

In this futuristic tale, Mike Villas is good at playing games. He's about to find out if he's any good at playing people

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SYNTHETIC SERENDIPITY



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YEARS AGO, GAMES AND MOVIES

were for indoors, for couch potatoes and kids with overtrained trigger fingers. Now they were on the outside. They were the world.

That was the main reason Mike Villas liked to walk to school with the Radner twins. Fred and Jerry were a Bad Influence, but they were the best gamers Mike knew in person.

"We got a new scam, Mike," said Fred.

"Yeah," said Jerry, smiling the way he did when something extreme was in the works.

The three followed the usual path along the flood-control channel. The trough was dry and gray, winding its way through the canyon behind Las Mesitas subdivision. The hills above them were covered with ice plant and manzanita; ahead, there was a patch of scrub oaks. What do you expect of San Diego North County in early May?

At least in the real world.

The canyon was not a dead zone. Not at all. County Flood Control kept the whole area improved, and the public layer was just as fine as on city streets. As they walked along, Mike gave a shrug and a twitch just so. That was enough cue for his Epiphany wearable. Its overlay imaging shifted into classic manga/anime: the manzanita branches morphed into scaly tentacles. Now the houses that edged the canyon were heavily timbered, with pennants flying. High ahead was a castle, the home of Grand Duke Hwa Feen—in fact,



the local kid who did the most to maintain this belief circle. Mike tricked out the twins in manga costume, and spiky hair, and classic big-eyed, small-mouthed features.

“Hey, Jerry, look.” Mike radiated, and waited for the twins to slide into consensus with his view. He’d been practicing all week to get these visuals.

Fred looked up, accepting the imagery that Mike had conjured. “That’s old stuff, Mike, my man.” He glanced at the castle on the hill. “Besides, Howie Fein is a nitwit.”

“Oh.” Mike released the vision in an untidy cascade. The real world took back its own, first the sky, then the landscape, then the creatures and costumes. “But you liked it last week.” Back when, Mike now remembered, Fred and Jerry had been maneuvering to oust the Grand Duke.

The twins looked at each other. Mike could tell they were silent messaging. “We told you today would be different. We’re onto something special.” They were partway through the scrub oaks now. From here you could see ocean haze; on a clear day—or if you bought in to clear vision—you could see all the way to the ocean. On the south were more subdivisions, and a patch of green that was Fairmont High School. On the north was the most interesting place in Mike Villas’s neighborhood.

Pyramid Hill Park dominated the little valley that surrounded it. Once upon a time avocado orchards had covered the hill. You could still see them if you used the park’s logo view. But to the naked eye, there were other kinds of trees. There were also lawns, and real mansions, and a looping structure that flew a parabolic arc hundreds of feet above the top of the hill. That was the longest free-fall ride in California.

The twins were grinning at him. Jerry waved at the hill.

“How would you like to play *Cretaceous Returns*, but with real feeling?”

Pyramid Hill had free entrances, but they were just for visuals. “That’s too expensive.”

“Sure it is. If you pay.”

“And, um, don’t you have a project to set up before class?”

The twins had shop class first thing in the morning.

“That’s still in Vancouver,” said Jerry.

“But don’t worry about us.” Fred looked upward, somehow prayerful and smug at the same time. “‘FedEx will provide, and just in time.’”

“Well, okay. Just so we don’t get into trouble.” Getting into trouble was the major downside of hanging with the Radners.

“Don’t worry about it.” The three left the edge of the flood channel and climbed a narrow trail along the east edge of Pyramid Hill. This was far from any entrance, but the twins’ uncle worked for County Flood Control and they had access to CFC utilities support imagery—which just now they shared with Mike. The dirt beneath their feet became faintly translucent. Fifteen feet down, Mike could see graphics representing a 10-inch runoff tunnel. Here and there were pointers to local maintenance records. Jerry and Fred had used the CFC view before and not been caught. Today they blended it with a map of the local nodes. The overlay was faintly violet against the sunlit day, showing comm shadows and active high-rate links.

The two stopped at the edge of a clearing. Fred looked at Jerry. “Tsk. Flood Control should be ashamed. There’s not a localizer node within 30 feet.”

“Yeah, Jer. Almost anything could happen here.” Without a complete localizer mesh, nodes could not know precisely where



they and their neighbors were. High-rate laser comm could not be established, and low-rate sensor output was smeared across the landscape. The outside world knew only mushy vagueness about this area.

They walked into the clearing. They were deep in comm shade, but from here they had a naked-eye view up the hillside. If they continued that way, Pyramid Hill would start charging them.

The twins were not looking at the Hill. Jerry walked to a small tree and squinted up. “See? They tried to patch the coverage with an air ball.” He pointed into the branches and pinged. The utility view showed only a faint return, an error message. “It’s almost purely net guano at this point.”

Mike shrugged. “The gap will be fixed by tonight”...around twilight, when maintenance UAVs flitted like bats around the canyons, popping out nodes here and there.

“Heh. Well, why don’t we help the county by patching things right now?” Jerry held up a thumb-sized greenish object. He handed it to Mike.

Three antenna fins sprouted from the top, a typical ad hoc node. The dead ones were more trouble than bird poop. “You’ve perv’d this thing?” The node had BreakIns-R-Us written all over it, but perverting networks was harder in real life than in games. “Where did you get the access codes?”

“Uncle Don gets careless.” Jerry pointed at the device. “All the permissions are loaded. Unfortunately, the bottleneck node is still alive.” He pointed upward, into the sapling’s branches. “You’re small enough to climb this, Mike. Just go up and knock down the node.”

“Hmm.”

“Hey, don’t worry. Homeland Security won’t notice.”

In fact, the Department of Homeland Security would almost certainly notice, at least after the localizer mesh was patched. But just as certainly they wouldn’t care. DHS logic was deeply embedded in all hardware. “See all, know all,” was their motto, but what they knew and saw was for their own mission. They were notorious for not sharing with law enforcement. Mike stepped out of the comm shade and took a look at the crime trackers’ view. The area around Pyramid Hill had its share of arrests, mostly for enhancement drugs...but there had been nothing hereabouts for months.

“Okay.” Mike came back to the tree and shinnied up to where the branches spread out. The old node was hanging from rotted Velcro. He knocked it loose and the twins caused it to have an accident with a rock. Mike stuck the new node to a branch and scrambled down. They watched the diagnostics for a moment. Violet mists sharpened into bright spots as the nodes figured out where they and their perv’d sibling were and coordinated up toward full function. Now point-to-point laser routing was available; they could see the property labels all along the boundary of Pyramid Hill.

“Ha,” said Fred. The twins started uphill, past the property line. “C’mon, Mike. We’re marked as county employees. We’ll be fine if we don’t stay too long.”

Pyramid Hill had all the latest touchy-feely effects. These were not just phantoms painted by your contact lenses on the back of your eyeballs. On Pyramid Hill, there were games where you could kick lizard butt and steal raptor eggs—or games with warm furry creatures that danced playfully around, begging to be picked up and cuddled. If you turned off all the game views, you could see other players wandering through the woods in their own worlds. Somehow the Hill kept them from crashing into each other.

In *Cretaceous Returns* the plants were towering ginkgo trees, with lots of barriers and hidey-holes. Mike played the purely visual *Cret Ret* a lot these days, in person with the twins and all over the world with others. It had not been an uplifting experience. He had been “killed and eaten” three times so far this week. It was a tough game, one where you had to contribute or maybe you got eaten. Mike was trying. He had designed a species—quick, small things that didn’t attract the fiercest of the critics. The twins had not been impressed, though they had no alternatives of their own.

As he walked through the ginkgo forest, he kept his eye out for critters with jaws lurking in the lower branches. That’s what had gotten him on Monday. On Tuesday it had been some kind of paleo disease.

So far things seemed safe enough, but there was no sign of his own contribution. They had been fast breeding and scalable, so where were the little monsters? Maybe someone had exported them. They might be big in Kazakhstan. He had had success there before. Here today...nada.

Mike stumped across the Hill, a little discouraged, but still uneaten. The twins had taken the form of game-standard velociraptors. They were having a grand time. Their chicken-sized prey were Pyramid Hill haptics.

The Jerry-raptor looked over its shoulder at Mike. “Where’s your critter?”

Mike had not assumed any animal form. “I’m a time traveler,” he said. That was a valid type, introduced with the initial game release.

Jerry flashed a face full of teeth. “I mean where are the critters you invented last week?”

"I don't know."

"Most likely they got eaten by the critics," said Jerry. The brothers did a joint reptilian chortle. "Give up on making creator points, Mike. Kick back and use the good stuff." He illustrated with a soccer kick that connected with something running fast across their path. That got some classic points and a few thrilling moments of haptic carnage. Fred joined in, and red splattered everywhere.

There was something familiar about this prey. It was young and clever looking...a newborn from Mike's own design! And that meant its mommy would be nearby. Mike said, "You know, I don't think—"

"THE PROBLEM IS, NONE OF YOU THINK NEARLY ENOUGH." The sound was like sticking your head inside an old-time boombox. Too late, they saw that the tree trunks behind them grew from yard-long claws. Mommy. Drool fell in 10-inch blobs from high above.

This was Mike's design scaled to the max.

"Sh—" said Fred. It was his last hiss as a velociraptor. The head and teeth behind the slobber descended from the ginkgo canopy and swallowed Fred down to the tips of his hind talons. The monster crunched and munched for a moment. The clearing was filled with the sound of splintering bones.

"Ahh!" the monster opened its mouth and vomited horror. It was scary good. Mike flicker-viewed on reality: Fred was standing in the steaming remains of his raptor. His shirt was pulled out of his pants, and he was drenched in slime—real, smelly slime. The kind you paid money for.

The monster itself was one of the Hill's largest robots, tricked out as a member of Mike's new species.

The three of them looked up into its jaws.

"Was that touchy-feely enough for you?" the creature said, its breath a hot breeze of rotting meat. Fred stepped backward and almost slipped on the goo.

"The late Fred Radner just lost a cartload of points,"—the monster waved its truck-sized snout at them—"and I'm still hungry. I suggest you move off the Hill with all dispatch."

They backed away, their gaze still caught on all those teeth. The twins turned and ran. As usual, Mike was an instant behind them. Something like a big hand grabbed him. "You, I have further business with." The words were a burred roar through clenched fangs. "Sit down."

Jeez. I have the worst luck. Then he remembered that it was Mike Villas who had climbed a tree to perv the Hill's entrance logic. Stupid Mike Villas didn't need bad luck; he was already the perfect chump. And now the twins were out of sight.

But when the "jaws" set him down and he turned around, the monster was still there—not some Pyramid Hill rent-a-cop. Maybe this really was a *Cret Ret* player! He edged sideways, trying to get out from under the pendulous gaze. This was just a game. He could walk away from this four-story saurian. Of course, that would trash his credit with *Cretaceous Returns*, maybe drench him in smelly goo. And if Big Lizard took things seriously, it might cause him trouble in other games. *Okay.* He sat down with his back against the nearest ginkgo. So he would be late another day; that couldn't make his school situation any worse.

The saurian settled back, pushing the steaming corpse of Fred Radner's raptor to one side. It brought its head close to the ground, to look at Mike straight on. The eyes and head and color were exactly Mike's design, and this player had the moves to make it truly impressive. He could see from its scars that it had fought in several *Cretaceous* hot spots.



Mike forced a cheerful smile. “So, you like my design?”

It picked at its teeth with eight-inch foreclaws. “I’ve been worse.” It shifted game parameters, bringing up critic-layer details. This was a heavy player, maybe even a cracker! On the ground between them was a dead and dissected example of Mike’s creation. Big Lizard nudged it with a foreclaw. “The skin texture is pure Goldman. Your color scheme is a trivial emergent thing, a generic cliché.”

Mike drew his knees in toward his chin. This was the same crap he had to put up with at school. “I borrow from the best.”

The saurian’s chuckle was a buzzing roar. “That might work with your teachers. They have to eat whatever garbage you feed them—till you graduate and can be dumped on the street. Your design is so-so. There have been some adoptions, mainly because it scales well. But if we’re talking real quality, you just don’t measure up.” The creature flexed its battle scars.

“I can do other things.”

“Yes, and if you never deliver, you’ll fail with them, too.”

That was a point that occupied far too much of Mike Villas’s worry time. He glared back at the slit yellow eyes, and suddenly it occurred to him that—unlike teachers—this guy was not being paid to be nasty. And it was wasting too much time for this to be some humiliating joke. *It actually wants something from me!* Mike sharpened his glare. “And you have some suggestions, O Mighty Virtual Lizard?”

“...Maybe. I have other projects besides *Cret Ret*. How would you like to have affiliate status on one of them?”

Except for local games, no one had ever asked Mike to affiliate on anything. His mouth twisted in bogus contempt. “Affiliate? A percent of a percent of...what? How far down the value chain are you?”



The saurian shrugged and there was the sound of ginkgoes swaying to the thump of its shoulders. “My guess is I’m way, way down. On the other hand, this is not a dredge project. I can pay real money for each answer I pipe upward.” The creature named a number; it was enough to play the Hill once a week for a year. A payoff certificate floated in the air between them.

“I get twice that or no deal.”

“Done!” said the creature, and somehow Mike was sure it was grinning.

“Okay, so what do you want?”

“You go to Fairmont High, right?”

“Yeah.”

“It’s a strange place, isn’t it?” When Mike did not reply, the critter said, “Trust me, it is strange. Most schools don’t put Adult Education students in with the children.”

“Yeah, Senior High. The old farts don’t like it. We don’t like it.”

“Well, the affiliate task is to snoop around, mainly among the old people. Make friends with them.”

Yecch. But Mike glanced at the payoff certificate again. It tested valid. The payoff adjudication was more complicated than he wanted to read, but it was backed by eBay. “Who in particular?”

“So far, my upstream affiliate has only told me its broad interests: basically, some of these senior citizens used to be big shots.”

“If they were so big, how come they’re in our classes now?” That was just the question the kids asked at school.

“Lots of reasons, Mike. Some of them are just lonely. Some of them are up to their ears in debt and have to figure how to make a living in the current economy. And some of them have lost half their marbles and aren’t good for much but a strong body and lots of old memories.... Ever hear of Pick’s Syndrome?”

“Um,” Mike Googled up the definition:....serious social dysfunction. “How do I make friends with someone like that?”

“If you want the money, you figure out a way. Don’t worry. There’s only one on the list, and he’s in remission. Anyway, here are the search criteria.” The Big Lizard shipped him a document. Mike browsed through the top layer.

“This covers a lot of ground.” Retired politicians, military officers, bioscientists, parents of persons currently in such job categories. “Um, this really could be deep water. We might be setting people up for blackmail.”

“Heh. I wondered if you’d notice that.”

“I’m not an idiot.”

“If it gets too deep, you can always bail.”

“I’ll take the job. I’ll go affiliate with you.”

“I wouldn’t want you doing anything you feel un—”

“I said, I’ll take the job!”

“Okay! Well then, this should get you started. There’s contact information in the document.” The creature lumbered to its feet, and its voice came from high above. “Just as well we don’t meet on Pyramid Hill again.”

“Suits me.” Mike made a point of slapping the creature’s mighty tail as he walked off down the hill.

The twins were way ahead of him, standing by the soccer field on the far side of campus. As Mike came up the driveway, he grabbed a viewpoint in the bleachers and gave them a ping. Fred waved back, but his shirt was still too goeey for real comm. Jerry was looking upward, at the FedEx shipment falling toward his outstretched hands. Just in time, for sure. The twins were popping the mailer open even as they walked indoors.



Unfortunately, Mike's first class was in the far wing. He ran across the lawn, keeping his vision tied to unimproved reality: the buildings were mostly three stories today. Their gray walls were like playing cards balanced in a rickety array.

Indoors, the choice of view was not entirely his own. Mornings, the school administration required that the *Fairmont School News* appear all over the interior walls. Three kids at Hoover High had won IBM fellowships. Applause, applause, even if Hoover was Fairmont's unfairly advantaged rival, a charter school run by the math department at SDSU. The three young geniuses would have their college education paid for, right through grad school, even if they never worked at IBM. *Big deal*, Mike thought. Somewhere down the line, some percentage of their fortunes would be siphoned sideways into IBM's treasury.

He followed the little green nav arrows with half his attention...and abruptly realized he had climbed two flights of stairs. School admin had rearranged everything since yesterday. Of course, they had updated his nav arrows, too. It was a good thing he hadn't been paying attention.

He slipped into his classroom and sat down.

Ms. Chumlig had already started.

Search and Analysis was Chumlig's thing. She used to teach a fast-track version of this at Hoover High, but well-documented rumor held that she just couldn't keep up. So the Department of Education had moved her to the same-named course here at Fairmont. Actually, Mike kind of liked her. She was a failure, too.

"There are many different skills," she was saying. "Sometimes

it's best to coordinate with lots of other people." The students nodded. Be a coordinator. That's where the fame and money were. But they also knew where Chumlig was going with this. She looked around the classroom, nodding that she knew they knew. "Alas, you all intend to be top agents, don't you?"

"It's what some of us will be." That was one of the Adult Ed students. Ralston Blount was old enough to be Mike's great-grandfather. When Blount had a bad day, he liked to liven things up by harassing Ms. Chumlig.

The Search and Analysis instructor smiled back. "The pure 'coordinating agent' is a rare type, Professor Blount."

"Some of us must be the administrators."

"Yes." Chumlig looked kind of sad for a moment, like she was figuring out how to pass on bad news. "Administration has changed a lot, Professor Blount."

Ralston Blount shrugged. "Okay, so we have to learn some new tricks."

"Yes." Ms. Chumlig looked out over the class. "That's my point. In this class, we study search and analysis. Searching may seem simple, but the analysis involves understanding results. In the end, you've got to know something about something."

"Meaning all those courses we got C's in, right?" That was a voice from the peanut gallery, probably someone who was physically truant.

Chumlig sighed. "Yes, don't let those skills die. Use them. Improve on them. You can do it with a special form of pre-analysis that I call 'study.'"

One of the students held up a hand. She was that old.

"Yes, Dr. Xu?"

"I know you're correct. But—" The woman glanced around



dropped down from oratory. “So much for the big picture. Today, we’ll learn about morphing answer board results. As usual, we’re looking to ask the right questions.”

Mike liked to sit by the outer wall, especially when the classroom was on an upper floor. You could feel a regular swaying back and forth, the limit cycle of the walls keeping their balance. It made his mom real nervous. “One second of system failure and everything will fall apart!” she had complained at a PTA meeting. On the other hand, house-of-cards construction was cheap—and it could handle a big earthquake almost as easily as it did the morning breeze.

He leaned away from the wall and listened to Chumlig. That was why the school made you show up in person for most classes; you had to pay a little bit of attention just because you were trapped in a real room with a real instructor. Chumlig’s lecture graphics floated in the air above them. She had the class’s attention; there was a minimum of insolent graffiti nibbling at the edges of her imaging.

And for a while, Mike paid attention, too. Answer boards could generate solid results, usually for zero cost. There was no affiliation, just kindred minds batting problems around. But what if you weren’t a kindred mind? Say you were on a genetics board. If you didn’t know a ribosome from a rippereme, then all the modern interfaces couldn’t help you.

So Mike tuned her out and wandered from viewpoint to viewpoint around the room. Some were from students who’d set their viewpoints public. Most were just random cams. He browsed Big Lizard’s task document as he paused between hops. In fact, the Lizard was interested in more than just the old farts. Some ordinary students made the list, too. This affiliation tree must be as deep as the California Lottery.

But kids are somebody’s children. He started some background checks. Like most students, Mike kept lots of stuff saved on his wearable. He could run a search like this very close to his vest. He didn’t route to the outside world except when he could use a site that Chumlig was talking about. She was real good at nailing the mentally truant. But Mike was good at ensemble coding, driving his wearable with little gesture cues and eye-pointer menus. As her gaze passed over him, he nodded brightly and replayed the last few seconds of her talk.

the room. She looked about Chumlig’s age, not nearly as old as Ralston Blount. But there was kind of a frightened look in her eyes. “But some people are just better at this sort of thing than others. I’m not as sharp as I once was. Or maybe others are just sharper.... What happens if we try our hardest, and it just isn’t good enough?”

Chumlig hesitated. “That’s a problem that affects everyone, Dr. Xu. Providence gives each of us our hand to play. In your case, you’ve got a new deal and a new start on life.” Her look

He searched on the name...the Friends of Privacy piled the lies so deep that sometimes it was hard to find the truth

took in the rest of the class. “Some of you think your hand in life is all deuces and treys.” There were some really dedicated kids in the front rows. They were wearing, but they had no clothes sense and had never learned ensemble coding. As Chumlig spoke, you could see their fingers tapping, searching on *deuces* and *treys*.

“But I have a theory of life,” said Chumlig, “and it is straight out of gaming: *There is always an angle*. You, each of you, have some special talents. Find out what makes you different and better. Build on that. And once you do, you’ll be able to contribute answers to others and they’ll be willing to contribute back to you. In short, synthetic serendipity doesn’t just happen. You must create it.”

She hesitated, staring at invisible class notes, and her voice

As for the old students...competent retreads would never be here; they’d be rich and famous, the people who owned most of the real world. The ones in Adult Education were the has-beens. These people trickled into Fairmont all through the semester. The old-folks hospitals refused to batch them up for the beginning of classes. They claimed that senior citizens were “socially mature,” able to handle the jumble of a midsemester entrance.

Mike went from face to face, matching against public records: Ralston Blount. The guy was a saggy mess. Retread medicine was such a crapshoot. Some things it could cure, others it couldn’t. And what worked was different from person to person. Ralston had not been a big winner.

Just now the old guy was squinting in concentration, trying to follow Chumlig’s answer board example. He had been

with the class all semester. Mike couldn't see his med records, but he guessed the guy's mind was mostly okay; he was as sharp as some of the kids in class. And once upon a time he had been important at UCSD. Once upon a time.

Okay, put him on the "of interest" list. Who else? Doris Nguyen. Former homemaker. Mike eyed the youngish face. She looked almost his mom's age, even though she was 40 years older. He searched on the name, shed collisions and obvious myths; the Friends of Privacy piled the lies so deep that sometimes it was hard to find the truth. But Doris Nguyen had no special connections in her past. On the other hand...she had a son at Camp Pendleton. Okay, Doris stayed on the list.

Chumlig was still going on about how to morph results into new questions, oblivious to Mike's truancy.

And then there was Xiaowen Xu. Ph.D. physics, Ph.D. electrical engineering. 2005 Winner of Intel's Grove Prize. Dr. Xu sat hunched over, looking at the table in front of her. She was trying to keep up on a *laptop!* Poor lady. But for sure she would have connections.

Politicians, military, scientists...and parents or children of such. Yeah. This affiliation could get him into a lot of trouble. Maybe he could climb the affiliate tree a ways, get a hint if Bad Guys were involved. Mike sent out a couple hundred queries, mainly pounding on certificate authorities. Even if the certs were solid, people and programs often used them in stupid ways. Answers came trickling back. If this weren't Friends of Privacy chaff, there might be some real clues here. He sent out follow-up queries—and suddenly a message hung in letters of silent flame all across his vision:

Chumlig → Villas: You've got all day to play games, Mike! If you won't pay attention here, you can darn well take this course over.

Villas → Chumlig: Sorry. Sorry!

Most times, Chumlig just asked embarrassing questions; this was the first time she'd messaged him with a threat.

And the amazing thing was, she'd done it in a short pause, when everyone else thought she was just reading her notes. Mike eyed her with new respect.

Shop class. It was Mike's favorite, and not just because it was his last of the day. Shop was like a premium game; there were real gadgets to touch and connect. That was the sort of thing you paid money for on Pyramid Hill. And Mr. Williams was no Louise Chumlig. He let you follow your own inclinations, but he never came around afterward and complained because you hadn't accomplished anything. It was almost impossible not to get an A in Ron Williams's classes; he was wonderfully old-fashioned.

Shop class was also Mike's best opportunity to chat up the old people and the do-not-call privacy freaks. He wandered around the shop class looking like an utter idiot. This affiliation required way too much people skill. Mike had never been any good at diplomacy games. And now he was schmoozing the oldsters. Trying to.

Ralston Blount just sat staring off into the space above his table. The guy was wearing, but he didn't respond to messages. Mike waited until Williams went off for one of his coffee breaks. Then he sidled over and sat beside Blount. Jeez, the guy might be healthy but he really *looked* old. Mike spent a few moments



trying to tune in on the man's perceptions. Mike had noticed that when Blount didn't like a class, he just blew it off. He didn't care about grades. After a few moments, Mike realized that he didn't care about socializing either.

So talk to him! It's just another kind of monster whacking. Mike morphed a buffoon image onto the guy, and suddenly it wasn't so hard to cold-start the encounter. "So, Professor Blount, how do you like shop class?"

Ancient eyes turned to look at him. "I couldn't care less, Mr. Villas."

O-kay! Hmm. There was lots about Ralston Blount that was public record, even some legacy newsgroup correspondence. That was always good for shaking up your parents and other grown-ups....

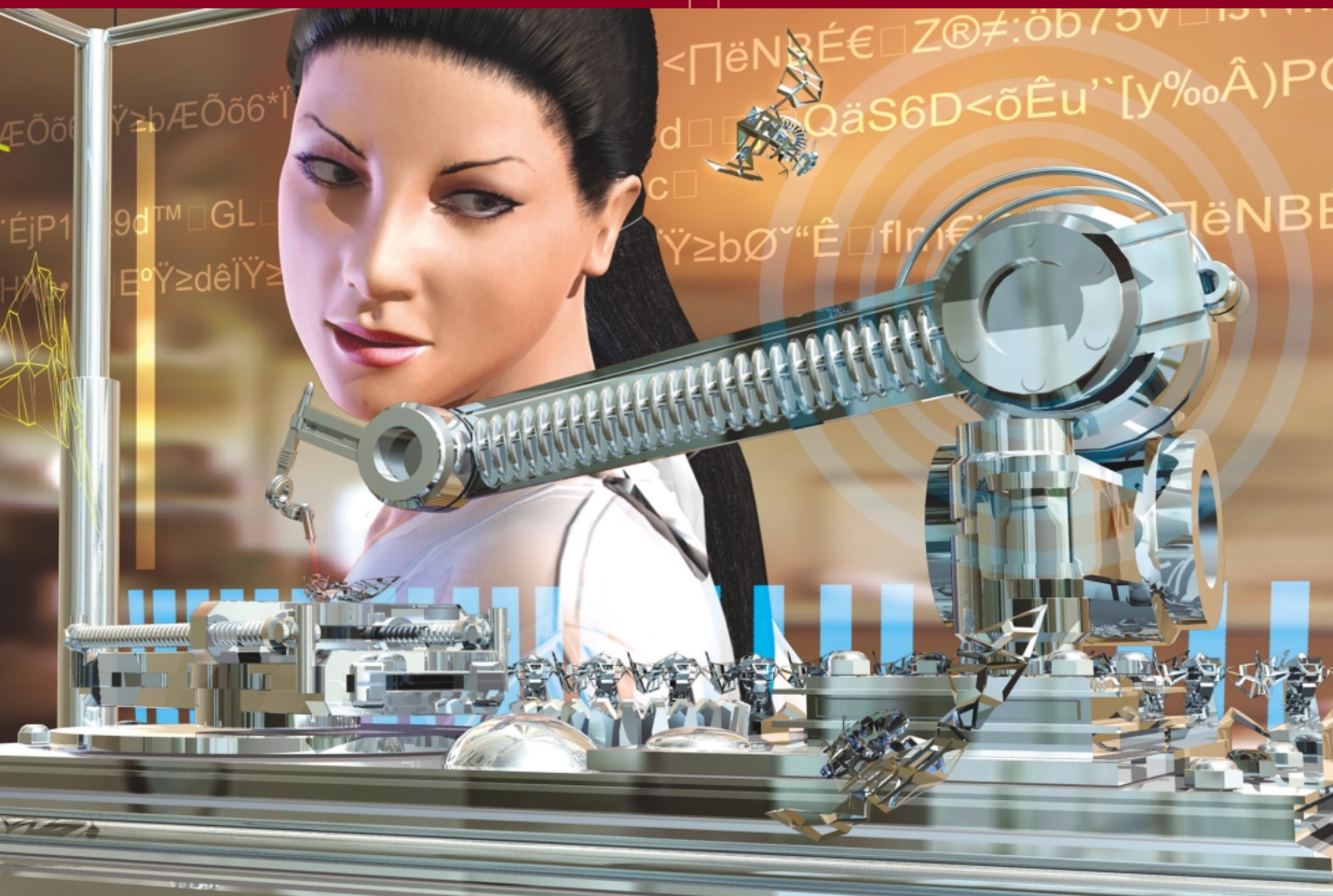
But the old man continued talking on his own. "I'm not like some people here. I've never been senile. By rights, my career should be on track with the best of my generation."

"By rights?"

"I was provost of Eighth College in 2006. I should have been UCSD Chancellor in the years following. Instead I was pushed into academic retirement."

Mike knew all that. "But you never learned to wear."

Blount's eyes narrowed. "I made it a point never to wear. I thought wearing was demeaning, like an executive doing his own typing." He shrugged. "I was wrong. I paid a heavy price for that. But things have changed." His eyes glittered with deliberate iridescence. "I've taken four semesters of this 'adult education.' Now my résumé is out there in the ether."



"You must know a lot of important people."

"Indeed. It's just a matter of time."

"Y-you know, Professor, I may be able to help. No, wait—I don't mean by myself. I have an affiliation."

"...Oh?"

At least he knew what an affiliation was. Mike explained Big Lizard's deal. "So there could be some real money in this."

Blount squinted his eyes, trying to parse the certificates. "Money isn't everything, especially in my situation."

"But anybody with these certs is important. Maybe you could get help-in-kind."

"True."

The old man wasn't ready to bite, but he said he'd talk to some of the others on Mike's list. Helping them with their projects counted as a small plus in the affiliation. Maybe the Lizard thought that would flush out more connections.

Meantime, it was getting noisy. Marie Dorsey's team had designed some kind of crawler. Their prototypes were flopping around everywhere. They got so close you couldn't really talk out loud.

Villas → Blount: Can you read me?

"Of course I can," replied the old man.

So despite Blount's claims of withittude, maybe he couldn't manage silent messaging, not even the finger-tapping most grown-ups used.

Xiaowen Xu just sat at the equipment bench and read from her laptop. It took even more courage to talk to her than to

Ralston Blount. She seemed so sad and still. She had the parts list formatted like a hard-copy catalog. "Once I knew about these things," she said. "See that." She pointed at a picture in the museum section. "I designed that chip."

"You're world class, Dr. Xu."

She didn't look up. "That was a long time ago. I retired from Intel in 2005. And during the war, I couldn't even get consulting jobs. My skills have just rusted away."

"Alzheimer's?" He knew she was *much* older than she looked, even older than Ralston Blount.

Xu hesitated, and for a moment Mike was afraid she was really angry. But then she gave a sad little laugh. "No Alzheimer's. You—people nowadays don't know what it was like to be old."

"I do so! I have a great-grandpa in Phoenix. I talk to him all the time. And my g'granma, she does have dementia—you know, a kind they still can't fix. And the others are all dead." Which was about as old as you can get.

Dr. Xu shook her head. "Even in my day, not everyone over eighty was senile. I just got behind in my skills. My girlfriend died. After a while I just didn't care very much. I didn't have the energy to care." She looked at her laptop. "Now I have the energy I had when I was sixty. Maybe I have the same native intelligence." She slapped the table softly. "But I can't even understand a current tech paper." It looked like she was going to start crying, right in the middle of shop class. Mike scanned around; no one seemed to be watching. He reached out to touch Xu's hand. He didn't have the answer. Ms. Chumlig would say he didn't have the right question.

He thought a moment. "What's your shop project going to be?" "I don't know." She hesitated. "I don't even understand this parts catalog."

Mike waved at her laptop, but the images sat still as carved stone. "Can I show you what I see?"

"Please."

He slaved her display to his vision of the parts list. The view weaved and dived, a bad approximation of what Mike could see when he looked around with his head-up view. Nevertheless, Xu leaned forward and nodded as Mike tried to explain the list.

"Wait. Those look like little wings."

"Yeah, there are lots of small fliers. They can be fun."

She gave a wan smile. "They don't look very stable."

Mike had noticed that, but not in the view she could see. *How did she know?* "That's true, but hardly anything is passively stable. I could take care of that, if you want to match a power supply."

She studied the stupid display. "Ah, I see." The power supplies were visible there, along with obvious pointers to interface manuals. "You really could manage the stability?" Another smile, broader this time. "Okay, let's try."

The wings were just tissue flappers. Mike slid a few dozen onto the tabletop, and started some simulations using the usual stuff from ReynoldsNumbers-R-Us. Xiaowen Xu alternated between querying her laptop and poking her small fingers into the still tinier wings. Somehow, with virtually no help from anywhere, she had a power-train figured out. In a few more minutes, they had five design possibilities. Mike showed her how to program the fab board so that they could try a couple dozen variations all at once.

They tossed handfuls of the tiny contraptions into the air. They swirled around the room—and in seconds, all were on the floor, failing in one way or another.

At the far end of the table, Marie Dorsey and her friends were not impressed. "We're making fliers, too, only ours won't be brain damaged!" Huh? And he'd thought she was making crawlers!

Dr. Xu looked at the Dorsey team's floppers. "I don't think you've got enough power-to-weight, Miss."

Marie blushed. "I—yeah." Her group was silent, but there was heavy messaging. "Can we use your solution?" She rushed on: "With official credit, of course."

"Sure."

Marie's gadgets were making small hops by the time the class bell rang.

End of class, end of school day. But Xiaowen Xu didn't seem to notice. She and Mike collected their midges and merged improvements. Three generations later, all their tiny flappers were flying. Xu was smiling from ear to ear.

"So now we put mini-nodes on them," said Mike. "You did pretty well with the power configuration." Without any online computation at all.

"Yeah!" She gave him a strange look. "But you got the stability in less than an hour. It would have taken me days to set up the simulations."

"It's easy with the right tools."

She looked disbelieving.

"Hey, I'm near failing at bonehead math. Look, Dr. Xu, if you learn to search and use the right packages, you could do all this." He was beginning to sound like Chumlig. *And this fits with the affiliation!* "I-I could show you. There are all sorts

of joint projects we could do!" Maybe she would always be one of those deep resource people, but if she found her place, that would be more than he could ever be.

He wasn't sure if Dr. Xu really understood what all he was talking about. But she was smiling. "Okay."

Mike was late walking home, but that was okay. Ralston Blount had signed on to the affiliation. He was working with Doris Nguyen on her project. Xiaowen Xu had also signed on. She was living at Rainbows End rest home, but she had plenty of money. She could buy the best beginner's wearable that Epiphany made.

Big Lizard would be pleased, and maybe some money would come Mike's way.

And maybe that didn't matter so much. He suddenly realized he was whistling as he walked. What did matter...was a wonderful surprise. He had coordinated something today. *He* had been the person who helped other people. It was nothing like being a real top agent—but it was something.

The Radner twins were almost home, but they showed up to chat. "You've been scarce, Mike." They were both grinning. "Hey, we got an A from Williams!"

"For the Vancouver project?"

"Yup. He didn't even check where we got it," said Jerry.

"He didn't even ask us to explain it. *That* would have been a problem!" said Fred.

They walked a bit in companionable silence.

"The hole we put in the Pyramid Hill fence is already repaired."

"No surprise. I don't think we should try that again anytime soon."

"Yeah," Fred said emphatically. His image wavered. The slime was still messing his clothes.

Jerry continued, "And we collected some interesting gossip about Chumlig." The students maintained their own files on faculty. Mostly it was good for laughs. Sometimes it had more practical uses.

"What's that?"

"Okay, this is from Ron Williams. He says he got it firsthand, no possibility of Friends of Privacy lies." That's how most FOP lies were prefaced, but Mike just nodded.

"Ms. Chumlig was never fired from Hoover High. She's moonlighting there. Maybe other places, too."

"Oh. Do the school boards know?" Ms. Chumlig was such a straight arrow, it was hard to imagine she was cheating.

"We don't know. Yet. We can't figure why Hoover would let this happen. You know those IBM fellows they were bragging about? All three were in Chumlig's classes! But she kinda drifted out of sight when the publicity hit. Our theory is there's some scandal that keeps her from taking credit.... Mike?"

Mike had stopped in the middle of the path. He shrugged up his record of this morning, and matched Big Lizard's English usage with Chumlig's.

He looked back at the twins. "Sorry. You...surprised me."

"It surprised us, too. Anyway, we figure this could be useful if Jerry and I have serious grade problems in her class."

"Yeah, I guess it could," said Mike, but he wasn't really paying attention anymore. It suddenly occurred to him that there could be something beyond top agents. There could be people who helped others on a time scale of years. Something called teachers. ■