally correlated error to the observed fluxes, and you wrote the results to the file. You didn’t run a land surface model at all! You basically just found the ‘answer key’, changed the answers a little so they wouldn’t look too perfect, and gave them right back!”

“That’s right,” I said. “Look, do you have a car?”

“Um, yes! It’s across town, though. I walk here every day, for exercise. Why?”

“At some point, they’re gonna realize their mistake, and they’ll be back,” I said. “It could even be in a few minutes, for all we know. That’s why we’re leaving the building right now, and we’re leaving town tonight.”

She looked at me closely. “You mean…”

“That’s right!” I said. “You’re about to pull another vanishing act!”

**-10-**

The old, tall, whitewashed adobe church, lit up under the dark starry sky, had a strange effect on me. For a moment, I was sent back 200 years. I lost sight of the other buildings in town; I saw the church alone, a tiny piece of Europe plopped down on a strange, alien landscape, immensely imposing, immensely isolated, far, far away from anything else of its kind. The image stayed with me as I returned to the present, and it made the church seem older than anything I'd ever seen before – and I've seen much older things.

"That's the mission," Connie said, noticing my stare. "The Mission San Luis Obispo de Tolosa."

I nodded.

"We can sit here for a moment, can't we?" she said, finding a bench by some tall bushes, shielded from the lights on the church plaza. "I've got to rest my arms a bit." She was holding a box of books we had hastily packed in her office. With a nod from me, she gratefully set it down.

"We can't stay long," I said, setting two more boxes on the ground. I lifted her heavy laptop briefcase off my shoulder and set it down too. I rubbed my shoulder and looked at my watch. 11:30PM. If Rocco and Jocko discovered my trick, they'd be hunting Connie down at her rental house, and that's just where we were headed now. They'd have a lot of trouble finding it at night, but you never knew. We needed to leave town as soon as possible.

We were silent for a while, as we had been for most of the hike across town. For the moment, we were content to sit there, to listen quietly to the soothing sounds of the nearby creek. When Connie finally spoke, her voice was low. "I can guess how they found me," she said. "I sent an e-mail to a friend at Hemple Tech who works for Clexley. They must have intercepted it. Did you follow them here?"

"No," I said. "I'm the Edwards you e-mailed yesterday. You gave me the same clue you gave them."

"Oh, I see!" She grinned sheepishly. "Then I was doubly careless! Of course, I'm glad I was careless with you. I owe you a lot!" She looked at the ground, smiled, and looked at me curiously. "What's with the 'Edwards', though? Your name isn't Edwards. It's Wells!"

That one threw me. I looked at her sharply. "Yes," I said. "I am. How did you know that?"

"Wells et al., 1995," she said. "I read your paper when I was doing my thesis. I thought it was excellent, and I decided to get your opinion on something I was working on. Nobody knew where you were, though! I finally found you with a web search. An

article showed a picture of you handcuffed to… what was his name… Pickins. Calvin Pickens. You were taking him to the police."

"Cal Pickens," I said, remembering. "The black market data kingpin."

"I'm good with faces," she continued. "It didn't take me long to recognize you tonight. Mike Wells, the detective. Who hired you to find me?"

"Phil Chamberlain."

She nodded. "A good man," she said. "Much too nervous, but a good man." We both fell silent again.

"Why did you give it up?" she asked me, after several seconds. "Your research, I mean."

I sighed. I glanced at my watch. "We'd better go," I said.

…

We were efficient when we got to her place. She had been renting all of her furniture, and she didn't have much stuff to pack – just a closet full of clothes and towels, another bookcase full of books, and some kitchen items. Working together, we had everything in her car inside of 20 minutes.

We drove first to the Cal Poly parking lot, knowing it would be free of goons by then. We kept our eyes open, though, just in case. We then delivered my rental car to the airport. I threw the keys of the rental car in its back seat, grabbed my bag, and hopped in beside Connie in her car.

"I hope you realize something," she said a few minutes later, as she merged onto Route 101 north.

"I probably do," I said. "What in particular?"

"When I was following you to the airport just now," she continued, "I could have ditched you. I know this town, and you don't. I could have disappeared again so that you couldn't find me."

"But you didn't."

"No, I didn't." She sighed – a long deep sigh. After some seconds, she said, "The truth is, I need you. I need your help. I'm in a tight spot, and I don't know what to do."

"You've disappeared all by yourself before," I pointed out.

"Yes, but Cal Poly was an obvious place to go, 'cuz my uncle heads up the department there – the landscape architecture department. But now what? Where can I go now? And besides, I can't just keep running! I've got to do something!" She glanced over at me. It was just a quick glance, since her eyes had to return to the road, but in the dim orange light from the dashboard I could see the worry that filled her face.

"I'm here to help," I said simply.

"I know you are. I'm glad Phil hired you," she said.

She was glad Phil hired me. It was a statement, but from her tone, it was also a question. I chose my words carefully. "I'm not a rich man," I said. "I've got bills to pay. If Chamberlain chooses to pay me, I won't turn him down. Still, I like to think that I'd be helping you out anyway, whether I was paid or not."

"Really? Why?"

"Because you need help."

"Oh," she said. She stared ahead at the road, saying nothing. I stared at the road too, and then out the window on my side, at the bright stars in the black sky over the blacker landscape. I cracked my window open for a taste of dry western air. Its coolness felt good on my forehead. I leaned my head back.

We drove in silence for ten minutes. Sleep was knocking on my door. It was knocking loud. I had been up for almost 24 hours, not counting being unconscious, and I had had a hell of a day.

I felt my eyelids droop. With effort, I forced them open. I was not going to fall asleep. Not yet. It was time for more conversation.

"Tell me about the Swenson code," I said.

"The what?" she asked.

"Your land surface model. The one Clexley is after. What makes it special?"

"If I tell you," she said, "you'll be the only one besides me to know."

"If you tell me," I said, "I might understand your situation better, and that might help me figure out what to do next. Of course, what I really want to know is, why don't you just publish it? Then you'd be safe, out of everybody's reach!"

"I know," she said. She sped up and passed a slower car ahead of us. "Okay," she said, returning to the right lane. "I *will* tell you about the model; I owe you that much. As you may have guessed, I've developed a radically different approach to land surface

modeling. It revolves around the use of 'hognostics', which is short for 'holistic prognostic variables'."

"Hognostics," I repeated, grinning.

"That's right. A silly name, but the idea isn't silly. The idea is that the prognostic variables in traditional land surface schemes – temperature, soil moisture content, interception reservoir content, and so on – are not 'independent variables' in nature. Their independence in models is completely artificial. In nature, they evolve together, simultaneously. So, in my new scheme, each prognostic variable is actually a complex combination of the traditional variables and some non-traditional ones. The combination defining each prognostic – each hognostic – is unique and orthogonal to that of all the others."

"So," I asked, trying to understand, "your prognostic variables are EOFs?"

"Not exactly. They're not empirical," she said. "Their basis isn't statistical – it's logical. The combinations are defined by the way the vegetation canopy and soil interact with the atmosphere in nature. It's a holistic treatment. It's… Well, I could probably explain it best with some equations and figures, and I can't do that now, while I'm driving."

I was waking up; I found her ideas invigorating. "Give me a qualitative description for now," I suggested. "I'll try to follow." She obliged. She warmed to the topic quickly and had no trouble spending the next hour or so describing her model's structure. I listened intently, often interrupting with questions. "Incredible!" I said finally.

"But flawed," she said. "And that's the problem. In certain situations – completely unpredictable situations – the model fails miserably. I don't know why yet. And I can't publish the work until I do!"

"Why not? Can't you just tell people that the model isn't perfect, that it sometimes fails?"

"I could," she said, "but you know how people operate. They'll say, 'Yeah, yeah. It fails sometimes. Big deal. Now let me use it already!' They won't give a second thought to the fact that the model is unstable and can't always be trusted. Ninety-nine percent of the time it works perfectly, but during that remaining one percent, when the forcing variables are aligned in a certain way, the model falls into an unstable regime and spits out incorrect results, results that poison the states from that point forward. I can't release a model like that to the public. Who knows what kind of bizarre conclusions people will reach when they use it?"

The woman had principles. I couldn't help but admire her. Nevertheless, I tried one more time. "But if you publish it, you'll be safe!"

"No. Not now. Not until I discover the flaw."

So that was that. "Okay," I said. "Then we'll have to tackle your problem some other way."

I didn't tell her what that other way would be, since I didn't quite know yet myself.

…

We stepped into the lobby of the Motor Maven Motel in King City and rang the bell. After some minutes a sleepy clerk stepped out from an inner room. "You need a room?" he asked.

"Two rooms," Connie said, before I could say anything.

"Yes, two rooms," I repeated. "And I'll need a wake-up call for noon."

If the clerk were more awake, he would have thought my joke was funny. Instead, he just took my credit card and signed us in. We each took a key.

"Don't worry about paying me back," I said to Connie a few minutes later, outside her room. "We'll charge it to expenses."

Connie shook her head. "Once I'm back on my feet, I'll make things right," she said.

I nodded. "I'm sure you will. Well, good night!"

"Mike," she said, staring intently into my eyes.

"Yes?"

"Thank you." In an instant her hand was reaching up and cupping the back of my neck, pulling my lips down toward hers. The kiss was soft and sensuous. It wasn't a kiss of lust – it was a kiss of gratitude – and yet I enjoyed it to the core. I felt my pulse quicken. In fact, my blood was soon racing much faster than I would have expected, given my years of experience.

"Good night," she said as the kiss ended.

"Good night," I said again. She stepped into her room and waved quietly as she shut the door. I stumbled off, a little dazed, for my own room.

…

We spent the next afternoon on the beach in Santa Cruz. Not in our bathing suits, of course – it was late November, so we were dressed warmly and didn't go near the water. Mostly we just walked and talked and sat and watched the waves. There wasn't much

else we could do. It was the day before Thanksgiving, and we didn't stand a chance of finding a flight anywhere.

"So, what comes next?" Connie asked, her bare feet sunk into the cold sand. "Is it hopeless?"

"Not at all!" I said. "I've been thinking through an idea this morning, one that just might work. But it won't be easy. Obviously, since you're not going to publish the model, we'll have to stop Clexley directly. We'll have to expose him for what he is."

"And how do we do that?"

"We attack. He's giving the Horton Lecture at AMS in January. The audience will be a crowded roomful of hydrologists and climatologists. That's just the place to do it."

Connie looked at me, waiting for me to go on. "I have to warn you," I continued. "The plan I've come up is going to require extensive research, and it will involve a lot of danger. Are you up for it?

"Research and danger?" she asked. I nodded.

She leaned her head backwards, soaking her face in the cool November sun, her unnaturally brown hair hanging loosely behind her. For the first time since I met her, she looked unworried, almost eager. I guessed that she had made a decision: she was ready to stop running. She was ready to face her problems.

"Research and danger," she said again, smiling. "Yes, I think I can handle that!"

## -11-

The next six weeks flew by fast. Connie hid out in Chicago with Thea Holliday, a good friend of mine from grad school who was more than happy to help out. Thea gave Connie a broadband connection for her laptop and helped her gain access to the local university libraries. A thankful Connie kept herself busy with new research that, with luck, would set her free.

Meanwhile, I went back home. Connie was safe for the moment, and she didn't need my help, at least not right away. Anyway, to stay financially solvent, I had to tackle some side jobs. I investigated an illicit calibration at the Bellhaven Earthquake Research Center, and I also went undercover, infiltrating an advisory panel on geodesic research, a panel with a sinister hidden agenda.

I did spend two weeks in December working on Connie's problem, from another angle. I traveled to Florida and Arizona to track down Myron Snooderson and Perry Hope, two people who knew Clexley all too well. Myron, I discovered, was managing a liquor store in Tallahassee, and Perry was patronizing one, a little too heavily, in Tucson. Perry was suspicious of me at first. When I followed him into a dark, lonely alley to talk to him, he communicated that suspicion by brandishing a knife. Fortunately, he was less than sober, and I had no trouble removing the threat with a well-placed high kick. I pushed him to the ground and made him listen. When I told him what we had in store for Clexley, his cloudy eyes sharpened, and he actually gave me a high five. In no time, we were good buddies. Like Myron, he agreed to join us at the AMS meeting in Long Beach.

Professor Chamberlain was happy to hear that Connie was safe, and he told me that Rocco and Jocko – he didn't use those names – had been to his office, asking about Edwards. "I told them that you disappeared, just like Connie!" he said. "The funny thing is, they believed me right away, like they expected it all along!" I told him that he said just the right thing, and that I'd be in touch.

The new year was five days old when I flew to Chicago and met up with Connie again at Thea's house. She had good news. Her blue eyes danced with unbridled excitement. "I solved it!" she said. "Just today! I found it in one of his papers. We've got the goods on him!"

"Excellent!" I said. I pulled a bottle of champagne from the bag I was carrying. "I kind of expected you'd come through! What do you say we celebrate!"

We celebrated, toasting to success and good luck. Then we went to work. We had only a week to construct our program, our plan of attack. Everything was going well so far, and yet too many things could still go wrong. We had to be ready for anything.

Working in Chicago with Connie that week was an eye-opening experience. I already knew, of course, that she was pleasant to be around. I discovered in addition, though, that she had a knack for detective work – a natural talent. I began to wonder how she'd

be as a professional partner. That might become clear, I thought, when we got to the conference.

Monday found us at the airport, packed up and ready for Long Beach. "Give him hell!" Thea told us, as she dropped us off. "Personally, I don't think this Clexley guy stands a chance!"

…

Arnold Pog looked at us over a forkful of French fries. "Yeah, Clexley's here," he said. "I talked to him today, after the Land-Atmosphere Interaction session. Arrogant bastard."

"Arrogant in the extreme," I said. "Was he alone?"

Arnold shook his head. "No. He wasn't. He had two of his students with him. Big beefy guys who didn't say much. They were hanging around him later, too, during the poster session. They stood on either side of him, almost like bodyguards. It was weird." He turned and looked at Connie, who was sitting beside me in the booth. "You're not eating your hamburger!" he said. "Aren't you hungry?"

Connie looked down at her plate. I knew what she was thinking, since I'd tasted my own burger. It was more grease than meat, and the iceberg lettuce was more white than green. "Not really," she said, smiling politely. "We ate on the plane." Technically true – the airline gave each of us a little bag of pretzels. I made a mental note to get us some real food after we checked in to the hotel.

"Too bad," Arnold said. "The burgers here are the best! You can always wrap yours up and take it with you." Connie nodded.

"How many of your students did you bring with you?" I asked him.

"All of 'em. Six." He grinned. "You got something in mind, Mike? You need help with one of your schemes?"

"Yeah, in fact I do. Listen. Do you think you can have your students ready for a little job tomorrow morning in the poster room, sometime between 9:30 and 10:30?"

"Absolutely! They'll love to help out! You're practically a legend in my group, you know. I told them all about that time we retrieved that stolen Level 3 AVHRR data from those thugs in Seattle."

"Sixteen floppy disks strapped to four vicious pit bulls," I said, remembering grimly. "Your help on that case was invaluable!"

Arnold popped the last of his burger into his mouth and washed it down with some cola. Now he looked at my plate. "You're not hungry either, huh? They must feed you well on the plane."

"Yeah," I said.

…

"I just gave Arnold's students the layout to the poster room," I said to Connie the next day, having joined her on the mezzanine terrace in the Long Beach Convention Center. We looked down onto the heads of the scientists milling about below us. It was Tuesday, the second day of the AMS conference, but the first day for us. "I also found Myron Snooderson and Perry Hope. They're already in the room that will hold the Horton lecture, which will start at ten-thirty. It's just after 9:00 now."

"Great!" Connie said. "I was successful, too. I found your friend on the AMS executive board and chatted with him over a bagel. He was reluctant to help us at first, so I had to tell him the whole story. I also reminded him of what you did for him last year. That was the clincher. I've already made the changes."

"Then we're set!" I scanned the floor below us again. "He's not here yet, but he should be soon. Arnold called me on my cell and said that Clexley left his hotel ten minutes ago, with those two goons of his."

"It's too bad they came along," Connie said.

"It's what we were expecting," I said resignedly. "And as you know, if we're to get at Clexley, we have to get rid of them first, without him knowing about it. That's where the danger comes in, the danger I promised you back in Santa Cruz. Are you sure you're up for it?"

"Absolutely!" she said, without hesitation.

"Okay," I said. We watched and waited.

…

Clexley sauntered in ten minutes later, followed by Rocco and Jocko. "Room 6E," I reminded Connie, as I pulled out my walkie-talkie. She nodded. I headed for the long broad hall behind us, the hall leading to several large meeting rooms holding parallel AMS sessions. I heard a smattering of applause from a room to my right, meaning that the speaker inside had just finished his talk.

I stopped suddenly and turned around. Connie was more than capable of doing her part, and yet somehow I couldn't help watching first-hand what happened next. I would still have time to get into position. I stepped back to the terrace and surveyed the unfolding

scene from behind a column. Clexley, Rocco, and Jocko were standing together on the lower level studying their AMS programs. Connie was still on my level, but she had positioned herself far to the left, near the top of the escalator. She was looking out over the railing at nothing in particular. She was waiting to be seen. The way she looked, being seen came easy.

Jocko was the first to spot her. He glanced around at the various scientists on his own level, saw Connie upstairs on the terrace, and visibly started. He whispered something to Rocco. Rocco looked, and then they both turned to Clexley. A hurried conference ensued. Connie pretended not to notice.

Rocco and Jocko left Clexley and headed for the escalator, and at the same moment, Connie left her post and headed toward the hallway of meeting rooms. That was my cue. I was closer to Room 6E than Connie was, and she was forced to walk casually, so I got there well before she did. I waved to her from the door as she turned the corner into the hall. That way, she knew that I was ready – she wouldn't need to use the walkie-talkie.

The main light in Room 6E, a room the size of a high school cafeteria, came from a screen at the far end of the room, a screen lit up with a set of equations and a contour map in oranges and reds. The speaker, middle-aged and bearded, was saying something about 200 millibar heights. The audience filled about half the seats, and all eyes were focused forward. I quickly stole around the back of the audience and stepped along the side wall, toward the dais and podium.

Connie would be entering the room any second. She'd have to wait, of course, for Rocco and Jocko to reach the hall, so that they knew which room she entered. I waited quietly in the dark against the side wall, no further than 3 meters from the speaker, keeping my eyes peeled on the door in back. The speaker pressed a button, and several new contour plots flashed up on the screen.

Within a minute, Connie's unmistakable figure stepped inside the room and ambled toward the other back corner, the corner without the door. Ten seconds later, two large forms entered the room. Slowly, menacingly, they edged their way toward her. She seemed not to notice them.

Timing would be everything. I hoped that she was ready; she had insisted she was up for it. I waited patiently for the goons to be just the right distance from her. They inched closer. And closer. Seconds seemed like hours. The speaker droned on, mumbling about the conservation of potential vorticity. Finally, it was time.

In a flash, I bounded up to the speaker's podium, grabbed the speaker's laser pointer out of his hand and the microphone off his lapel, and pushed him aside. "Robert Ortman!" I hissed loudly into the microphone. He looked forward, of course. As he did, I quickly thrust the laser pointer forward and sent a beam of high intensity green light directly into his eyes. My aim was true. His hands shot up to his face.

Meanwhile, while I was shooting, Connie was twisting around. Balanced on one foot, she sent a swift, hard kick into Jocko's most private region. He doubled over. Connie swung her AMS meeting totebag high over her head. I knew that she had filled it earlier with dozens of discarded extended abstract CDs. The bag landed squarely on the back of Jocko's head. He went down. He was out.

Rocco, still rubbing his eyes, was oblivious to what had just happened. Connie dropped the totebag and ran along the wall toward me, past the shocked audience. I spoke hurriedly into the microphone. "Sorry about that, folks." Turning to the speaker, I added, "Nice talk, by the way. Let me add a minute back to your clock. There we go." With a click of a button, the little yellow light changed back to green. "By the way, I think you've mislabeled the second plot there. Isn't that the omega field?" By this time, Connie had reached me. I jumped off the dais and joined her at the front wall, behind the podium. We exited through a door there. We found ourselves in a narrow hallway, an untraveled fire exit.

"Rocco will be right behind us," I said, as we ran through the narrow hall. Sure enough, we heard the door open behind us. Rocco entered the hall, furious.

"So far, so good!" she said, panting a little as she ran.

"Uh-huh," I responded. Not slowing down, I took another quick glance backward. "Uh-oh!"

"What's wrong?" Connie asked.

"Something I hadn't counted on," I said. "Rocco is chasing us with more than a laser pointer. He's got a gun!"

**-12-**

A shot rang out, and a bullet skimmed the floor beside me. Either Rocco had horrible aim, or he was aiming for our legs, trying to slow us down. He wouldn't, of course, kill Connie, the keeper of the model. I don't think he would have minded killing me.

Strangely enough, the shot was muffled; it wasn't particularly loud. He must have been using some kind of silencer. But who uses a silencer, I remember thinking, outside of gangsters and hit men? Clearly, this was no common graduate student thug.

"In here!" I said, grabbing the handle of a door we were passing. The door flew open, and we entered yet another room lit up by soft overhead lights and a bright screen – we had stepped into another AMS oral session. The speaker here was a woman with a thick Russian accent. Her laser pointer was pointing safely at a slide labeled 'Conclusions.' We were at the front of the room, but the room was mostly dark, and we were not near the screen, so nobody in the audience seemed to notice us. We quickly shut the door behind us.

Connie must have been thinking what I was thinking – that our original plan wouldn't work. We had planned to deliver Rocco to the poster room by leading him through the fire exit and through some quiet, unused hallways in the back of the convention center, running just fast enough to stay ahead of him, and just slow enough to make sure he kept following us. By keeping Rocco away from the main hall – away from all those scientists already slipping out of their sessions for an early break – we would avoid causing a scene before the Horton Lecture, a scene that would tip off Clexley. Unfortunately, the gun made the remote path too dangerous. We'd have to improvise.

Halfway across the room, toward the door to the main hallway, Connie suddenly pointed to some empty seats along the aisle. "Here!" she said. "Let's sit here! I have an idea!" I always follow my instincts in a situation like this. Right now they were telling me to follow Connie's instincts. We sat down.

Rocco stepped in from the fire door. His eyes must have adjusted quickly to the dim light, for he soon spotted us. He strode purposefully and angrily down the side aisle and plopped heavily into the seat behind me. He pressed the cold barrel of his gun hard against my back.

"Listen, assholes!" he whispered harshly between us. "When everyone else leaves for break, the three of us will stay right here. Then you're coming with me!" I suddenly caught myself wondering if Connie's instincts were on target.

The heavy accent of the speaker was still booming through the sound system. "Our future plans include forcing the model with a more comprehensive suite of CO2 scenarios," she now said. "Thank you." With that, the last talk of the first morning session was over. Everyone who was not holding a gun clapped politely. "It looks like we've got time for just one question," the session chairman said, stepping forward.

Somehow, I wasn't surprised when Connie raised her hand. The chairman looked about the audience and pointed to her, bypassing several other raised hands. Was she lucky? Perhaps. Then again, the chairman was male, and Connie was, well, Connie.

Luck probably had little to do with it.

Connie stood. Rocco jabbed the gun deeper into my back. "Make her sit down!" he hissed into my ear.

"I can't," I whispered back. "She does what she wants!"

One of the student helpers for the session walked down the aisle and handed Connie a cordless mike. "An interesting talk," she said, speaking into it. "I'm wondering, though, how these results relate to the recent findings of Bailey, who showed that the documented warming trends in SSTs over the last century are strongly correlated with new proxies of massive geothermal venting at the ocean's floor, suggesting – almost proving – that the warming trends have no relationship to the CO2 signal."

Geothermal venting? Did she really say that? The speaker, too, was taken aback. "I am not familiar with that work," she said, at a loss for other words.

"It'll be out in Nature in two weeks," Connie said into the mike. " Basically, the new data show… Well, maybe I shouldn't talk about it. I forgot about that pesky moratorium." With an embarrassed shrug, she sat down. Everyone in the room was staring at us. I could sense Rocco seethe. He wasn't ready, though, to shoot. Not yet. Not until it was necessary.

The session chairman looked as confounded as the speaker. "Well, perhaps we should break now," he said, after a pause. "Let's thank all of our speakers one more time. We'll meet back here at 10:30 sharp." Applause filled the room once more, and everyone stood up. The air grew alive with greetings and conversation as the audience headed toward the coffee tables outside the session rooms. About 20 people, though, found their way to the three of us. We were soon surrounded – completely and wonderfully surrounded – by a gaggle of curious scientists. Connie's plan, it seemed, was working.

…

Connie played the game with finesse. She stood up again and spoke in vague terms, telling the curious scientists just enough to keep them excited, but not enough to show them that she was making it all up. "Come on, guys!" she said suddenly, turning to Rocco and me. "Maybe we can offer them just a little bit of the data. To hell with the moratorium! I've got some plots downstairs." She stepped into the aisle. In a flash, Rocco was on his feet, pulling me roughly with him. He pushed me ahead so that he remained within grabbing distance of Connie.

His mind, of course, must have been racing. He couldn't do much with all those people around, but he couldn't lose us, either. He'd have to play along until he got us alone again. He now pressed his AMS program book hard against my back. I knew his gun was hidden inside it, still aimed at me.

Connie stepped forward, and we followed en masse – all of us, including the scientist gaggle. Five minutes later, we were all downstairs and at the door to the poster room.

Connie turned and faced her followers. "This is silly!" she said. "Folks, there's something you should know. This here is Barry Bailey himself." She indicated Rocco with an upturned hand. "Why don't we just tell them everything, Barry? Why should they have to wait until the paper comes out?"

The perfect words! They took Rocco completely by surprise. In fact, they stunned him, and that gave me my chance. I quickly – very quickly – spun about in place, pushing the AMS program to the side in the process. I pushed down hard on his arm as I completed the 360, forcing him to point the gun toward the ground. It all happened too fast for him to respond. All he could do was clutch at the gun and program tightly, to keep me from snatching them.

Connie sprinted through the poster room door. I pretended that I hadn't just spun around and that Connie hadn't just run off – that everything was as it should be. "He's got a draft of the paper, with figures, in his shirt pocket," I said brightly to our audience. I pushed Rocco, still hunched over and clutching his hidden gun, fully into their midst.

He started to react, but they closed in on him with eager, friendly faces. They were like sharks, swimming about him, hungry for tables, plots, and text. "He's a little shy," I said, as I strode toward the door. "He needs your encouragement!" My last glimpse before ducking into the poster room showed Rocco pushing the scientists away, struggling to break free. One fellow, in bright polyester pants, was reaching for Rocco's shirt pocket.

…

The poster room at one of these meetings is always huge – maybe ten times the size of your average suburban supermarket. As usual, the room was split into two areas. The venders this time were all to the right. Their booths were arranged in rows like a miniature planned city, with crisscrossed roads leading past a variety of booksellers, program hawkers, and instrument designers. If I weren't being chased by a homicidal graduate student, I might have poked around the various booths, collecting logo-covered ping pong balls and other valuable vendor freebies.

The posters were on the left side of the massive room. They were mounted on row after row of tall, thin, upright boards, each about six feet high and with only a foot of bare space at the bottom. Each row consisted of about fifteen of these boards placed side by side, creating a thin wall about thirty meters long. The posters on either side of the

boards were splashed with large, imposing titles, carefully formatted text, and bright, colorful contour maps.

"Over here," I said to Connie, running toward the first row of posters. When we got there, we turned back for a second to see Rocco enter the poster room, once again looking furious. He had escaped his admirers. The program was gone; he was now holding the gun out in the open.

Fortunately for him, the room at this hour was deserted. That made it easy to spot us. Once he did, we ducked into the 'avenue' between the first two rows of posters, knowing that he'd soon be on our tail.

When I said that the posters were arranged in neat rows, I was speaking of earlier that morning. Now, the setup was different. To my great relief, when I looked forward between the two rows, an additional poster stood directly in our path, halfway down. I was never so happy in my life to see a schematic of a convective downdraft. Arnold's students had done their job. They had rearranged the poster boards according to my instructions.

"They've built the maze!" Connie said breathlessly.

"Looks like it," I agreed. We kept running.

In truth, it wasn't a maze. There were no blind alleys, no way of getting lost. It was just one long, enclosed, convoluted path, leading this way and then that, guaranteed to frustrate anyone who didn't know where it was going and when it was going to end. Rocco could, of course, knock walls down here and there to get through it faster, but then he might lose us, since he didn't know exactly where the path was going. No, his safest bet was to follow the path as laid out, maddening as that might be.

"Don't get too far ahead of him," I whispered to Connie. I slowed down a little myself, and, at the end of one long passageway, I turned back to see if Rocco was gaining on us. A furious grunt and a muffled gunshot answered my question. A bullet whizzed passed my arm and lodged in a poster ahead, directly in the eye of a satellite image of a hurricane. Nice shooting, I thought to myself. I picked up the pace.

"It should be right here," I said a few minutes and maybe fifty twists and turns later. "Are you ready?"

"As ready as I'll ever be," she said. She slowed to a stop. I threw myself to the ground and, in the same motion, rolled underneath a poster board. "Good! They're right here!" I whispered to her quickly. "All set up and ready to go!"

I was referring to about fifty hollow cardboard cylinders, stacked into a pyramid and held in place with a single piece of twine. Poster presenters often use these cylinders to transport their posters to conferences – they fit neatly in an airplane's overhead

compartment, and the posters inside arrive safe and unblemished. Arnold's students had gathered together all of the poster tubes lying around the room and had stacked them up for me, just as I had requested. These were great students! I had to remember to treat them all to a beer when this was over.

We didn't have to wait long for Rocco. Once again, timing would be everything. Connie, standing at the end of the short passageway, first let herself be seen by our antagonist. Then she ducked out of the way, farther along the maze. At the sight of her, Rocco rushed forward with renewed vigor, and as he did, I released the stack of cylinders and sent them rolling fast under the poster board into his path. Fifty rolling cylinders. Rocco, though moving fast, was tired, and he was already frustrated by the convoluted maze. He no longer had the ability or the patience to step gingerly between the tubes. He didn't stand a chance.

BAM! The sound of him hitting the floor was louder than the earlier gunshot. The gun was knocked out of his hands. It skidded away from him, toward me. I caught it under my foot. Rocco didn't move. I stuck the gun in my pocket.

I ducked once more under the poster board. "Let's tie him up!" I said quickly to Connie, who had run back to join me. I pulled some rope out of my pocket and threw a piece to her. We went to work. He was starting to stir, so I quickly gagged him with a scarf. "Doesn't feel too good, does it?" I said to him, tying an extra knot on the bond around his wrist. He had recovered enough to glare at me. I let him glare.

Arnold and a few of his students moved some poster boards aside and joined us. "Can you stick him in the bathroom over there, in a stall?" I asked them, indicating the far wall of the poster room. "No need to get security mixed up in this. Not yet, anyway."

"No problem!" Arnold said. "He doesn't look too good. Poor sick ugly stupid bastard." They hauled him off.

"Are we in time?" Connie asked.

I looked at my watch. 10:27. "Barely," I said. "Let's get over to the Horton Lecture. Now it's Clexley's turn!"

**-13-**

One of the highest honors a hydrologist can receive from AMS is the title of Horton Lecturer. If you're the Horton Lecturer, you get the once-in-a-lifetime opportunity to discuss your life's work, or anything else you want to discuss, for a full hour before a huge room packed with your peers, all tuned in to what you're saying, all eager to eat up your every word. Most likely, you would never again face an audience this large, this receptive.

I can only guess what happens during the selection process. I can almost picture the selection committee locked in a smoke-filled room late into the night, the different members championing very different candidates, raising their voices, sticking CVs in each other's noses, letting the insults fly off fast and free. Whatever happens at these meetings, the committee's final choice is usually right on target. A list of former Horton Lecturers reads like a "Who's Who" of hydrology greats.

Except for this year. This year, the committee unknowingly chose a fraud.

Getting to the lecture took us longer than expected. The man introducing Clexley was already speaking when we stepped into the back of the huge, crowded room. "So," said the portly man, his amplified, echoing voice dripping with admiration, "because of Owen Clexley, hydrology today is a much more powerful science. I think you'll agree that he strongly deserves the honor that comes with this lecture. Ladies and Gentleman, I present to you… Owen Clexley!"

The room exploded with applause. The introducer – he was a stand-in, and I never learned his name – stepped down, and Clexley approached the podium. Clexley today was an impressive sight. His beard was impeccably sharp, his glasses were dazzlingly shiny, and his dark hair was neatly and carefully slicked back from his substantial forehead. His suit was a crisp, dark blue. He even sported a yellow handkerchief in his coat pocket. In all my years, I'd never before seen a scientist with a handkerchief.

Clexley used his tie to hold the microphone. "Thank you," he said, nodding to the introducer, "for telling these people a little about me and my career. It's been a long and exciting journey, and I'd like to retrace it with you all during the next hour. I'd like to tell you about the many challenges I've faced over the years and some of the novel solutions I've arrived at. First slide, please."

The overhead lights dimmed, and the screen turned a light brown with an aerial view of a meandering riverbed. "My first inspiration came to me as a student, flying across the Great Plains…"

Connie and I, up to this point, had been working our way forward through the crowded room. Now, as he talked about his in-flight inspiration, we were sitting comfortably in the very first row. Finding a seat there is never a problem at these meetings. Scientists

tend to sit toward the back of the room and near the aisle so that they can duck out without being noticed. Even when the room is packed, the front row is usually vacant.

Clexley, of course, might have seen us sitting there, if he were paying attention. He wasn't. "Where did you throw in the slides?" I whispered to Connie.

"It won't be long. Maybe ten minutes," she whispered back. "They're all in there. Your friend on the board gave me plenty of time to work them in. I think he likes me."

I grunted a nod.

"Actually," she continued, "I threw a little something onto the next slide. It was easy, and I couldn't help myself. Look… There!"

The next slide came up. Adjoining a plot of a unit hydrograph and a schematic of a stream network was a short paragraph of text, and within the text, toward the bottom, was the following statement: "… network of order n is nested within / I am such a filthy liar / a coarser network…"

"Ah, PowerPoint!" I whispered approvingly, when I caught it. Clexley didn't notice anything. He was mostly facing the audience, and he thought he already knew what the slide said. A few murmurs echoed through the room, telling me that the addition was not lost on everybody.

We patiently sat through ten minutes of unmodified, self-serving slides, each purporting to showcase an example of Clexley's early genius. At one point, he even said, "By including the eddy terms, I reproduced the flux and saved the project. I suppose you could even argue that I saved the department." Connie and I looked at each other. We rolled our eyes in tandem.

Finally, it was time. Clexley, at the podium, turned a page of his notes and leaned forward again. "My first major, world-class breakthrough came when I developed the M-Matrix theory of subsurface flow through fractured rock. Next slide." The slide came up behind him. He was still facing forward. "As you can see from this cross-section of exhumed earth, the fractures are arranged in what appear to be a chaotic pattern. Underlying the chaos, however, is a remarkable order – an order we can use to our advantage."

Our plan was proceeding nicely. Clexley was suddenly faced with a rumble from the audience, a rumble that grew progressively louder, soon reaching a fevered pitch. He stopped talking and, for a moment, stared at the audience in confusion.

He did not know yet that behind him, on the screen, was not a pattern of fractures in rock. Instead, it was a photograph of Perry Hope, the fellow I had encountered back in Tucson, the one with the knife in the back alley. This particular photo was taken over twenty years ago. The younger Perry Hope was speaking to the audience with a cartoon balloon.

"Owen Clexley stole my M-Matrix theory," the balloon said.

Clexley finally turned around. His face, at least the part I could still see, went white at the sight of Hope's huge, screen-filling picture. Clexley froze in place.

For the next several moments, time seemed to stand still. The rumble died down, and the room was bathed in an eerie silence – a silence so total that it became oppressive. I glanced behind me. No one was moving; all were staring ahead, all were speechless. I caught snippets of a faraway conversation outside the room. The speakers outside had no idea what was happening in here. They had no idea of the bomb that had just been dropped or of Clexley's mute reaction.

Finally, he collected himself. Turning back to the audience, his face grew hard, and he spoke again in a controlled and formidable voice. "Someone is playing a joke on me," he said. "Not a very funny joke. Not funny at all. Next slide."

The next slide came up. Clexley turned quickly to look at it. "What the hell?" he blurted. Obviously, his control was slipping.

The new slide showed a photo of a young woman waving from an open car window. Below the photo was the following text: "In 1980, Owen Clexley discovered a horrible secret about my sister, Gwen. He threatened to reveal the secret if I didn't give him what he wanted: full credit for my M-Matrix theory."

"Cut the projector!" Clexley commanded. "Someone has tampered with my talk!"

Nothing happened. The girl in the car seemed blissfully unaware of Clexley's demands. She remained on the screen, continuing to wave at the audience.

"Cut the projector! Now!" he shouted. His mike was still on, and the shout, echoing from the walls, was deafening. Clexley didn't know that the AV guys and the fellow working the laptop had been given explicit instructions *not* to shut down the talk, straight from the mouth of my friend on the AMS board.

…

I enjoyed watching Clexley struggle with his face. Our plan was proceeding smoothly. On schedule, the present-day Perry Hope, sober as a nun, rose from of his seat near the front and stepped slowly but purposefully to the podium. At sight of him, Clexley, now visibly shaken, spoke up quickly. "Security! I need help here! Security! Security!" No security officer appeared. Perry was now on the dais. "Robert! Jo-Kim!"

Perry stepped up to Clexley, grabbed his tie roughly, and confiscated the microphone.

"My name is Perry Hope," he said into it, his voice faltering but clear. "Let me tell you a little story."

By now, Clexley had lost all pretext of civility. He was bracing himself to charge at Perry. Fortunately, I had also jumped onto the dais, and I was there to stop him. Grabbing Clexley and holding him in place with one arm was surprisingly easy. He struggled, but I squeezed – hard. Finally he gave up. Like it or not, he was forced to listen.

The story he heard – that all of us heard – was gripping. Perry described how the loss of his theory had started his descent into a hell of homeless, reckless drunkenness, into a despair so large it would swallow him whole. "I felt like I could trust nobody," he said at length. "Like anything I had – anything that was mine – could be ripped away from me at any moment. So why try? Science, the love of my life, had become a chamber of horrors." He paused. The room, once again, was deathly quiet. "Strangely enough, my sister died five years ago, freeing me to go after this bastard." He waved his head at Clexley. "Five years ago, though, I was beyond caring about anything."

Perry looked down, suddenly embarrassed. He placed the mike in my free hand. Then, without another word, he returned slowly to his seat in the audience, still a broken man. Clexley drew in a breath, ready to say something. I squeezed hard, and he stopped himself. "Next slide, please," I said.

The next slide was a giant photograph of Myron Snooderson, taken in the late 1980s. With PowerPoint, we had added an ID badge to his shirt. It read: "Myron Snooderson, the true genius behind the Clexley (1993) fractal river network theory." Clexley, when he saw it, was newly furious. He struggled again, to no avail.

Myron strode to the dais. I handed him the mike. "My name is Myron Snooderson," he said, "and I too have a story to tell. I'll admit, though, that it's not quite as powerful as the last one. In fact, the professor stole nothing at all from me. I *gave* him the rights to my theory. I let him take full credit for it, even though he did none of the work. Why? Simple. He paid me $250,000 for both my notes and my silence. I took the money and started my own business in Florida."

Myron paused. He took a big breath. "I learned later that the money had come from one of his research grants. I knew it was wrong – that it was unethical. Even so, in all these years, I never said anything. I suppose I could get in trouble now, bringing it out into the open like this. I accept that. When I heard what happened to Perry, I knew it was time to come clean."

He opened his mouth to say something else, realized that he had nothing more to say, and closed it again. He handed the mike back to me and strode off the dais.

I was finally ready to let Clexley speak. "So, Professor," I said, still holding him in place, "how do you respond to all of this?" I held the microphone near his mouth.

"They're lying," he said matter-of-factly. He had fully regained the control in his voice. He was stern, and when he spoke, he spoke to the audience, not to me. "It's that simple. Both of them are lying. For some reason, some sinister motivation that I don't understand, they – and this monster holding me – want to ruin me. Fortunately, I doubt that any of you believes this rubbish. My record is strong, and it speaks for itself."

I took back the microphone. "Your record does speak for itself. Connie?"

Connie stood up and, with a few quick steps, made her way to the dais. Clexley started when he saw her. I handed her the mike. "Next slide, please," she said.

The new slide was a reproduction of the top half of the first page of a Water Resources Research journal article, a paper entitled, "The Reformulated Unit Hydrograph: Theory and Applications". The sole author was Owen Clexley.

"This is Clexley's most famous paper," Connie said. "In it, he shows how to construct a unit hydrograph using nonstandard, nonlinear correction factors conditioned on network structure and the spatial statistics of precipitation. Through complementary field measurements, he shows that his theory improves the simulation of streamflow and therefore our understanding of streamflow variations in nature. Many of you already have a copy of this paper in your offices. Almost everyone has access to an electronic copy. Next slide."

A new slide came up, showing a four-column table of numbers. The first three columns, in black type, were labeled, 'Day', 'Streamflow: Observed', and 'Streamflow: Estimated'. A fourth column, in red type and in a different font, was labeled 'Differences'. Below the headings were about 30 rows of data.

"This is Table 3 from Clexley's paper," Connie said. "It's supposed to show how well his theory performs compared to observations. Admittedly, his case is strong; the numbers in the middle two columns are very similar."

Connie now picked up the laser pointer and shot a beam of red light onto the final column. "I created this column myself," she said. "It shows the differences between the observed and estimated streamflows. All I did was subtract the second column from the third. Next slide please."

A new slide appeared. It was identical to the previous one, except now a fifth column, this one in blue, appeared beside the fourth. The fifth column was labeled with a three-term equation involving an exponential and a sine function. The variable t in the equation was labeled 'time, in days'.

Here was the kicker: the numbers in the fifth column matched the numbers in the fourth column exactly, to all five significant digits. "This last column," Connie said, "shows

what you get when you plug the time, in days, into this simple function. Take your time and compare these last two columns. You'll see that the agreement is perfect!

Connie paused, giving everyone a chance to compare the numbers and to realize the profound significance of their agreement. "The theory is not without merit," she said at length. "Maybe he even came up with it himself. As for this published table, though, there can be only one reasonable conclusion. The professor never made any of the field measurements he described in this paper. Instead, he added a small error, defined by this equation…" Connie circled the red laser dot around the top of the fifth column. "…to his model results and listed the sums as his measurements. He counted on the fact that the full suite of required observations are very difficult to obtain. Few researchers would be able to reproduce them. So far, for ten years, no one has tried."

Connie went in for the kill. "Clexley just told you that his record speaks for itself. I invite each and every one of you to let it do just that. If you have a pen handy, make a note of this simple equation. Then go back to your office and reproduce these last two columns for yourself. See if you agree that Clexley is guilty of scientific fraud."

She stepped down from the dais. A new rumble of murmurs rose from the audience, growing steadily, rising to the ceiling, filling the huge room. Still holding Clexley, I looked carefully again at the last two columns. I had seen them dozens of times before during our preparations for this lecture, and still, even now, I marveled at how sloppy – or lazy – Clexley had been to use a simple function to generate his 'measurements'. He had basically used the same trick that I used back in San Luis Obispo, when I fooled Rocco and Jocko into thinking that I had a working version of Connie's model. For just a moment, that troubled me. Were we somehow alike, he and I? No, I told myself, our motivations were completely different. He had cheated the entire scientific community for fame and for expanded funding. I had cheated two thugs to save Connie's skin and to keep my own skull intact– literally.

During her research, Connie had honed in on the function Clexley had used. Now, with that function made public, Clexley was ruined. Infinitessimal probabilities do not lie.

I put those ideas into words. "You're ruined, Clexley," I said into the microphone, my words amplified above the rumble. "It's time for you to slink away." I let go of him and nudged him forward, toward the steps to the floor.

He moved his shoulders up and down, to restore the circulation. Then he surprised me. He turned to face me, fire in his eyes. "I'll kill you for this," he hissed. He reached into his pocket and pulled out, of all things, a small but ugly knife. I never would have guessed that he carried one. He was the type to hire people with knives, not to carry one himself.

He advanced toward me, knife in hand.

I threw out a fist. He went down.

**-14 -**

Lieutenant Edward Dirk Malloy of the Long Beach Police Department was an ox of a man: six-foot-four and broad shouldered, with a neck the size of a 30-year-old oak. One look at his eyes would tell you that despite his brutish size, he was no dunce. The eyes were intelligent and alert, the kind that could see inside a suspect, eyes that could penetrate a complex wall of lies. For a cop, his eyes and his size were a powerful combination.

Lieutenant Malloy sat behind the desk in his office. I sat in one of two chairs facing him. In the other sat Hal Ponti, a smaller and much older cop with his own set of keen eyes. The liver spots on Ponti's scalp reminded me somehow of continents on a strange, alien planet.

"Sorry for the delay," Malloy said. "You were brought to the station when, one o'clock?"

"Noon," I said.

"Noon," he repeated, "and now it's six o'clock. Again, sorry. I've been detained all afternoon, and I also wanted Hal to be here when I talked to you."

"Just got here myself," Hal said, with a slow but intelligent drawl. "Couldn't get here any earlier."

"Not a problem," I said. "Early on they brought me some inedible sandwiches. I also got to look out the window at the side of some building." It was far from my best effort. Usually my sarcasm is subtle, biting, and wry, but the long afternoon of waiting had worn me down. I was tired and grumpy.

It didn't matter, since Malloy ignored it anyway. "We wanted to talk to you, of course, about the incident this morning at the AMS meeting." He picked up some papers from his desk and glanced through them. "We've never seen anything like it before. A speaker at a conference punched in the face and knocked unconscious in front of 500 scientists. Incredible."

"He was coming at me with a knife," I said testily. "It's all in my statement. And as you just said, I have 500 witnesses."

Malloy, to my surprise, chuckled. He held up his hands, as if to hold back my verbal assault. "You're being a little defensive, aren't you? We know what happened. In fact, we knew all along that something like that was coming."

I was dumbfounded. "You knew…"

"That's right. I should explain. Hal got a call earlier this week from…" He looked at a paper. "…Jake Kelly, who I think you know."

My brain, dormant from six hours of waiting, was suddenly awhirl. I still didn't understand. I turned to Ponti and asked, "You know Jake Kelly?"

He nodded. "Known him for years. He's a good man. One of the best." Ponti paused and looked at me. I stared back at him but said nothing. "Jake told me that you were coming to Long Beach to face down this Clexley fellow and his students," he continued. "He told me that your methods are unorthodox, to say the least, and that you are a total pain in the ass. He also said, though, that there isn't a more capable PI around – that no one can get a job done like you. Come to think of it, he told me not to tell you he said that." He shrugged and smiled a little. "Oh, well. Too late!"

I filed the compliment away for later consideration. "So Jake asked you to help me?"

"He suggested," Ponti said, "that it may be in the best interest of the police to let you handle things your own way, without interference. But it wasn't up to me. I'm with the LAPD, and Long Beach is not my territory. I do, however, know Lieutenant Malloy here, and he was ready to listen."

Malloy picked up the story. "You have to understand," he said. "These science crimes are sometimes beyond our depth. Not the mechanics, of course. The blackmail, the graft, the violence – those we understand very well. It's the motivation behind the crimes that confounds us. What causes a scientist to go over the edge? What will he think and do when backed into a corner? We often don't have a clue. When Hal suggested that we let you go after Clexley on your own, since you understand these people, I readily agreed. We even asked the convention center's security guards to stay out of your way, as much as they could."

I was floored. This much cooperation from the official force was unheard of. I didn't know what to say, so I changed the subject. "What happened to Clexley?" I asked.

"He's under psychiatric observation," Malloy said. "He was acting erratically when he came to, enough to generate some concern. Unfortunately, he didn't actually break any laws here in Long Beach, so we'll have a hard time holding him. Yes, he did pull a knife, but that's not enough; a good lawyer would argue that he was provoked. If he survives the psychiatrist, we'll have to release him – probably by tomorrow."

I nodded. "And those two students of his?"

"We can hold them a little longer. We have two witnesses who saw the Anglo guy – Robert Ortman –waving a gun around the poster room. They heard the gunshot. That's a bit more illegal than the knife. As for the other fellow, Hong, he has his own problems. When he finally came to inside one of the meeting rooms, he punched a cop and tried to run away."

"So they won't bother us for a while," I said. I fell silent. I didn't say it to the cops, since they probably wouldn't understand, but I knew that, even without jail, the loss of their advisor would be a powerful punishment for these two young thugs. They had believed in Clexley and in his science all along. Learning that he was a fraud would be quite a blow, one that would undoubtedly break their spirit.

Malloy leaned his big frame forward on his desk. "Now comes the lecture – the real reason I made you wait around all afternoon." He looked at me through narrowed eyes. He didn't look unfriendly, exactly, but it was obvious that he meant business, that he expected me to pay close attention. He was obviously accustomed to giving orders and having them followed. "Now listen up!" he continued. "Like I said, sometimes we welcome your kind of help. What we don't like – and what we won't tolerate the next time – is you coming out here without letting us know what's going on. If you do come out here again with some crazy do-it-yourself science crime-fighting scheme, you come to us *first* and let us know what you're up to. If you don't, we'll throw you in the can. It's as simple as that."

I nodded. This was the kind of cop talk I was used to. "Sounds reasonable," I said.

"That goes for L.A. too," Ponti said. I nodded again.

"Had to say it," Malloy said, his tough guy voice softening. "I'm sure you understand." He sighed and leaned back. He picked up another piece of paper and glanced at it. "I guess that's all. You're free to go. This is the time when I'd give you back your gun, if you had one. I see here that you didn't have any when they brought you in, other than the one you confiscated from Ortman. Don't you carry one?"

"No," I said. "I hate those things."

Malloy looked at me, not comprehending. "You mean that, rather than using a gun to deal with Ortman, threatening him with it and tying him up or something, you'd choose to concoct some complicated scheme in which he runs through a maze and trips on rolling cardboard tubes?"

I shrugged. I couldn't help grinning a little. "You have to admit," I said, "it's much more satisfying."

…

I called Connie as soon as I stepped out of police headquarters, and an hour later we were eating dinner at a seafood place near the water. I was famished; I hadn't been joking about the inedible sandwiches. With each bite my mood improved. Hers was already high. "I'm free!" she said jubilantly. "I can go back to my job! And it's all because of you!"

"Because of us," I corrected her, taking a bite of buttered roll. "Did you call Professor Chamberlain?"

"Yes, and they're expecting me back at the university on Monday. He says to commend you on a job well done! Oh, and he won't be out any of his own money. The department has agreed to cover your expenses in full."

I nodded. Again, I probably would have helped her anyway, but a PI has to live on something.

By the time we finished our meal, my mood was completely transformed. Connie and I left the restaurant and took a long walk along Ocean Boulevard. The moon was full, and the wind blowing gently off the water felt warm. My arm rested lightly on her shoulder.

We took a right turn and headed into the city, toward our hotel. A streetlight lit up her face, and that's when I first saw the look – that profound yet subtle sparkle of longing – in her eyes. I'd seen that sparkle before in women. It was one of the finest things a man can ever hope to see. In an instant, I knew what she was thinking, what she was feeling, what she wanted from me. I, of course, was ready to give it.

"Mike…" she said, a little breathless. I looked down at her. She didn't have to say it, didn't have to express her desire in words. My eyes told her that I understood and that I was more than willing. She seemed relieved. "I need a few minutes to get ready," she said, still a little nervous, her hand resting on my chest. "Why don't you stop at the little store over there and buy us some wine? Then come up to my room."

"I'll be there!" I said simply.

We were close to the hotel at that point. I saw her safely inside. "Don't keep me waiting!" she said with a smile. She headed for the elevator. I went back to the little store for a bottle of California's finest. Eight minutes and twenty seconds later I was on the 12$^{th}$ floor of the hotel, knocking on her door.

She let me in with another smile. Needless to say, I wasn't disappointed by what I saw. Just as I expected, she had connected her laptop to the hotel's Internet system. A downloaded copy of one of my old papers appeared on the screen. I hadn't known, of course, which paper she'd pick. To my surprise, she'd chosen Wells et al. (1993), the one relating root density distributions to soil structural parameters. "I'll pour the wine," she purred. "Then you can start walking me through this paper."

So, that's how we spent the next hour – discussing the paper in length. She was interested in some of the ideas for her own work, which explained her powerful desire to discuss them with me. It was one of the most intimate, most exciting one-on-one technical conversations I'd ever enjoyed in my life. She enjoyed it too, as I could tell from her many questions, all of them right on target.

The paper finished, and our discussion over, we both sat back in our chairs, exhausted but satisfied. The night, though, was still young. What happened next is permanently – and happily – etched into my memory. I feel no need to record it here.

…

"She wants you to work for her?"

The question came from Alf, who had just delivered a cheeseburger plate to my seat at the bar. Over a week had elapsed, and I was back home, back to my usual dinner routine. "No, not exactly, " I said. "She wants me to be a co-investigator on a proposal she's writing."

"Co-investigator? Wow!" Alf looked impressed. "Can you do that as a detective?"

I shrugged. "Professor Chamberlain says that, based on my past research, the department is willing to hire me as a staff scientist on a trial basis."

Alf looked at me expectantly. I shook my head. "No," I said, "I turned her down. You know me, Alf! You know I could never go back to that life!"

"Yeah, I know. How'd she take it?" He saw that my beer glass was almost empty. He pointed to it, I nodded, and he picked it up and refilled it.

"I think she understands," I said. "I finally told her about that incident with the program manager back in '96."

"That's the incident with the tractor mower and the box of reviews?"

"Yeah. As you know, it's not an easy thing for me to talk about – it took years before I told *you* anything about it, for example. At present, only a small handful of people have any clue at all about what really happened that week. I still have the occasional nightmare. Anyway, for some reason, I found it surprisingly easy to tell the whole story to Connie.

"I also told her that while that one incident alone was not enough to keep me from doing science, it did give me my first taste of true freedom, with no boss, no paperwork, and no external agenda to follow. Yeah, sometimes money's tight, but it's my own fault if it is – I'm not subject to the whims of some review panel that doesn't know what it's talking about. Most important, I don't have to 'reconfigure' my science to satisfy some bureaucrat's or some politician's utterly misguided view of what's important."

Alf nodded. He already understood all this, but he was letting me talk uninterrupted. "I make my own rules," I said, concluding, "and I answer to nobody. I like that. I can't give that up."

"So, you said good-bye to her, huh?"

"To Connie? No." I stopped talking. I took a sip of beer and ate a few French fries. Alf stood there patiently, waiting for me to continue.

"C'mon, Mike!" he finally said. "What's the story with this Connie?"

I shrugged. "I'm guess you could say I'm seeing her. Just this morning she told me that she needs to get away for the weekend. She wants to go skiing in New Hampshire, and she wants me to go with her. Naturally, I said yes. We're driving up there tomorrow night."

"You dawg!" Alf said, admiringly. "How did you…"

My cell phone rang, interrupting him. "I'd better take this," I said. I wasn't being rude, since a new customer had just shown up down the bar anyway. Alf was, after all, supposed to be working.

I listened to the phone for a while and then spoke into it. "Okay," I said. "Tomorrow morning at nine o'clock. I'll be there." I closed the phone and stuck it back in my pocket. I went to work on my cheeseburger.

"New client?" Alf asked, when he returned.

"Yeah. Somebody not on the science team for some satellite has gained access to the raw radiance data, which hasn't been made public yet. The Project Scientist suspects that one of the team members is making a little pocket money on the side. I've been hired to investigate."

"Wow!" Alf said. He shook his head, a look of disapproval on his face. "I must say, these scientists never cease to amaze me. They're full of nasty tricks!"

"No, that's not true," I corrected him. "In fact, very few of them are malevolent in any way. Most are decent, hard-working, honorable people. They work for the love of science and for the thrill of discovery, not for personal gain."

"Okay, okay, whatever you say," Alf said. "But the few exceptions can be awfully nasty, don't you think? And they keep on coming!"

I looked down at my glass of beer. A bubble was forming near the bottom, apparently at some imperfection in the glass. The bubble grew larger and larger, dominating the other bubbles, until suddenly it was too large to sustain itself. It broke free of the imperfection and rose through the beer, breaking at the surface. Finally it was gone; the beer was free of it. As soon as that bubble left, though, another began forming in its place. The beer, it seemed, would never be rid of big, problematic bubbles.

“Yeah, the exceptions can be nasty,” I said, still staring at the beer. “And yeah, they do keep coming.”

– The End –