

AT THE RIALTO

Connie Willis

Seriousness of mind was a prerequisite for understanding Newtonian physics. I am not convinced it is not a handicap in understanding quantum theory.

—Excerpt from Dr. Gedanken's keynote address to the 1988 International Congress of Quantum Physicists Annual Meeting, Hollywood, California

I got to Hollywood around one-thirty and started trying to check into the Rialto.

"Sorry, we don't have any rooms," the girl behind the desk said. "We're all booked up with some science thing."

"I'm with the science thing," I said. "Dr. Ruth Baringer. I reserved a double."

"There are a bunch of Republicans here, too, and a tour group from Finland. They told me when I started work here that they got all these movie people, but the only one so far was that guy who played the friend of that other guy in that one movie. You're not a movie person, are you?"

"No," I said. "I'm with the science thing. Dr. Ruth Baringer."

"My name's Tiffany," she said. "I'm not actually a hotel clerk at all. I'm just working here to pay for my transcendental posture lessons. I'm really a model/actress."

"I'm a quantum physicist," I said, trying to get things back on track. "The name is Ruth Baringer."

She messed with the computer for a minute. "I don't show a reservation for you."

"Maybe it's in Dr. Mendoza's name. I'm sharing a room with her."

She messed with the computer some more. "I don't show a reservation for her either. Are you sure you don't want the Disneyland Hotel? A lot of people get the two confused."

"I want the Rialto," I said, rummaging through my bag for my

notebook. "I have a confirmation number. W-three-seven-f ur-two-oh. "

She typed it in. "Are you Dr. Gedanken?" she asked.

"Excuse me," an elderly man said.

"I'll be right with you," Tiffany told him. "How long do you plan to stay with us, Dr. Gedanken?" she asked me.

"*Excuse* me," the man said, sounding desperate. He had bushy white hair and a dazed expression, as if he had just been through a horrific experience or had been trying to check into the Rialto.

He wasn't wearing any socks. I wondered if *he* was Dr. Gedanken. Dr. Gedanken was the main reason I'd decided to come to the meeting. I had missed his lecture on wave-particle duality last year, but I had read the text of it in the *ICQP Journal*, and it had actually seemed to make sense, which is more than you can say for most of quantum theory. He was giving the keynote address this year, and I was determined to hear it.

It wasn't Dr. Gedanken. "My name is Dr. Whedbee," the elderly man said. "You gave me the wrong room."

"All our rooms are pretty much the same," Tiffany said. "Except for how many beds they have in them and stuff."

"My room has a *person* in it!" he said. "Dr. Sleeth. From the University of Texas at Austin. She was changing her clothes." His hair seemed to get wilder as he spoke. "She thought I was a serial killer."

"And your name is Dr. Whedbee?" Tiffany asked, fooling with the computer again. "I don't show a reservation for you."

Dr. Whedbee began to cry. Tiffany got out a paper towel, wiped off the counter, and turned back to me. "May I help you?" she said.

Thursday, 7:30-9 P.M. *Opening Ceremonies*. Dr. Halvard Onofrio, University of Maryland at College Park, will speak on the topic, "Doubts Surrounding the Heisenberg Uncertainty Principle." Ballroom.

I finally got my room at five, after Tiffany went off duty. Till then I sat around the lobby with Dr. Whedbee, listening to Abey Fields complain about Hollywood.

"What's wrong with Racine?" he said. "Why do we always have to go to these exotic places, like Hollywood? And St. Louis last year wasn't much

better. The Institute Henri Poincare people kept going off to see the arch and Busch Stadium."

"Speaking of St. Louis," Dr. Takumi said, "have you seen David yet?"

"No," I said.

"Oh, really?" she said. "Last year at the annual meeting you two were practically inseparable. Moonlight river boat rides and all."

"What's on the programming tonight?" I said to Abey.

"David was just here," Dr. Takumi said. "He said to tell you he was going out to look at the stars in the sidewalk."

"That's exactly what I'm talking about," Abey said. "Riverboat rides and movie stars. What do those things have to do with quantum theory? Racine would have been an appropriate setting for a group of physicists. Not like this . . . this . . . do you realize we're practically across the street from Grauman's Chinese Theatre? And Hollywood Boulevard's where all those gangs hang out. If they catch you wearing red or blue, they'll—"

He stopped. "Is that Dr. Gedanken?" he asked, staring at the front desk.

I turned and looked. A short roundish man with a mustache was trying to check in. "No," I said. "That's Dr. Onofrio."

"Oh, yes," Abey said, consulting his program book. "He's speaking tonight at the opening ceremonies. On the Heisenberg uncertainty principle. Are you going?"

"I'm not sure," I said, which was supposed to be a joke, but Abey didn't laugh.

"I must meet Dr. Gedanken. He's just gotten funding for a new project."

I wondered what Dr. Gedanken's new project was—I would have loved to work with him.

"I'm hoping he'll come to my workshop on the wonderful world of quantum physics," Abey said, still watching the desk. Amazingly enough, Dr. Onofrio seemed to have gotten a key and was heading for the elevators. "I think his project has something to do with understanding quantum theory."

Well, that let me out. I didn't understand quantum theory at all. I sometimes had a sneaking suspicion nobody else did either, including Abey Fields, and that they just weren't willing to admit it.

I mean, an electron is a particle except it acts like a wave. In fact, a neutron acts like two waves and interferes with itself (or each other), and

you can't really measure any of this stuff properly because of the Heisenberg uncertainty principle, and that isn't the worst of it. When you set up a Josephson junction to figure out what rules the electrons obey, they sneak past the barrier to the other side, and they don't seem to care much about the limits of the speed of light either, and Schrodinger's cat is neither alive nor dead till you open the box, and it all makes about as much sense as Tiffany's calling me Dr. Gedanken.

Which reminded me, I had promised to call Darlene and give her our room number. I didn't have a room number, but if I waited much longer, she'd have left. She was flying to Denver to speak at CU and then coming on to Hollywood sometime tomorrow morning. I interrupted Abey in the middle of his telling me how beautiful Cleveland was in the winter and went to call her.

"I don't have a room yet," I said when she answered. "Should I leave a message on your answering machine or do you want to give me your number in Denver?"

"Never mind all that," Darlene said. "Have you seen David yet?"

To illustrate the problems of the concept of wave function, Dr. Schrodinger imagines a cat being put into a box with a piece of uranium, a bottle of poison gas, and a Geiger counter. If a uranium nucleus disintegrates while the cat is in the box, it will release radiation, which will set off the Geiger counter and break the bottle of poison gas. It is impossible in quantum theory to predict whether a uranium nucleus will disintegrate while the cat is in the box, and only possible to calculate uranium's probable half-life; therefore, the cat is neither alive nor dead until we open the box.

From "The Wonderful World of Quantum Physics," A seminar presented at the ICQP Annual Meeting by A. Fields, Ph.D., University of Nebraska at Wahoo

I completely forgot to warn Darlene about Tiffany, the model-slash-actress.

"What do you mean you're trying to avoid David?" she had asked me at least three times. "Why would you do a stupid thing like that?"

Because in St. Louis I ended up on a riverboat in the moonlight and didn't make it back until the conference was over.

"Because I want to attend the programming," I said the third time around, "Not a wax museum. I am a middle-aged woman."

"And David is a middle-aged man who, I might add, is absolutely charming."

"Charm is for quarks," I said, and hung up, feeling smug until I remembered I hadn't told her about Tiffany. I went back to the front desk, thinking maybe Dr. Onofrio's success signaled a change. Tiffany asked, "May I help you?" and left me standing there.

After a while I gave up and went back to the red-and-gold sofas.

"David was here again," Dr. Takumi said. "He said to tell you he was going to the wax museum."

"There *are* no wax museums in Racine," Abey said.

"What's the programming for tonight?" I said, taking Abey's program away from him.

"There's a mixer at six-thirty and the opening ceremonies in the ballroom and then some seminars." I read the descriptions of the seminars. There was one on the Josephson junction. Electrons were able to somehow tunnel through an insulated barrier even though they didn't have the required energy. Maybe I could somehow get a room without checking in.

"If we were in Racine," Abey said, looking at his watch, "we'd already be checked in and on our way to dinner."

Dr. Onofrio emerged from the elevator, still carrying his bags. He came over and sank down on the sofa next to Abey.

"Did they give you a room with a seminaked woman in it?" Dr. Whedbee asked.

"I don't know," Dr. Onofrio said. "I couldn't find it." He looked sadly at the key. "They gave me twelve eighty-two, but the room numbers go only up to seventy-five."

"I think I'll attend the seminar on chaos," I said.

The most serious difficulty quantum theory faces today is not the inherent limitation of measurement capability or the EPR paradox. It is the lack of a paradigm. Quantum theory has no working model, no metaphor that properly defines it.

Excerpt from Dr. Gedanken's keynote address

I got to my room at six, after a brief skirmish with the bellboy-slash-actor, who couldn't remember where he'd stored my suitcase, and unpacked. My clothes, which had been permanent press all the way from MIT, underwent a complete wave-function collapse the moment I opened my suitcase and came out looking like Schrodinger's almost-dead cat.

By the time I had called housekeeping for an iron, taken a bath, given up on the iron, and steamed a dress in the shower, I had missed the "Mixer with Munchies" and was half an hour late for Dr. Onofrio's opening remarks.

I opened the door to the ballroom as quietly as I could and slid inside. I had hoped they would be late getting started, but a man I didn't recognize was already introducing the speaker. "—and an inspiration to all of us in the field."

I dived for the nearest chair and sat down.

"Hi," David said. "I've been looking all over for you. Where were you?"

"Not at the wax museum," I whispered.

"You should have been," he whispered back. "It was great. They had John Wayne, Elvis, and Tiffany the model-slash-actress with the brain of a pea-slash-amoeba."

"Shh," I said.

"—the person we've all been waiting to hear, Dr. Ringgit Dinari."

"What happened to Dr. Onofrio?" I asked.

"Shhh," David said.

Dr. Dinari looked a lot like Dr. Onofrio. She was short, roundish, and mustached and was wearing a rainbow-striped caftan. "I will be your guide this evening into a strange new world," she said, "a world where all that you thought you knew, all common sense, all accepted wisdom, must be discarded. A world where all the rules have changed and it sometimes seems there are no rules at all."

She sounded just like Dr. Onofrio, too. He had given this same speech two years ago in Cincinnati. I wondered if he had undergone some strange transformation during his search for room 1282 and was now a woman.

"Before I go any further," Dr. Dinari said, "how many of you have already channeled?"

Newtonian physics had as its model the machine. The metaphor of the machine, with its interrelated parts, its gears and wheels, its causes and effects, was what made it possible to think about Newtonian physics.
Excerpt from Dr. Gedanken's keynote address

"You *knew* we were in the wrong place," I hissed at David when we got out to the lobby.

When we stood up to leave, Dr. Dinari had extended her pudgy hand in its rainbow-striped sleeve and called out in a voice a lot like Charlton Heston's, "O Unbelievers! Leave not, for here only is reality!"

"Actually, channeling would explain a lot," David said, grinning.

"If the opening remarks aren't in the ballroom, where are they?"

"Beats me," he said. "Want to go see the Capitol Records building? It's shaped like a stack of records."

"I want to go to the opening remarks."

"The beacon on top blinks out 'Hollywood' in Morse code."

I went over to the front desk.

"Can I help you?" the clerk behind the desk said. "My name is Natalie, and I'm an—"

"Where is the ICQP meeting this evening?" I said.

"They're in the ballroom."

"I'll bet you didn't have any dinner," David said. "I'll buy you an ice-cream cone. There's this great place that has the ice-cream cone Ryan O'Neal bought for Tatum in *Paper Moon*."

"A channeler's in the ballroom," I told Natalie. "I'm looking for the ICQP."

She fiddled with the computer. "I'm sorry. I don't show a reservation for them."

"How about Grauman's Chinese?" David said. "You want reality? You want Charlton Heston? You want to see quantum theory in action?" He grabbed my hands. "Come with me," he said seriously.

In St. Louis I had suffered a wave-function collapse a lot like what had happened to my clothes when I opened the suitcase. I had ended up on a

riverboat halfway to New Orleans that time. It happened again, and the next thing I knew, I was walking around the courtyard of Grauman's Chinese, eating an ice-cream cone and trying to fit my feet into Myrna Loy's footprints.

She must have been a midget or had her feet bound as a child. So, apparently, had Debbie Reynolds, Dorothy Lamour, and Wallace Beery. The only footprints I came close to fitting were Donald Duck's.

"I see this as a map of the microcosm," David said, sweeping his hand over the slightly irregular pavement of printed and signed cement squares. "See, there are all these tracks. We know something's been here, and the prints are pretty much the same, only every once in a while you've got this"—he knelt down and pointed at the print of John Wayne's clenched fist—"and over here"—he walked toward the box office and pointed to the print of Betty Grable's leg—"and we can figure out the signatures, but what is this reference to 'Sid' that keeps popping up? And what does this mean?"

He pointed at Red Skelton's square. It said, "Thanks Sid We Dood It."

"You keep thinking you've found a pattern," David said, crossing over to the other side, "but Van Johnson's square is kind of sandwiched in here at an angle between Esther Williams and Cantinflas, and who the hell is May Robson? And why are all these squares over here empty?"

He had managed to maneuver me over behind the display of Academy Award winners. It was an accordionlike wrought-iron screen. I was in the fold between 1944 and 1945.

"And as if that isn't enough, you suddenly realize you're standing in the courtyard. You're not even in the theater."

"And that's what you think is happening in quantum theory?" I said weakly. I was backed up into Bing Crosby, who had won for Best Actor in *Going My Way*. "You think we're not in the theater yet?"

"I think we know as much about quantum theory as we can figure out about May Robson from her footprints," he said, putting his hand up to Ingrid Bergman's cheek (Best Actress, *Gaslight*) and blocking my escape. "I don't think we understand anything *about* quantum theory, not tunneling, not complementarity." He leaned toward me. "Not passion."

The best movie of 1945 was *Lost Weekend*. "Dr. Gedanken understands it," I said, disentangling myself from the Academy Award winners and David. "Did you know he's putting together a new research team for a big project on understanding quantum theory?"

"Yes," David said. "Want to see a movie?"

"There's a seminar on chaos at nine," I said, stepping over the Marx Brothers. "I have to get back."

"If it's chaos you want, you should stay right here," he said, stopping to look at Irene Dunne's handprints. "We could see the movie and then go have dinner. There's this place near Hollywood and Vine that has the mashed potatoes Richard Dreyfuss made into Devil's Tower in *Close Encounters*."

"I want to meet Dr. Gedanken," I said, making it safely to the sidewalk. I looked back at David. He had gone back to the other side of the courtyard and was looking at Roy Rogers's signature.

"Are you kidding? He doesn't understand it any better than we do."

"Well, at least he's trying."

"So am I. The problem is, how can one neutron interfere with itself, and why are there only two of Trigger's hoofprints here?"

"It's eight fifty-five," I said. "I am going to the chaos seminar."

"If you can find it," he said, getting down on one knee to look at the signature.

"I'll find it," I said grimly. He stood up and grinned at me, his hands in his pockets. "It's a great movie," he said.

It was happening again. I turned and practically ran across the street.

"*Benji IX* is showing," he shouted after me. "He accidentally exchanges bodies with a Siamese cat."

Thursday, 9-10 P.M. "The Science of Chaos." I. Durcheinander, University of Leipzig. A seminar on the structure of chaos. Principles of chaos will be discussed, including the Butterfly Effect, fractals, and insolid billowing. Clara Bow Room.

I couldn't find the chaos seminar. The Clara Bow Room, where it was supposed to be, was empty. A meeting of vegetarians was next door in the Fatty Arbuckle Room, and all the other conference rooms were locked. The channeler was still in the ballroom. "Come!" she commanded when I opened the door. "Understanding awaits!" I went upstairs to bed.

I had forgotten to call Darlene. She would have left for Denver already,

but I called her answering machine and told it the room number in case she picked up her messages. In the morning I would have to tell the front desk to give her a key. I went to bed.

I didn't sleep well. The air conditioner went off during the night, which meant I didn't have to steam my suit when I got up the next morning. I got dressed and went downstairs. The programming started at nine with Abey Fields's Wonderful World workshop in the Mary Pickford Room, a breakfast buffet in the ballroom, and a slide presentation on "Delayed Choice Experiments" in Cecil B. DeMille A on the mezzanine level.

The breakfast buffet sounded wonderful, even though it always turns out to be urn coffee and donuts. I hadn't had anything but an ice-cream cone since noon the day before, but if David was around, he would be somewhere close to the food, and I wanted to steer clear of him. Last night it had been Grauman's Chinese. Today I was likely to end up at Knotts' Berry Farm. I wasn't going to let that happen, even if he was charming.

It was pitch-dark inside Cecil B. DeMille A. Even the slide on the screen up front appeared to be black. "As you can see," Dr. Lvov said, "the laser pulse is already in motion before the experimenter sets up the wave or particle detector." He clicked to the next slide, which was dark gray. "We used a Mach-Zender interferometer with two mirrors and a particle detector. For the first series of tries we allowed the experimenter to decide which apparatus he would use by whatever method he wished. For the second series we used that most primitive of randomizers—"

He clicked again, to a white slide with black polka dots that gave off enough light for me to be able to spot an empty chair on the aisle ten rows up. I hurried to get to it before the slide changed, and sat down.

"—a pair of dice. Alley's experiments had shown us that when the particle detector was in place, the light was detected as a particle, and when the wave detector was in place, the light showed wavelike behavior, no matter when the choice of apparatus was made."

"Hi," David said. "You've missed five black slides, two gray ones, and a white with black polka dots."

"Shh," I said.

"In our two series, we hoped to ascertain whether the consciousness of the decision affected the outcome." Dr. Lvov clicked to another black slide. "As you can see, the graph shows no effective difference between the tries in which the experimenter chose the detection apparatus and those in which the apparatus was randomly chosen."

"You want to go get some breakfast?" David whispered.

"I already ate," I whispered back, and waited for my stomach to growl and give me away. It did.

"There's a great place down near Hollywood and Vine that has the waffles Katharine Hepburn made for Spencer Tracy in *Woman of the Year*."

"Shh," I said.

"And after breakfast we could go to Frederick's of Hollywood and see the bra museum."

"Will you please be quiet? I can't hear."

"Or see," he said, but he subsided more or less for the remaining ninety-two black, gray, and polka-dotted slides.

Dr. Lvov turned on the lights and blinked smilingly at the audience. "Consciousness had no discernible effect on the results of the experiment. As one of my lab assistants put it, 'The little devil knows what you're going to do before you know it yourself.' "

This was apparently supposed to be a joke, but I didn't think it was very funny. I opened my program and tried to find something to go to that David wouldn't be caught dead at.

"Are you two going to breakfast?" Dr. Thibodeaux asked.

"Yes," David said.

"No," I said.

"Dr. Hotard and I wished to eat somewhere that is *vraiment* Hollywood."

"David knows just the place," I said. "He's been telling me about this great place where they have the grapefruit James Cagney shoved in Mae Clark's face in *Public Enemy*,"

Dr. Hotard hurried up, carrying a camera and four guidebooks. "And then perhaps you would show us Grauman's Chinese Theatre," he asked David.

"Of course he will," I said. "I'm sorry I can't go with you, but I promised Dr. Verikovsky I'd be at his lecture on Boolean logic. And after Grauman's Chinese, David can take you to the bra museum at Frederick's of Hollywood."

"And the Brown Derby?" Thibodeaux asked. "I have heard it is shaped like a *chapeau*."

They dragged him off. I watched till they were safely out of the lobby and then ducked upstairs and into Dr Whedbee's lecture on information theory. Dr. Whedbee wasn't there.

"He went to find an overhead projector," Dr. Takumi said. She had half a donut on a paper plate in one hand and a styrofoam cup in the other.

"Did you get that at the breakfast brunch?" I asked.

"Yes. It was the last one. And they ran out of coffee right after I got there. You weren't in Abey Fields's thing, were you?" She set the coffee cup down and took a bite of the donut.

"No," I said, wondering if I should try to take her by surprise or just wrestle the donut away from her.

"You didn't miss anything. He raved the whole time about how we should have had the meeting in Racine." She popped the last piece of donut into her mouth. "Have you seen David yet?"

Friday, 9-10 A.M. "The Eureka Experiment: A Slide Presentation." J. Lvov, Eureka College. Descriptions, results, and conclusions of Lvov's delayed conscious/ randomized choice experiments. Cecil B. DeMille A.

Dr. Whedbee eventually came in carrying an overhead projector, the cord trailing behind him. He plugged it in. The light didn't go on.

"Here," Dr. Takumi said, handing me her plate and cup. "I have one of these at Caltech. It needs its fractal-basin boundaries adjusted." She whacked the side of the projector.

There weren't even any crumbs left of the donut. There was about a millimeter of coffee in the bottom of the cup. I was about to stoop to new depths when she hit it again. The light came on. "I learned that in the chaos seminar last night," she said, grabbing the cup away from me and draining it. "You should have been there. The Clara Bow Room was packed."

"I believe I'm ready to begin," Dr. Whedbee said. Dr. Takumi and I sat down. "Information is the transmission of meaning," Dr. Whedbee said. He wrote "meaning" or possible "information" on the screen with a green Magic Marker. "When information is randomized, meaning cannot be transmitted, and we have a state of entropy." He wrote it under "meaning" with a red Magic Marker. His handwriting appeared to be completely

illegible.

"States of entropy vary from low entropy, such as the mild static on your car radio, to high entropy, a state of complete disorder, of randomness and confusion, in which no information at all is being communicated."

Oh, my God, I thought. I forgot to tell the hotel about Darlene. The next time Dr. Whedbee bent over to inscribe hieroglyphics on the screen, I sneaked out and went down to the desk, hoping Tiffany hadn't come on duty yet. She had.

"May I help you?" she asked.

"I'm in room six-sixty-three," I said. "I'm sharing a room with Dr. Darlene Mendoza. She's coming in this morning, and she'll be needing a key."

"For what?" Tiffany said.

"To get into the room. I may be in one of the lectures when she gets here."

"Why doesn't she have a key?"

"Because she isn't here yet."

"I thought you said she was sharing a room with you."

"She *will* be sharing a room with me. Room six-sixty-three. Her name is Darlene Mendoza."

"And your name?" she asked, hands poised over the computer.

"Ruth Baringer."

"We don't show a reservation for you."

We have made impressive advances in quantum physics in the ninety years since Planck's constant, but they have by and large been advances in technology, not theory. We can make advances in theory only when we have a model we can visualize.

Excerpt from Dr. Gedanken's keynote address

I high-entropied with Tiffany for a while on the subjects of my not having a reservation and the air-conditioning and then switched back suddenly to the problem of Darlene's key, in the hope of catching her off guard. It worked about as well as Alley's delayed-choice experiments. In

the middle of my attempting to explain that Darlene was not the air-conditioning repairman, Abey Fields came up.

"Have you seen Dr. Gedanken?" I shook my head.

"I was sure he'd come to my Wonderful World workshop, but he didn't, and the hotel says they can't find his reservation," he said, scanning the lobby. "I found out what his new project is, incidentally, and I'd be perfect for it. He's going to find a paradigm for quantum theory. Is that him?" he said, pointing at an elderly man getting in the elevator.

"I think that's Dr. Whedbee," I said, but he had already sprinted across the lobby to the elevator.

He nearly made it. The elevator slid to a close just as he got there. He pushed the elevator button several times to make the door open again, and when that didn't work, tried to readjust its fractal-basin boundaries. I turned back to the desk.

"May I help you?" Tiffany said. "You may," I said. "My roommate, Darlene Mendoza, will be arriving some time this morning. She's a producer. She's here to cast the female lead in a new movie starring Robert Redford and Harrison Ford. When she gets here, give her her key. And fix the air-conditioning."

"Yes, ma'am," she said.

The Josephson junction is designed so that electrons must obtain additional energy to surmount the energy barrier. It was found, however, that some electrons simply tunnel, as Heinz Pagel put it, "right through the wall."

From "The Wonderful World of Quantum Physics," A. Fields, UNW

Abey had stopped banging on the elevator button and was trying to pry the elevator doors apart. I went out the side door and up to Hollywood Boulevard. David's restaurant was near Hollywood and Vine. I turned the other direction, toward Grauman's Chinese, and ducked into the first restaurant I saw.

"I'm Stephanie," the waitress said. "How many are there in your party?"

There was no one remotely in my vicinity. "Are you an actress-slash-model?" I asked her.

"Yes," she said. "I'm working here part-time to pay for my holistic

hairstyling lessons."

"There's one of me," I said, holding up my forefinger to make it perfectly clear. "I want a table away from the window."

She led me to a table in front of the window, handed me a menu the size of the macrocosm, and put another one down across from me. "Our breakfast specials today are papaya stuffed with salmonberries and nasturtium/ radicchio salad with a balsamic vinaigrette. I'll take your order when your other party arrives."

I stood the extra menu up so it hid me from the window, opened the other one, and read the breakfast entrees. They all seemed to have cilantro or lemongrass in their names. I wondered if "radicchio" could possibly be Californian for "donut."

"Hi," David said, grabbing the standing-up menu and sitting down. "The sea-urchin paté looks good."

I was actually glad to see him. "How did you get here?" I asked.

"Tunneling," he said. "What exactly is extra-virgin olive oil?"

"I wanted a donut," I said pitifully.

He took my menu away from me, laid it on the table, and stood up. "There's a great place next door that's got the donut Clark Gable taught Claudette Colbert how to dunk in *It Happened One Night*."

The great place was probably out in Long Beach someplace, but I was too weak with hunger to resist him. I stood up. Stephanie hurried over.

"Will there be anything else?" she asked.

"We're leaving," David said.

"Okay, then," she said, tearing a check off her pad and slapping it down on the table. "I hope you enjoyed your breakfast."

Finding such a paradigm is difficult, if not impossible. Due to Planck's constant the world we see is largely dominated by Newtonian mechanics. Particles are particles, waves are waves, and objects do not suddenly vanish through walls and reappear on the other side. It is only on the subatomic level that quantum effects dominate.

Excerpt from Dr. Gedanken's keynote address

The restaurant was next door to Grauman's Chinese, which made me a

little nervous, but it had eggs and bacon and toast and orange juice and coffee. And donuts.

"I thought you were having breakfast with Dr. Thibodeaux and Dr. Hotard," I said, dunking one in my coffee. "What happened to them?"

"They went to Forest Lawn. Dr. Hotard wanted to see the church where Ronald Reagan got married."

"He got married at Forest Lawn?"

He took a bite of my donut. "In the Wee Kirk of the Heather. Did you know Forest Lawn's got the World's Largest Oil Painting Incorporating a Religious Theme?"

"So why didn't you go with them?"

"And miss the movie?" He grabbed both my hands across the table. "There's a matinee at two o'clock. Come with me."

I could feel things starting to collapse. "I have to get back," I said, trying to disentangle my hands. "There's a panel on the EPR paradox at two o'clock."

"There's another showing at five. And one at eight."

"Dr. Gedanken's giving the keynote address at eight."

"You know what the problem is?" he said, still holding on to my hands. "The problem is, it isn't really Grauman's Chinese Theatre, it's Mann's, so Sid isn't even around to ask. Like, why do some pairs like Joanne Woodward and Paul Newman share the same square and other pairs don't? Like Ginger Rogers and Fred Astaire?"

"You know what the problem is?" I said, wrenching my hands free. "The problem is you don't take anything seriously. This is a conference, but you don't care anything about the programming or hearing Dr. Gedanken speak or trying to understand quantum theory!" I fumbled in my purse for some money for the check.

"I thought that was what we were talking about," David said, sounding surprised. "The problem is, where do these lion statues that guard the door fit in? And what about all those empty spaces?"

Friday, 2-3 P.M. *Panel Discussion on the EPR Paradox*. I. Takumi, moderator, R. Iverson, L. S. Ping. A discussion of the latest research on singlet-state correlations, including nonlocal influences, the Calcutta proposal, and passion. Keystone Kops Room.

I went up to my room as soon as I got back to the Rialto to see if Darlene was there yet. She wasn't, and when I tried to call the desk, the phone wouldn't work. I went back down to the registration desk. There was no one there. I waited fifteen minutes and then went into the panel on the EPR paradox.

"The Einstein-Podolsky-Rosen paradox cannot be reconciled with quantum theory," Dr. Takumi was saying. "I don't care what the experiments seem to indicate. Two electrons at opposite ends of the universe can't affect each other simultaneously without destroying the entire theory of the space-time continuum."

She was right. Even if it was possible to find a model of quantum theory, what about the EPR paradox? If an experimenter measured one of a pair of electrons that had originally collided, it changed the cross-correlation of the other instantaneously, even if the electrons were light-years apart. It was as if they were eternally linked by that one collision, sharing the same square forever, even if they were on opposite sides of the universe.

"If the electrons *communicated* instantaneously, I'd agree with you," Dr. Iverson said, "but they don't, they simply influence each other. Dr. Shimony defined this influence in his paper on passion, and my experiment clearly—"

I thought of David leaning over me between the best pictures of 1944 and 1945, saying, "I think we know as much about quantum theory as we do about May Robson from her footprints."

"You can't explain it away by inventing new terms," Dr. Takumi said.

"I completely disagree," Dr. Ping said. "Passion at a distance is not just an invented term. It's a demonstrated phenomenon."

It certainly is, I thought, thinking about David taking the macrocosmic menu out of the window and saying, "The sea-urchin paté looks good." It didn't matter where the electron went after the collision. Even if it went in the opposite direction from Hollywood and Vine, even if it stood a menu in the window to hide it, the other electron would still come and rescue it from the radicchio and buy it a donut.

"A demonstrated phenomenon!" Dr. Takumi said. "Ha!" She banged her moderator's gavel for emphasis.

"Are you saying passion doesn't exist?" Dr. Ping said, getting very red in

the face.

"I'm saying one measly experiment is hardly a demonstrated phenomenon."

"One measly experiment! I spent five years on this project!" Dr. Iverson said, shaking his fist at her. "I'll show you passion at a distance!"

"Try it, and I'll adjust your fractal-basin boundaries!" Dr. Takumi said, and hit him over the head with the gavel.

Yet finding a paradigm is not impossible. Newtonian physics is not a machine. It simply shares some of the attributes of a machine. We must find a model somewhere in the visible world that shares the often bizarre attributes of quantum physics. Such a model, unlikely as it sounds, surely exists somewhere, and it is up to us to find it.

Excerpt from Dr. Gedanken's keynote address

I went up to my room before the police came. Darlene still wasn't there, and the phone and air-conditioning still weren't working. I was really beginning to get worried. I walked up to Grauman's Chinese to find David, but he wasn't there. Dr. Whedbee and Dr. Sleeth were behind the Academy Award winners folding screen.

"You haven't seen David, have you?" I asked.

Dr. Whedbee removed his hand from Norma Shearer's cheek.

"He left," Dr. Sleeth said, disentangling herself from the Best Movie of 1929-30.

"He said he was going out to Forest Lawn," Dr. Whedbee said, trying to smooth down his bushy white hair.

"Have you seen Dr. Mendoza? She was supposed to get in this morning."

They hadn't seen her, and neither had Drs. Hotard and Thibodeaux, who stopped me in the lobby and showed me a postcard of Aimee Semple McPherson's tomb. Tiffany had gone off duty. Natalie couldn't find my reservation. I went back up to the room to wait, thinking Darlene might call.

The air conditioning still wasn't fixed. I fanned myself with a Hollywood brochure and then opened it up and read it. There was a map of the courtyard of Grauman's Chinese on the back cover. Deborah Kerr and Yul

Brynner didn't have a square together either, and Katharine Hepburn and Spencer Tracy weren't even on the map. She made him waffles in *Woman of the Year*, and they hadn't even given them a square. I wondered if Tiffany the model-slash-actress had been in charge of assigning the cement. I could see her looking blankly at Spencer Tracy and saying, "I don't show a reservation for you."

What exactly was a model-slash-actress? Did it mean she was a model *or* an actress or a model *and* an actress? She certainly wasn't a hotel clerk. Maybe electrons were the Tiffanys of the microcosm, and that explained their wave-slash-particle duality. Maybe they weren't really electrons at all. Maybe they were just working part-time at being electrons to pay for their singlet-state lessons.

Darlene still hadn't called by seven o'clock. I stopped fanning myself and tried to open a window. It wouldn't budge. The problem was, nobody knew anything about quantum theory. All we had to go on were a few colliding electrons that nobody could see and that couldn't be measured properly because of the Heisenberg uncertainty principle. And there was chaos to consider, and entropy, and all those empty spaces. We didn't even know who May Robson was.

At seven-thirty the phone rang. It was Darlene.

"What happened?" I said. "Where are you?"

"At the Beverly Wilshire."

"In Beverly Hills?"

"Yes. It's a long story. When I got to the Rialto, the hotel clerk, I think her name was Tiffany, told me you weren't there. She said they were booked solid with some science thing and had had to send the overflow to other hotels. She said you were at the Beverly Wilshire in room ten-twenty-seven. How's David?"

"Impossible," I said. "He's spent the whole conference looking at Deanna Durbin's footprints at Grauman's Chinese Theatre and trying to talk me into going to the movies."

"And are you going?"

"I can't. Dr. Gedanken's giving the keynote address in half an hour."

"He is?" Darlene said, sounding surprised. "Just a minute." There was a silence, and then she came back on and said, "I think you should go to the movies. David's one of the last two charming men in the universe."

"But he doesn't take quantum theory seriously. Dr. Gedanken is hiring a

research team to design a paradigm, and David keeps talking about the beacon on top of the Capitol Records building."

"You know, he may be onto something there. I mean, seriousness was all right for Newtonian physics, but maybe quantum theory needs a different approach. Sid says — "

"Sid?"

"This guy who's taking me to the movies tonight. It's a long story. Tiffany gave me the wrong room number, and I walked in on this guy in his underwear. He's a quantum physicist. He was supposed to be staying at the Rialto, but Tiffany couldn't find his reservation."

The major implication of wave/particle duality is that an electron has no precise location. It exists in a superposition of probable locations. Only when the experimenter observes the electron does it "collapse" into a location.

The Wonderful World of Quantum Physics, A. Fields, UNW

Forest Lawn closed at five o'clock. I looked it up in the Hollywood brochure after Darlene hung up. There was no telling where he might have gone: the Brown Derby or the La Brea Tar Pits or some great place near Hollywood and Vine that had the alfalfa sprouts John Hurt ate right before his chest exploded in *Alien*.

At least I knew where Dr. Gedanken was. I changed my clothes and got into the elevator, thinking about wave/ particle duality and fractals and high-entropy states and delayed-choice experiments. The problem was, where could you find a paradigm that would make it possible to visualize quantum theory when you had to include Josephson junctions and passion and all those empty spaces? It wasn't possible. You had to have more to work with than a few footprints and the impression of Betty Grable's leg.

The elevator door opened, and Abey Fields pounced on me. "I've been looking all over for you," he said. "You haven't seen Dr. Gedanken, have you?"

"Isn't he in the ballroom?"

"No," he said. "He's already fifteen minutes late, and nobody's seen him. You have to sign this," he said, shoving a clipboard at me.

"What is it?"

"It's a petition." He grabbed it back from me. " 'We the undersigned demand that annual meetings of the International Congress of Quantum Physicists henceforth be held in appropriate locations.' Like Racine," he added, shoving the clipboard at me again. "*Unlike* Hollywood."

Hollywood.

"Are you aware it took the average ICQP delegate two hours and thirty-six minutes to check in? They even sent some of the delegates to a hotel in Glendale."

"And Beverly Hills," I said absently. Hollywood. Bra museums and the Marx Brothers and gangs that would kill you if you wore red or blue and Tiffany/Stephanie and the World's Largest Oil Painting Incorporating a Religious Theme.

"Beverly Hills," Abey muttered, pulling an automatic pencil out of his pocket protector and writing a note to himself. "I'm presenting the petition during Dr. Gedanken's speech. Well, go on, sign it," he said, handing me the pencil. "Unless you want the annual meeting to be here at the Rialto next year."

I handed the clipboard back to him. "I think from now on the annual meeting might be here every year," I said, and took off running for Grauman's Chinese.

When we have the paradigm, one that embraces both the logical and the nonsensical aspects of quantum theory, we will be able to look past the colliding electrons and the mathematics and see the microcosm in all its astonishing beauty.

Excerpt from Dr. Gedanken's keynote address

"I want a ticket to *Benji IX*," I told the girl at the box office. Her name tag said, "Welcome to Hollywood. My name is Kimberly."

"Which theater?" she said.

"Grauman's Chinese," I said, thinking, This is no time for a high-entropy state.

"Which theater?"

I looked up at the marquee. *Benji IX* was showing in all three theaters, the huge main theater and the two smaller ones on either side. "They're doing audience-reaction surveys," Kimberly said. "Each theater has a

different ending."

"Which one's in the main theater?"

"I don't know. I just work here part-time to pay for my organic breathing lessons."

"Do you have any dice?" I asked, and then realized I was going about this all wrong. This was quantum theory, not Newtonian. It didn't matter which theater I chose or which seat I sat down in. This was a delayed-choice experiment, and David was already in flight. "The one with the happy ending," I said.

"Center theater," she said.

I walked past the stone lions and into the lobby. Rhonda Fleming and some Chinese wax figures were sitting inside a glass case next to the door to the restrooms. There was a huge painted screen behind the concessions stand. I bought a box of Raisinets, a tub of popcorn, and a box of jujubes and went inside the theater.

It was bigger than I had imagined. Rows and rows of empty red chairs curved between the huge pillars and up to the red curtains where the screen must be. The walls were covered with intricate drawings. I stood there, holding my jujubes and Raisinets and popcorn, staring at the chandelier overhead. It was an elaborate gold sunburst surrounded by silver dragons. I had never imagined it was anything like this.

The lights went down, and the red curtains opened, revealing an inner curtain like a veil across the screen. I went down the dark aisle and sat in one of the seats. "Hi," I said, and handed the Raisinets to David.

"Where have you been?" he said. "The movie's about to start."

"I know," I said. I leaned across him and handed Darlene her popcorn and Dr. Gedanken his jujubes. "I was working on the paradigm for quantum theory."

"And?" Dr. Gedanken said, opening jujubes.

"And you're both wrong," I said. "It isn't Grauman's Chinese. It isn't movies either, Dr. Gedanken."

"Sid," Dr. Gedanken said. "If we're all going to be on the same research team, I think we should use first names."

"If it isn't Grauman's Chinese or the movies, what is it?" Darlene asked, eating popcorn.

"It's Hollywood."

"Hollywood," Dr. Gedanken said thoughtfully.

"Hollywood," I said. "Stars in the sidewalk and buildings that look like stacks of records and hats, and radicchio and audience surveys and bra museums. And the movies. And Grauman's Chinese."

"And the Rialto," David said.

"Especially the Rialto."

"And the ICQP," Dr. Gedanken said.

I thought about Dr. Lvov's black and gray slides and the disappearing chaos seminar and Dr. Whedbee writing "meaning" or possibly "information" on the overhead projector. "And the ICQP," I said.

"Did Dr. Takumi really hit Dr. Iverson over the head with a gavel?" Darlene asked.

"Shh," David said. "I think the movie's starting." He took hold of my hand. Darlene settled back with her popcorn, and Dr. Gedanken put his feet up on the chair in front of him. The inner curtain opened, and the screen lit up.

The End