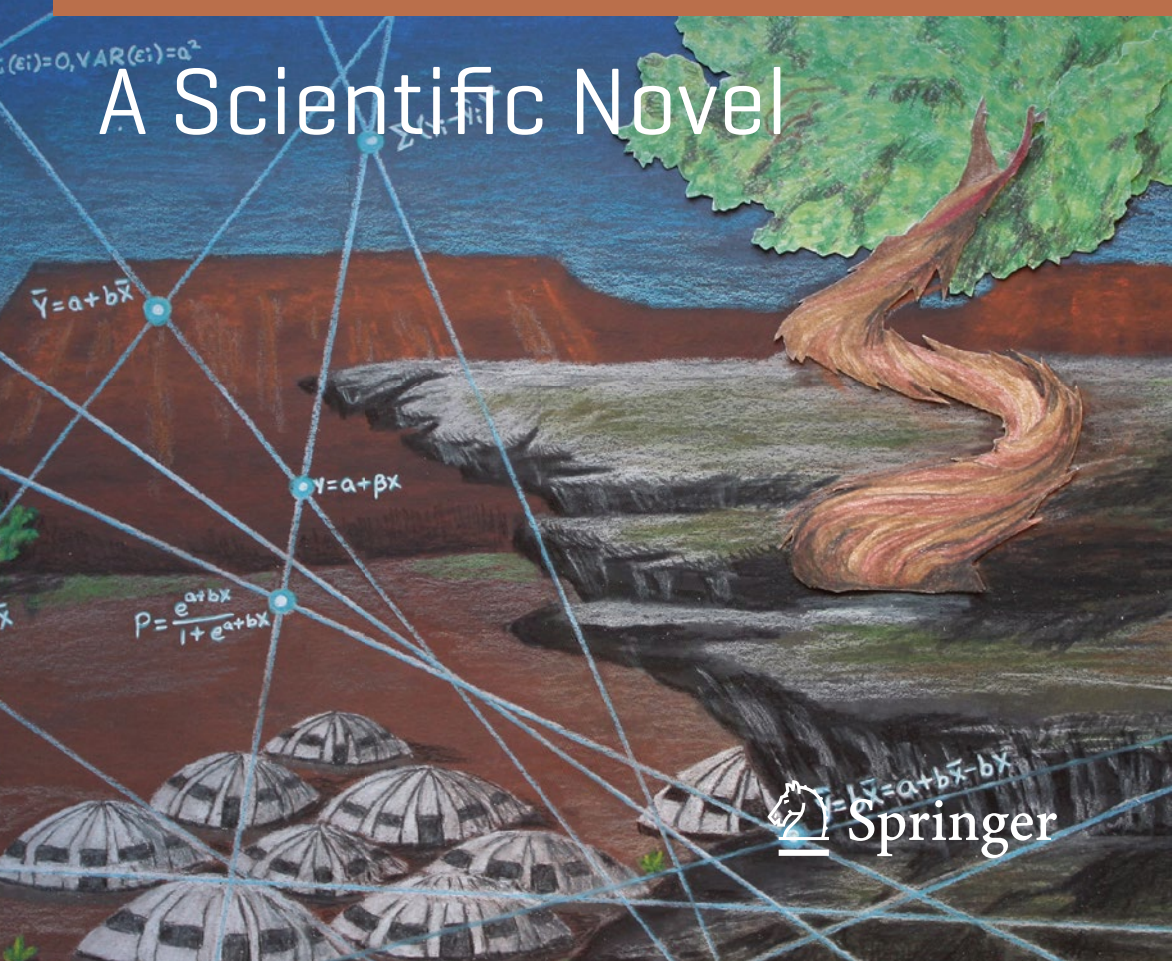


Doug Brugge

Incident on Simpact III

A Scientific Novel



Springer

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Incident on Simpac III

A Scientific Novel

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To my daughter, the singer-songwriter Laice. I created Jhaan before you were an inkling in anyone's mind. But somehow her struggles and will to overcome predicted you. I'm proud of you.

Preface

I would like to thank the people who read drafts of this novel and give me encouragement and feedback. However, I am not sure I remember everyone. I know that Lydia Lowe, Amy Batiste and my sister, Janet McGillivray, read a very early version. Janet also read it after I edited it for publication and designed the cover based on that reading. I am very pleased to be able to include her artwork on the cover. Tommy Rock and another friend read all or parts of the manuscript at the last minute and helped calm some of my last minute jitters. Debra Bungo Sharp was my very thorough and effective copy editor at the end. Without her help, I fear the text would have many grammatical errors, large and small, and more places where the wording was awkward. My wife, Miho Matsuda, listened to my oral summary of the story despite not being fond of science fiction. She has been the bedrock of my existence in the final stages of publishing.

Boston, MA

Doug Brugge

Contents

1	The Novel: Incident on Simpac III	1
2	The Science Behind the Fiction: In the Shadow of Asimov	223



1

The Novel: Incident on Simpac III

Later...

Jhaan rose from sitting under her tree. She was exhausted, thirsty, and hungry. A man was walking toward her. Finally, she thought, someone to save her. As she stood, she started to wave at him to make sure he saw her. Then she saw the silver globe floating over his head. Suddenly there was a blinding flash of light.

Earlier...

Carlaa

“Damn computone!”

Jef looked up slowly from across the room and eyed Carlaa coolly.

“Damn,” she repeated, turning to look straight at him.

Jef turned back to his work at *his* fully functioning computone.

Carlaa tried again, “I’ll never finish my synthesis on time now.” Her voice had just the right mix of self-pity and anguish.

“Are you sure it’s down?” Jef asked refusing to raise his eyes to meet hers.

“Completely. It will take days to gear up again.”

There was a long pause. They both knew that if Carlaa could use *his* she could soon be back to where she was before hers went haywire. Carlaa knew Jef could be exquisitely frustrating. They had worked together in the same room for only a short time, sever since they had been hired into the section assigned to work on Simpac III. Still it had been long enough that they should, to Carlaa’s way of thinking, have gotten to know each other.

Instead, Jef maintained a brooding distance and acknowledged her only when there was practically no other choice. As Jef sat, unresponsive to her overture, Carlaa felt frustration and irritation welling up inside and threatening to burst out inappropriately.

“You made a neuron rep?” Jef asked, just as Carlaa was about to speak again.

“Of course,” she answered, trying to sound surprised, even hurt, that he would have to ask, masking her underlying frustration.

Finally he looked her in the eye, “I have work to do too,” he trailed off.

She pounced, “I’ll owe you, I swear, whatever you want, I’ll prep your next functional analysis, this is *so* important to me. The administrator would never understand as it was due to him yesterday.”

“Okay, enough,” his response implied that she had carried on like a whining child for hours, which, of course, she had not. “Just remember your promise.”

The tables had turned so fast that Carlaa was caught unprepared. She immediately knew that she’d offered too much. Jef’s next functional analysis would probably take weeks. However, there was no going back. She would have to cross that bridge when she got to it. Plucking the replicate neuron tube from its place in her computone, Carlaa scurried across the room to Jef’s work space, just as he rose and stepped aside. Plunging the tube in, she began banging keys to start up the reset sequence without looking up.

She vaguely heard Jef slip out of the office. In her imagination, she thought that he was probably off to sit in the park or relax in some other way. Not that she could easily picture him having fun. He was, from everything that she could gather, a rather boring and uninspired man who was old enough to have already moved up to a mid-level staff position.

He had gotten the best of her. So what? It didn't really matter. The important thing was getting the synthesis done in time to file a progress report as soon as possible. The administrator, a guy named Kartlens, had been impatient with her about this project from the start. He had bugged her twice before she even got started until she finally took the not so subtle hint that he wanted it done immediately. After days of avoiding him, just as she was nearing completion, this bad luck had cost her valuable time.

Jhaan

When Jhaan was a child her Pop liked to arrange family outings to places near town. Jhaan had outgrown these family excursions, but still felt a little nostalgia for them. Although the places they visited ranged from the lake to the dunes to the big sandstone formation that was called, "The Arches," Jhaan's favorite was the canyon. The stream in the canyon could be dry or there could be a steady flow of water over its dusty, sandy bed. The streambed was surrounded by a dense line of cottonwood, salt cedar and Russian Olive trees. Their alternating colors of bright green, dark green and drab green formed a base for the steep, red canyon walls. The stone of the walls stretched upwards for as much as one thousand feet to the rim. While mostly red, the sandstone was streaked with black and white, which swirled about in fanciful patterns.

The family used to ride out to a point where a trail leading down from the rim. They would unload water bottles and a lunch bag and spend the morning hiking to the bottom. It was about four kilometers down through a series of sharp switchbacks that cut along sheer cliff. At the bottom, built high into the cliff face there were "ruins" of old metal and brick structures that Dad said had been occupied by another species that inhabited Simpac III long before humans arrived to find it devoid of life.

At that time the canyon was not so deep and the inhabitants lived on the bottom rather than seeming to be suspended halfway up the stone wall. Jhaan would play in the sand or stream, depending on the season. Then they would eat their lunch and lie in the sun or shade, again depending on the season.

When they had enough, or the sun was low in the sky, they would start the long hike back up. It was a steep walk and Pop huffed and puffed to show just how hard it was for him. Jhaan would roll her eyes because she didn't believe

him. Although it meant the end of the day, she always cherished the return. There was something so sweet and rare in the late afternoon air that she could almost taste it on her tongue. She remembered stopping and looking back at the shadows as they lengthened across the canyon feeling a sense of belonging and purpose in the mild chill of the cooling air. Then, in her mind's eye, she could remember taking Pop's hand and pulling him along the next switchback in the trail, her family complete and secure.

Carlaa

Carlaa used a few keystrokes to input her name and ID as bright red letters flashed on the 3-D holo-screen.

She typed, somewhat clumsily, "Carlaa Perez, 217 7330 69 777-A3B6".

The screen responded by going into a dizzying display of flashing colors, numbers and letters that would have made a less initiated person queasy. Carlaa actually had little sense of how computones work. She knew well how to instruct them and utilize the capabilities that they possess, but the internal biology was pretty much a mystery to her. She knew that they carry out their work by use of neural bundles, but little more than that.

The computones that she and Jef worked on were research level machines and were based on Chimpanzee brain tissues. By general agreement and various laws, the higher primates were the upper limit for making computones. The more advanced the animal from which the nerves were derived, the greater the capabilities of the machine. Nevertheless, human tissues were prohibited from use in machines because of lingering questions about the nature of consciousness in the neural growths and a general squeamishness.

There were also limits, scientific rather than ethical, to the volume of neural tissues that could be grown and maintained for long periods of time. Carlaa knew how to feed her computone and had given it a name, "Buddy", as she had all the computones on which she had worked since college and graduate school. She had little idea why it needed the particular mix of sugars, vitamins and hormones that she fed it on a daily basis.

The beauty of computone neural bundles was that they could be focused entirely on the problem that they were assigned. While the people who designed them claimed that they did not have appreciable consciousness, in Carlaa's experience each had a personality. Many of her colleagues would also argue that they had a special relationship with their computone. Carlaa felt that this was something like the attachment that pet owners develop with their dog or cat. Whatever the level of consciousness, computones were capable of achieving incredible feats of calculation, both qualitative and quantitative.

Jef's machine finally settled down into a basic operating mode, but not the one Carlaa needed for her project. She decided to try a voice activated interactive setting and typed the command, but Jef had his machine locked into his intonation. For a second, she wished that she had not let him leave so easily. He could have helped her negotiate his settings. It would not necessarily be easy to figure that out without him. So she would have to slog through the remainder of her synthesis using keystrokes and visual cues.

For some reason the newest computones occasionally asked for the personal background of the user before they would proceed. Jef's computone knew that Carlaa was not Jef as soon as she sat down in front of it. After allowing her a dozen or so commands, it "decided" to ask some basic identity questions. It did this with a little flourish that would have made Carlaa smile to herself under better circumstances. "Excuse me," it said in the squeaky voice she had heard over her shoulder for months. At the same time it flashed an image of a baby's hand, which waved to her from about halfway inside the three-D screen. Since the only way to proceed was to do as it asked, Carlaa complied, but without the usual touch of affection that she felt toward her own computone.

"Name?" it asked.

"Carlaa Perez" she typed.

"Birth date?"

"7; 3; 2460"

Thirty-four years ago, Carlaa thought.

"Birthplace?"

"Duostar One, Orbiting Parmic Prime"

The computone launched into another series of flashes and blinks that were starting to seem cold and harsh to Carlaa as she sat back in the dimly lit room, pushing a lock of her thick hair out of her eyes. She could imagine that most other researchers were wrapping up their work for the day and heading home. She assumed that Jef's machine was confirming the information that she had entered and comparing it to the historical record. Was Duostar One Orbiting Parmic Prime in the Ursa Major Sector on 7; 3; 2460?

She found herself thinking about her childhood on Duostar One as she waited. She had a memory of running happily among the maintenance crew housing where she had grown up. The memory faded as quickly as it came, leaving the atmosphere in the room empty and lonely. It had been more than two years since she had seen any of her family and longer than that since she had seen her parents. They had not been happy about her divorce. Her childhood felt long ago and far away, and the little brown skinned girl that she had been, a distant stranger.

Her father had been a maintenance person on the station, until he retired about a year ago. She and her two sisters had been given her mother's last name, while her three brothers took her father's name. No one in the family besides her and Steve, the youngest, who had just completed college, had an advanced education. Now they were scattered across occupied space, just about as far from each other as they could get. Her parents, Carlaa thought, had had an argumentative and sometimes unhappy marriage, but they had stayed together. She missed them and vowed to communicate soon.

The computone was displaying, rapid-fire style, biographical information about Carlaa across its screen. She missed most of it, but caught a bit about her genetic make-up. Some percent unmodified from her father, a certain amount directly from her mother, parts modified slightly from each of the people she called her parents, and a big chunk made up of all sorts of bits and pieces sewn together from who knows where. Much of her make-up was composed of choices her parents had made, some of it required or strongly encouraged for public health or other reasons.

Eventually the computone let Carlaa in. "Proceed," it announced in pale green lettering that had a 3-D hand scrawled appearance that under different circumstances would have amused her.

For some reason the computone also "changed its mind" and let her use a generic voice hook-up instead of Jef's customized interface. Maybe it had recognized her voice from across the room. Maybe it was just being capricious. In any case, her work proceeded toward her goal of producing a policy recommendation for teen year education on the colony. By midnight she was back to where she would have been without the failure of her computone. It began to look, through the blurry haze of the late hour, like she could finish after all.

Carlaa considered shutting down for the night, she was tired and thought that the mood change that usually preceded her menses might be coming on. Of course, it could have just been the events of the day and the long night of work. Whatever it was, the feeling loomed in the back of her thoughts. She refused to undergo the so called Corvac Procedure that almost all women used to eliminate the menstrual cycle and, with it, their mood swings. Many felt that if the biological cycle was not needed for reproduction then had it had no use at all. Carlaa tried to recall when she had her last period, but could not. Some people teased Carlaa when they found out that she was fertile. They called her a "naturalist" and wondered aloud about the risks of conceiving a natural child, often with visible distaste at the prospect.

Carlaa had an obstinate streak and had decided that she was meant to experience the full natural range of emotions with which eons of evolution had endowed her. Maybe that is why she had not had any children during her

brief marriage. The genetic manipulations leading to a healthy baby free of the genetic defects of the past were all right in her mind, but actually designing a child bothered her. Her ex-husband always told her that she should get the Corvac Procedure done, that she would be happier if she did. Carlaa knew what he really meant was that it would make her easier for him.

She started out of her reverie and gazed through that wayward lock of hair that had fallen in front of her eyes again. The screen was covered with a pattern of tiny pinpoints of light that had become increasingly intricate as she worked. Some of the points were attached to finely written codes made up of letters and numbers. Others stood alone. Faint threads were strung from point to point in an incredibly complex and delicate web.

This was the messy intermediate stage to a synthesis, the basic tool of quantitative societal interpretation used to guide planetary colonization. The statistical methods had their origins centuries ago in qualitative epidemiology and biostatistics, especially regression modeling, but had advanced to a level of complexity and sophistication unimaginable in that distant past.

Put in the right data, guide the computone in its manipulations skillfully enough and out popped a neat, often clever policy recommendation for successful colonial development. Of course, put in bad data and you got an equally clever, but totally wrong outcome. It was Carlaa's job to make sure that did not happen. Prior to computones and the development of synthesis theory, planetary colonization had had been hit or miss, mostly miss.

As Carlaa looked at the spider's web, as it was often called, something nagged at her. This field looked different than usual. She blinked. The computone screen remained impassive. Maybe it was just tiredness. After all, she was exhausted. She had been working for over sixteen hours straight. Still she thought that she sensed something wrong, something distinct about this field. Anyway, what did she think she was—a computone? There was no way the human eye could resolve a representational image of such complexity into anything meaningful.

Out of the corner of her eye, she caught her reflection in a console panel. Her large dark brown eyes stared back at her and she thought, despite the poor resolution of the image, she could see the puffiness under them brought on by the late hour.

It was only fifty years ago that scientific direction of development on the colonies was done on standard computers with software programs. It took days, if not months, to analyze the amount of data now handled in minutes by a computone. Only one hundred years ago, the entire subject of scientifically directing colonial development was merely a theory, akin to philosophical speculation. Thus, after a long period when it was proclaimed that there

were no new sciences to be discovered, a totally new and exciting field had emerged.

Carlaa recalled the atmosphere at the Institute when she was a student there over a decade ago. The air was filled with a palpable sense of excitement. You could almost smell it. She and her classmates were filled with hope for a better future and dreams of the role each of them would play in creating it. They had studied the old fields of statistics first then advanced to the new approaches that she now used in her work.

That spark of excitement still flared up in Carlaa from time to time. Usually it was only a faint flicker in the back of her mind. On rare occasions, however, she got caught up in that red hot flame all over again. Maybe it was for those moments that she has stayed with her career.

Tonight, she thought, that flame was as faint as one of the computone star points. Later, she would look back at her choice as somehow pivotal in all that was to happen. It was not a rational viewpoint, since the result would have been the same later the next day, but for Carlaa, perhaps because of her sleepy state of mind, it was an almost magical moment. Maybe it was that slight sense that something was amiss with the web in front of her, or maybe it was just a reflex, one of those moments when she could go either way, and instinctively pulled to one side. In the semidarkness of her lab, late at night, alone in the building, the consequences of her choice were far more significant than the energy that she put into deciding.

The computone allowed a premature synthesis that would give the researcher a partial, and incomplete outcome, but one that gave a general sense of where the whole thing was headed.

She spoke the appropriate command, “Pre-synch one dash five for ABD.”

That sent the computone into another of its whirls of colors and flashes that reflected across Carlaa’s angular cheekbones as she settled back waiting for the familiar outcome screen to materialize. She didn’t really expect anything terribly solid from the premature synthesis, but what happened next truly surprised her. Actually it was so unexpected that it took a full moment to register in her conscious mind. A new, completely unfamiliar and wildly disordered spider’s web appeared where the outcome field should have been.

Carlaa gazed at it skeptically through heavy eyes. “What the hell....”

Ruth

The presentation would be rote for Ruth—very basic stuff for non-scientists, not like speaking last month before the Academy of Synthesis Theory and Technology. Now that had required keeping her wits about her! The audience

at the Academy had been filled with young, sharp, bright minds just looking for an opening to ask a difficult question or to trip her up. Not that they were hostile. No, it was more that they were aggressive. In an oddly positive way they were trying to make a place for themselves in what had become an increasingly competitive field. Ruth had actually liked them for the challenge that they presented. She had risen to the occasion and handled their barrage of questions so expertly that they'd given her a long, warm ovation when she finished. To meet a crowd like that and turn them to your side set Ruth's mind flying afterward and kept her up most of the following night replaying the verbal sparring in her mind.

Not this crowd—they were managers and technicians, government officials and bureaucrats. Not dullards at all, but largely incompetent at science. They would settle for a highly simplified version of the real thing and go away thinking they understood high science. She would water down the science to give it to them in lay terms.

Looking out over her audience of about two dozen people, she scanned their faces for some sign of who they were and why they came to hear the esteemed Dr. X. There was a trio of black men directly in front of her. Their dress suggested that they were from New Africa, and their attentiveness suggested that they were new to the topic. Next to them was an older Asian woman. She seemed to be alone, her eyes bright with anticipation. Ruth could not judge from her dress who she was or why she was there.

Ruth caught the eyes of another woman as she continued to scan the faces before her. She was a white woman with a stern expression and sharp steel blue eyes. Her streaked, silvery hair was tied back in an austere fashion and she was wearing the gray-green uniform of one of the planetary development companies that operate off distant and desolate worlds, exempt from the laws that regulate and restrict corporate enterprises everywhere else. Next to her were a couple of underlings in identical uniforms, but without the accoutrements of rank that decorated the uniform of the steely eyed woman.

Ruth would have continued dissecting the audience, but the host, a short white woman of middle age and overly tanned skin, chose that moment to start the program. Following the obligatory introduction overfilled with hyperbole about the great Dr. X, Ruth started her standard presentation. She began the way that she always did for non-scientists, with data mining. Since everyone knew of the data mines it made a good launching point.

Ruth explained, "The data that we mine is of two types, quantitative and qualitative. The quantitative values place individuals in specific locations at specific dates and times. The more accurate the time, location and identity the better. The general rule is that the identity must be narrowed down to a person or a close associate or relative. The time must be in error of no more than

a day, and preferably a few hours. The place should at least be a city or town and preferably a specific street address and, in the best cases, a room within a building. This numerical data forms the backbone for the analysis, sort of a framework on which the subjective data is eventually layered. It is usually called a web.”

A young man with smooth features and light brown skin thrust his hand into the air, “Dr. X!” His accent suggested that he was from India or one of the India colonies.

“Yes?” Ruth stopped and waited, slightly taken aback by his intrusion.

“What sort of data are we talking about?”

“That is exactly what I am about to explain.”

“The quantitative numbers,” Ruth continued, waving her hand slightly for emphasis, “can come in all kinds of forms. Some of it is financial in nature, that so and so made a payment of this or that amount to this business or that agency on a particular date. Due to the underlying need for monetary data to be quantitative and precise it tends to be better preserved than most other sources. Of course, we are not interested in the economic information encoded by such records. That is purely incidental to our objective. Our goal is to locate as many persons, organizations or business entities in time and geographical location as possible.”

Ruth’s eyes caught a very young woman leaning forward expectantly directly behind the three black men. Her blond hair was cropped short and she cupped her chin in her hands. The look on her face was pure adulation! The intensity of the woman’s gaze was so striking that Ruth was momentarily startled and had to gather up her composure before she continued.

“Err, really anything that is retrievable from the historical record is of use,” she said, turning so that the blond woman was in the periphery of her field of view. “There have been some highly creative sources that were developed over the years.” She left unsaid that this creativity was the result of work by the original pioneers, Ruth and a handful of others. Ruth, who suspected that most of her audience already knew this, was long past boosting her own stature or ego.

“Various news reports,” Ruth ticked off on her fingers as she talked, “especially those produced on a daily basis have been widely exploited. Proceedings of professional societies, unions and governmental hearings are useful, as are court, licensing and permit records, school enrollments and records of government services.”

As she went through her list the words were projected in various languages in the space behind and above her right shoulder. Each language was in a unique style and color to make it easy to distinguish from the others.

Carlaa

Upon seeing the disordered spider web, Carlaa's first thought was that she must have done something wrong and that the whole night's work had been in vain. "Talk about bad days," she thought to herself. Yet it took only a moment for her to realize how unlikely it was that she'd made a mistake. She had dozens of syntheses beneath her belt. And when she made a rare mistake it never led to anything like this. In fact, she had never heard of this happening ever before.

"Diagnostic 6-BC," she commanded, in a tired voice, discouragement creeping in.

"?" the screen queried in neat blue lettering.

"Diagnostic 6-BC," she said trying to enunciate the words and letters clearly while controlling her growing frustration.

The diagnostic corner of the 3-D field sprang into action following her second command. After a moment of blurring lights, it formed a response.

"No human errors in any sectors," it reported, choosing a flowery style that was hard to read.

"Well maybe you made a mistake," Carlaa grumbled aloud, irritated with the presumption that the computone did not consider itself to be part of the diagnostic.

"?" said the computone in sky blue, its whimsy now completely lost on Carlaa.

"Mechanical check, all sectors," she said aloud. There was no point in arguing with a machine even one that was based on biological tissues.

More whirring lights appeared in the diagnostic field.

"No mechanical or biological errors in any sectors," wrote the computone in letters of many different sizes. It briefly crossed Carlaa's mind that Jef's relationship with his machine was a bit odd.

She sat still for a while, unsure how much time passed, the room silent around her. Despite her advanced training, she could think of nothing else to do. She rubbed her hands together, feeling the spot on her ring finger that, even after the passage of more than a year, felt naked without her wedding band.

Finally she reached for the keypad and punched in a fresh program, too tired and irritable to compose it out loud. It took her about half an hour to develop a program that would ask if it was possible for a premature synthesis to result in a new and highly disordered spider's web. All the while she sensed a wellspring of self-pity growing inside. Since her work was basically her life since the divorce, everything was starting to look bleak. It appeared that she

had made a deal with Jef that would require her to do work for him, but that did not achieve what she needed to do in her own research.

Once the program was ready, it took another fifteen minutes to run because Carlaa had used a slower sub-sector of the computone in order to leave the new field displayed on the screen. While the program ran she took a closer look at the spider's web. On closer examination it was not completely random, but the level of disorder was greater than the data that she had put into the synthesis. Vaguely, it reminded her of something, but she could not say what. Was it a field she'd seen before? Each and every field was distinct from all others, but remembering a specific field, even if you have worked on it for some time, was not easy for the human mind. For Carlaa, it felt as though a thought was on the tip of her tongue, but sleepiness and perhaps the passage of years, seemed to block it out.

Eventually the computone let out a shrill whistle, indicating that her program was completed. Carlaa turned and gazed at the information displayed in a corner of its 3-D screen. The search produced a simple answer. There were no records of star field synthesis resulting in new spider's webs in the archives, but theoretically it was possible if the input data contained "gross anomalies." The computone wrote the words "gross anomalies" in a squiggly, distorted fashion, still trying to appeal to Carlaa's sense of humor, which, it apparently had no way of knowing, was virtually nonexistent.

"Gross anomalies? Like what?" she wondered aloud. The computone glowed quietly and didn't respond, not even a question mark this time. Carlaa had written the program in a strictly search mode that was faster than a retrieve mode, now she was sorry she'd done that. It would have been interesting to call up a theoretical data set that resolved into a new spider's web upon synthesis. On the other hand, for all Carlaa knew, the machine would not even be able to compose such a data set.

Glancing at the time on the screen Carlaa saw that it was 2 a.m. She knew that she should give up, go home and come back the next day. Better yet, she should stay home tomorrow and come back the day after that with a fresh perspective. But the deadline loomed before her.

"Damn," she thought aloud, "all I really want to do is sleep."

As she reached for the save command, it suddenly hit her—Professor Wildman.

"Of course, that's where I'd heard of a spider's web that could not be resolved," she thought aloud.

At the institute Wildman was a bit of an eccentric. His work was highly theoretical, on the fringe of acceptable research, more philosophical than anything else. Carlaa had taken his "philosophy of quantitative social science" class because she needed some credits outside of her concentration in applied

field synthesis. Wildman would pose sociological riddles at the beginning of each class and then launch into meandering conversations with himself about them.

Carlaa could still picture his white hair sticking out in every direction as he spoke more to his shoes than the class. The students found him amusing at best and ridiculous at worst. Mostly they tolerated him because he graded easily—everyone got a passing score—and because he assigned little work outside of class. “Think about it, think about it” he’d say at the end of his lectures. Now Carlaa remembered that one of his lectures supposed “gross anomalies” in the input data. Those were his exact words. She glanced at the screen to confirm the words there.

At the institute Carlaa had been full of fire to change the universe, to be a part of the bold new society that was being forged. She was idealistic, young and impressionable and, accordingly, paid little attention to Wildman. What he taught seemed to be irrelevant to the work she intended to do. Now she had to wonder, was Wildman on to something? No one else at the institute ever broached the question of “gross anomalies” or unresolved spider webs.

Carlaa wondered where Wildman was now. He’d been close to retirement when she was at the institute. She tried to remember more about Wildman’s gross anomalies lecture. She thought that he had suggested a few examples. She was almost sure that they were totally unpredictable natural disasters such as a star going nova with no warning. Completely impossible scenarios really. What else? The development of a vast, secret, and influential political movement, whose nature and even existence could be kept from researchers and planners. A little more plausible, but still unlikely. Looking deeply into her star field, Carlaa almost felt that if she stared hard enough she would see the faint contours of a secret society emerge. Her back ached from sitting too long.

The tens of thousands of faintly glowing pinpoints of light were almost hypnotic. Seconds before Carlaa would have drifted off into a warm doze, she managed to snap out of it, blinked and tried to concentrate. Thinking of Wildman, she was certain that there were other scenarios. One, if she remembered correctly, involved a miraculous genetic coincidence, odds of billions and billions to one. Another involved a technological advance that somehow undermined the underpinnings of synthesis theory.

Carlaa knew that she had to decide what to do next. Several options came to mind. Going home and getting some sleep seemed the most sensible, but she couldn’t let the problem go. She was aware that her obstinate nature was raising its head, but powerless to stop it. Completing the synthesis on the new star field or re-running the synthesis on the original star field seemed like the best options. Manually going through the input data looking for anomalies

was impossible since she had no idea what she was looking for and the database was close to 10^{25} units in size. She decided to stay up and finish the synthesis on the star field.

Jef came in at about nine in the morning and leisurely set to work, hunching his lanky frame and straggly hair over Carlaa's computone. Finding her deep in work, he assumed that she'd gone home after him and come back before him. He was not observant enough to notice that Carlaa was still wearing the same clothing as yesterday or that she looked exhausted and disheveled. Carlaa did not speak to him, pressing on with her work. She was barely able to function after her sleepless night and kept making mistakes that forced her to go back and re-do steps that should have been easy to complete.

Sometime before noon, Carlaa was ready to run the final synthesis and gave the command, "Last and complete synthesis one dash five for ABD."

The computone took a long time to complete a final synthesis and as Carlaa settled back to watch she noticed Jef looking sideways at the whirling lights. He probably figured that he would have his computone back shortly. More to the point, that Carlaa would be available to take on the work that she had promised she would do for him. As they waited, Carlaa realized that she'd been in this one room for more than a day.

The final synthesis, like the premature one, emerged as a highly disordered spider's web.

Jef let out an audible breath behind Carlaa.

"What are you doing?" he asked after a moment.

Carlaa ignored him and looked at the field which was more organized than the one last night, but still quite disordered. As she looked more closely her eyes were drawn to a larger, pale yellow light right in the center of the 3-D field. The finely printed text next to the yellow ball glowed a pale powder blue and read simply, "Simpac III." Radiating out from the ball were very faint yellow threads that ended on other light points scattered throughout the field. Nothing else was labeled, described or explained in any way.

Jhaan

When Jhaan looked in the mirror she often felt that the face looking back was not her own. She could trace the features in it that corresponded to hers. It had the same fine, shoulder length, straight black hair that had a tendency to tangle and get tossed about on a windy day, and, that no matter what she did, would not stay in place. Mom always told her that she should keep it short, but she steadfastly refused to cut it.

The image in the mirror had her thin, sharp nose and green eyes, eyes that she had thought were yellow when she was younger. As a child she had no idea that having yellow eyes might be considered unpleasant. As she grew older she found out that green eyes were sort of unusual and that other kids thought that you must know something that they didn't.

Her thin red lips and pale white skin were in the mirror too, along with cheeks that tended toward a pink blush. Unlike some of the girls her age, Jhaan wore no make-up. The face in the mirror was fourteen years old just like she was. It moved and turned in perfect synchrony as a mirror image should, but it was not convincing to her. Maybe the changes of growing up had made her a stranger to herself. In the living room, Mom and Pop had projected cheap portraits of her and her brother dating back to when they were babies. The portraits were 3-D like the mirror and, through them Jhaan could trace back the evolution of the face, her face. Still, however much she tried she couldn't fully accept that the face was really hers. She supposed this must be just a silly flight of fancy.

"How could my face not be my face?" She wondered silently.

Jhaan was as comfortable with herself as any teenager could be. Her school counselor always said that she was as well-adjusted as any adolescent. Jhaan was not so sure. After all, looking in a simple mirror made her feel disconnected and strangely uneasy.

Jhaan had tried to talk to her girlfriend Krill about this, but of course she couldn't find the right words to make Krill understand. Instead her friend ended up thinking that she was concerned about her appearance, which was, after all, also true. What followed was a perfectly enjoyable intimacy in which Krill assured Jhaan that she was "cute" and the two of them ended up spending the rest of the afternoon trying on clothes and fixing each other's hair in a variety of styles.

Krill told Jhaan, as she brushed her thin hair with a thick old brush, "Your eyes are so neat. They just ooze mystery."

Jhaan giggled at the compliment, "You know I just wish that I had your nice thick curly hair." Jhaan thought that her smile was her best feature, but she and Krill were being friends and the mood mattered more than accuracy.

Clearly pleased with the compliments, Krill paused in mid-brush. "Well," she drew out the word so that it trailed off. "It is a bit of a pain to take care of."

"You know," Jhaan said suddenly, cutting Krill off, "wasn't Mahl supposed to come by today?"

Although Krill and Jhaan often described themselves as "best friends," they also hung out with Mahl, especially when in school. While Krill was mostly

concerned about boys, Mahl was single-mindedly interested in being a perfect student. She read incessantly and often talked non-stop about astrophysics or mathematics. Krill and Jhaan tried to keep her in line and interest her in other, more relevant matters, but with little success.

Krill rolled her eyes at the mention of Mahl's name, "Did you see what she was wearing yesterday in school? I almost didn't want to be seen with her."

"That's just the way she is," Jhaan knew what Krill meant, but as usual played the peacekeeper in the trio.

When the three of them were together they were sort of a club of misfits. They were quite dissimilar and, on the surface anyway, unlikely to be friends. They had gotten together mostly because they did not fit into any of the standard social groups in the school. They were not from rich families, nor were they Native American, the two groups that made up most of the school population. They were left with each other.

"Three white girls from the wrong side of town," Mahl said as she walked into Jhaan's room.

Her greeting startled Jhaan since it seemed to spring from her own thoughts. Mahl had her course brown hair tied back in an austere little bun that made her look a bit like a prehistoric librarian. Her slightly stooped posture completed her scholarly, asexual image. Jhaan sighed under her breath in relief that at least today she was not wearing boy clothing as she had yesterday in school.

Krill turned and said to Mahl, "Your turn to do my hair. I just finished Jhaan's. Doesn't she look divine?"

Mahl rolled her eyes this time in an almost perfect pantomime of Krill's earlier gesture, but dutifully took the brush and started working on Krill's hair. The surprising thing was that Mahl, despite her personal lack of grooming, was expert at keeping Krill looking her best. She had, through the use of make-up and bright colored clothing, given Krill an older, sexy look. Mahl helped Krill pick out a new kind of perfume just about every week.

Jhaan who was quite a bit less concerned with the way she looked than was Krill and significantly more concerned than Mahl said, "I'll go get snacks and drinks from my Mom."

The way Jhaan figured it, Krill would be asked on a date long before she would, not because of her looks, but because she wanted it so much more. And that was okay with Jhaan who would rather wait a while before growing up any more. There were, after all, many interesting things to do.

The three of them together were a sight and sometimes the butt of jokes from certain quarters at school. All of which may have explained why Jhaan was a bit skeptical about dating. Who would date her anyway? The rich boys were interested in the girls in holo dresses, the ones that Krill was, in her own

way, modeling herself after. Although it was likely that the boys knew the difference. Jhaan had a private worry, based on some things that Krill had said, that she would let one of these boys go farther with her as an equalizer of sorts. Jhaan had a hard time seeing how that would lead to anything good. She was somewhat embarrassed by the thought. As for the Native American boys, Jhaan thought that they were just not terribly interested in white girls.

After Jhaan returned with the food, they ate and Krill and Mahl stayed until midafternoon. They briefly discussed a recent incident at their school in which an older student had brought a weapon with him to class. They did not know the student, but it seemed completely out of character since they had never heard of anything like that happening previously.

It was only when Krill suddenly remembered that she was supposed to be at home babysitting her younger brother that the group broke up. Mahl left with Krill, using her departure as an excuse to get to her homework early.

Ruth

A hand shot up from the audience that Ruth was addressing. It was a middle-aged man, who was a little pudgy. He was probably from one of the sects that refuse modern medical and technical assistance, which made him back-to-the-past kind of person.

“Yes?”

“But aren’t there less technical sources of data?”

“True, there are data sets that contribute to the base from some unusual sources. One group of researchers has set about accumulating personal correspondence, both electronic and paper documents. Another has dug through piles of family albums for photographs that are precisely dated. There are many sources.”

“Endless data mines!” The speaker was the older New African. He spoke without raising his hand and Ruth forgave him because of his enthusiasm.

“Precisely,” she continued, “obtaining the data we need has spurred the development of new technologies and employed untold millions of workers in the now famous data mines on Earth. You probably know someone who has been employed in the mines.”

Several nods greeted Ruth’s comment. After taking a breath, she continued, “Once a critical amount of data has been successfully collected, it is used to create the web, a mathematical construct that might best be described as a social matrix. It is believed that a web can never be complete or error free, although that would be ideal were it possible. A complete web, in theory, would have the exact location of each and every person on an entire planet