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Margin of Error

by Nancy Kress

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Science Fiction

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Paula came back in a blaze of glory, her Institute uniform with its pseudo-military medals crisp and bright, her spine straight as an engineered diamond-fiber rod. I heard her heels clicking on the sidewalk and I looked up from the bottom porch step, a child on my lap. Paula's face was genemod now, the blemishes gone, the skin fine-pored, the cheekbones chiseled under green eyes. But I would have known that face anywhere. No matter what she did to it.

"Karen?" Her voice held disbelief.

"Paula," I said.

"Karen?" This time I didn't answer. The child, my oldest, twisted in my arms to eye the visitor. The slight movement made the porch step creak.

It was the kind of neighborhood where women sat all morning on porches or stoops, watching children play on the sidewalk. Steps sagged; paint peeled; small front lawns were scraped bare by feet and tricycles and plastic wading pools. Women lived a few doors down from their mothers, both of them growing heavier every year. There were few men. The ones there were, didn't seem to stay long.

I said, "How did you find me?"

"It wasn't hard," Paula said, and I knew she didn't understand my smile. Of course it wasn't hard. I had never intended it should be. This was undoubtedly the first time in nearly five years that Paula had looked.

She lowered her perfect body gingerly onto the porch steps. My little girl, Lollie, gazed at her from my lap. Then Lollie opened her cupped hands and smiled. "See my frog, lady?"

"Very nice," Paula said. She was trying hard to hide her contempt, but I could see it. For the sad imprisoned frog, for Lollie's dirty face, for the worn yard, for the way I looked.

"Karen," Paula said, "I'm here because there's a problem. With the project. More specifically, with the

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"Karen," Paula said, "I'm here because there's a problem. With the project. More specifically, with the initial formulas, we think. With portion

of the nanoassembler code from five years ago, when you were...still with us."

"A problem," I repeated. Inside the house, a baby wailed. "Just a minute." I set Lollie down and went inside. Lori cried in her crib. Her diaper reeked. I put a pacifier in her mouth and cradled her in my left arm. With the right arm I scooped Timmy from his crib. When he didn't wake, I jostled him a little. I carried both babies back to the porch, deposited Timmy in the portacrib, and sat down next to Paula.

"Lollie, go get me a diaper, honey. And wipes. You can carry your frog inside to get them." Lollie went; she's a sweet-natured kid. Paula stared

incredulously at the twins. I unwrapped Lori's diaper and Paula grimaced and slid farther away.

"Karen --are you listening to me? This is important!"

"I'm listening."

"The nanocomputer instructions are off, somehow. The major results check out, obviously --" Obviously. The media had spent five years exclaiming over the major results.

" --but there are some odd foldings in the proteins of the twelfth-generation nano-assemblers." Twelfth generation. The nanocomputer attached to each assembler replicates itself every six months. That was one of the project's checks and balances on the margin of

error. It had been five and a half years. Twelfth generation was about right.

"Also," Paula continued, and I heard the strain in her voice, "there are some unforeseen macro-level developments. We're not sure yet that they're tied to the nanocomputer protein folds. There might not be any connection. What we're trying to do now is cover all the variables."

"You must be working on fairly remote variables if you're reduced to asking me."

"Well, yes, we are. Karen, do you have to do that now?"

"Yes." I scraped the shit off Lori with one edge of the soiled diaper. Lollie danced out of the house with a clean one. She sat beside me, whispering to her



frog.

Paula said, "What I need...what the project needs --"

I said, "Do you remember the summer we collected frogs? We were maybe eight and ten. You'd become fascinated reading about that experiment where they threw a frog in boiling water but it jumped out, and then they put a frog in cool water and gradually increased the temperature to boiling until the stupid frog just sat there and died. Remember?"

"Karen --"

"I collected sixteen frogs for you, and when I found out what you were going to do with them, I cried and tried to let them go. But you boiled eight of them anyway. The other eight were controls.

I'll give you that

--proper scientific method. To reduce the margin of error, you said."

"Karen --we were just kids..."

I put the clean diaper on Lori. "Not all kids behave like that. Lollie doesn't. But you wouldn't know that, would you? Nobody in your set has children. You should have had a baby, Paula." She barely hid her shudder. But, then, most of the people we knew felt the same way. She said, "What the project needs is for you to come back and work on the same small area you did originally. Looking for something --anything --you might have missed in the protein-coded instructions to successive generations of nanoassemblers."

"No," I said.

"It's not really a matter of choice. The macrolevel problems --I'll be frank, Karen. It looks like a new form of cancer, one nobody's ever seen. Unregulated replication of some very weird cells."

"So take the cellular nanomachinery out." I crumpled the stinking diaper and set it out of the baby's reach. Closer to Paula.

"You know we can't do that! The project's irreversible!"

"Many things are irreversible," I said. Lori started to fuss. I picked her up, opened my blouse, and gave her the breast. She sucked greedily. Paula glanced away. She has had

nanomachinery in her perfect body, making it perfect, for five years now. Her breasts will never look swollen, blue-veined, sagging.

"Karen, listen --"

"No --you listen," I said quietly. "Eight years ago you convinced Zweigler I was only a minor member of the research team, included only because I was your sister. I've always wondered, by the way, how you did that --were you sleeping with him, too? Seven years ago you got me shunted off into the minor area of the project's effect on female gametes --which nobody cared about because it was already clear there was no way around sterility as a side effect. Nobody thought it was too high a price

for a perfect, self-repairing body, did they? Except me."

Paula didn't answer. Lollie carried her frog to the wading pool and set it carefully in the water. I said, "I didn't mind working on female gametes, even if it was a backwater, even if you got star billing. I was used to it, after all. As kids, you were always the cowboy; I got to be the horse. You were the astronaut, I was the alien you conquered. Remember? One Christmas you used up all the chemicals in your first chemistry set and then stole mine."

"I don't think trivial childhood incidents matter in --"

"Of course you don't. And I never minded. But I did mind when five years

ago you made copies of all my notes and presented them as yours, while I was so sick during my pregnancy with Lollie. You claimed my work. Stole it. Just like the chemistry set. And then you eased me off the project."

"What you did was so minor --"

"If it was so minor, why are you here asking for my help now? And why would you imagine for half a second I'd give it to you?"

She stared at me, calculating. I stared back coolly. Paula wasn't used to me cool, I could see that. I'd always been the excitable one. Excitable, flighty, unstable --that's what she'd told Zweigler. A security risk.

Timmy fussed in his portacrib. I stood

up, still nursing Lori, and scooped him up with my free arm. Back on the steps, I juggled Timmy to lie across Lori on my lap, pulled back my blouse, and gave him the other breast. This time Paula didn't permit herself a grimace.

She said, "Karen, what I did was wrong. I know that now. But for the sake of the project, not for me, you have to --"

"You are the project. You have been from the first moment you grabbed the headlines away from Zweigler and the others who gave their life to that work. 'Lovely Young Scientist Injects Self With Perfect-Cell Drug!' 'No Sacrifice Too Great To Circumvent FDA Shortsightedness, Heroic Researcher Declares.'"

Paula said flatly, "You're jealous. You're obscure and I'm famous. You're a mess and I'm beautiful. You're --"

"A milch cow? While you're a brilliant researcher? Then solve your own research problems."

"This was your area --"

"Oh, Paula, they were all my areas. I did more of the basic research than you did, and you know it. But you knew how to position yourself with Zweigler, to present key findings at key moments, to cultivate the right connections...all that stuff you do so well. And, of course, I was still under the delusion we were partners. I just didn't realize it was a barracuda partnering a goldfish." From the wading pool Lollie watched us with



big eyes. "Mommy..."

"It's okay, honey. Mommy's not mad at you. Look, better catch your frog --he's hopping away." She shrieked happily and dove for the frog. Paula said softly, "I had no idea you were so angry after all this time. You've changed, Karen."

"But I'm not angry. Not any more. And you never knew what I was like before. You never bothered to know."

"I knew you never wanted a scientific life. Not the way I did. You always wanted kids. Wanted...this." She waved her arm around the shabby yard. David left eighteen months ago. He sends money. It's never enough.

"I wanted a scientific establishment that would let me have both. And I

wanted credit for my work. I wanted what was mine. How did you do it, Paula --end up with what was yours and what was mine, too?"

"Because you were distracted by babyshit and frogs!" Paula yelled, and for the first time I saw how scared she really was. Paula didn't make admissions like that. A tactical error. I watched her stab desperately for a way to regain the advantage. A way to seize the offensive. I seized it first. "You should have left David alone. You already had Zweigler; you should have left me David. Our marriage was never the same after that."

She said, "I'm dying, Karen."

I turned my head from the nursing

babies to look at her.

"It's true. My cellular machinery is running wild. Just in the last few months. The nano-assemblers are creating weird structures, destructive enzymes. For five years they replicated perfectly and now...For five years it all performed exactly as it was programmed to --"

I said, "It still is."

Paula sat very still. Lori had fallen asleep. I juggled her into the portacrib and nestled Timmy more comfortably on my lap. Lollie chased her frog around the wading pool. I squinted to see if Lollie's lips were blue; the weather was really too cool for her to be in the water very long. Paula choked out, "You programmed the assembler machinery in

the ovaries to --"

"Nobody much cares about women's ovaries. Only fourteen percent of college-educated women want to muck up their lives with kids. Recent survey result. Less than one percent margin of error."

" --you actually sabotaged...hundreds of women have been injected by now, maybe thousands --"

"Oh, there's a reverser enzyme," I said. "Completely effective if you take it before the twelfth-generation replication. You're the only person that's been injected that long. I just discovered the reverser a few months ago, tinkering with my old notes for something to do in what your friends probably call my idle

domestic prison. That's provable, incidentally. All my notes are computer-dated." Paula whispered, "Scientists don't do this --"

"Too bad you wouldn't let me be one."

"Karen --"

"Don't you want to know what the reverser is, Paula? It's engineered from human chorionic gonadotropin. The pregnancy hormone. Too bad you never wanted a baby." She went on staring at me. Lollie shrieked and splashed with her frog. Her lips were turning blue. I stood up, laid Timmy next to Lori in the portacrib, and buttoned my blouse.

"You made an experimental error twenty-five years ago," I said to Paula. "Too small a sample population.

Sometimes a frog jumps out."

I went to lift my daughter from the wading pool.

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