

A young Egyptian man involved in a terrorist group sweeps an unwitting American woman, a nuclear physicist, into an international plot that endangers her life and that of her husband.

The Tiger Snapped Back

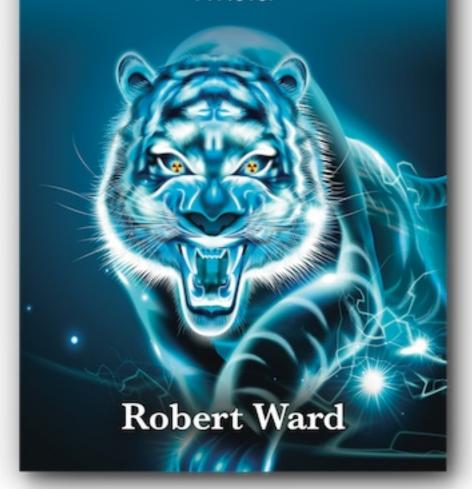
By Robert Ward

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The Tiger Snapped Back

A Novel



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CHAPTER 1

In the early fifties, they built the place in the middle of a windswept plateau north of Denver, far away from the prying eyes of civilization. The place got its name from that location: Rocky Flats Nuclear Plant. On this Monday, April 7, 1997, the plant was only a ghost of its former self. Gone were the clandestine Pullman cars delivering their precious cargo, as well as the day-and-night activity that transformed the new arrivals into shiny metal lumps that became the modern-day gods of war, *plutonium*. Like so many veterans of service to the nation, the place had devolved into an old relic that desperately needed a bath. A cluster of aging buildings and tanks inside a rusty security fence.

On that morning, in a long corridor in one of those buildings, Diana's heels clicked on the concrete floor as she approached the door to her destination. Diana Farnsworth Westphal had been hired a year earlier as part of the team responsible for the cleanup and decontamination of the plant. Her training as a nuclear physicist lent itself well to the control of recovered fissionable materials—and in the cleanup process a lot of the precious plutonium was being recovered.

She opened a door and entered a room not much larger than a walk-in closet. White coveralls and facemasks that looked

like gas masks hung from hooks on the walls. A wooden bench against one wall sat next to two bins holding canvas shoe covers, one bin marked "clean" and the other "contaminated." A mirror hung on the wall above the bench. A door opposite the entrance was emblazoned with a yellow-and-purple radiation hazard sign.

Diana glanced in the mirror. Her gray-green eyes looked back at her from a face framed by chestnut-brown hair worn in a shoulder-length pageboy style. She thought, *everything looks fine except for that ridiculous turned-up nose. Makes me look like a pixie. Scott likes it, though, so I guess it's okay.* She brushed her bangs out of her eyes, then sat on the bench and pulled on a clean pair of shoe covers. Opening the door with the warning sign, she entered a large control room and saw the technician sitting at the console.

"Hi, Bill. I thought I'd stop by and go over the calculations for your next process."

Bill Wardrup, an overweight, middle-aged balding man, looked at her over the top of his half-glasses and replied, "Let me finish this process first, and then we'll do it."

"That's the stuff from the casting facility, right?"

"Yeah, that's it."

He turned back to the console and flipped a switch. A bright, electric-blue flash through the hot cell window startled Diana.

"Shit," Bill said. He jumped up and rounded the corner to the hot cell door. Diana followed him shouting, "Wait!"

But she was too late. Bill jerked the door open and stood in the doorway, bathed in an eerie blue light.

My god that thing went critical, she thought with a sinking feeling in the pit of her stomach. She grabbed him around his waist with both arms and yanked him back out of the shine, then kicked the door shut.

They stumbled back to the console and he punched the alarm button. Bill slumped into his chair and put his head in his hands. Diana stepped behind him, her hands shaking as she laid them on his shoulders.

Bill shook his head. "What the fuck have I done?"

"We can't know how bad it is until they run your film badge," she said, trying to sound calm.

"You of all people should know better. I must have gotten at least a thousand REM in that blast."

"Why did you open the door, Bill?"

"I'd had trouble with the power cord on that stirring motor once before. It shorted out and the arc from that incident looked just like it did this time."

Diana looked through the hot cell window at the process vessel. It had ceased to glow blue and apparently had not boiled over.

The control room door burst open and the incident response team poured into the room. Suited up for a contamination incident, they wore shoe covers, latex gloves, canvas hoods taped to their facemasks, all the openings and gaps taped shut. They clapped facemasks on Diana and Bill. The team leader checked the area with a Geiger counter and found no surface or airborne contamination. The radiation levels in the control room were well within normal limits.

Diana's mask muffled her anxious voice. "The process vessel went critical, but it looks like it has dropped below critical level now."

The team leader nodded

Diana looked around the room full of people in their decontamination suits, busily checking surfaces and smearing them with little circles of filter paper. *My god, this is really getting scary*. Her heart was pounding and she could feel her palms getting sweaty.

She tapped the team leader on the shoulder and said, "A few years back a process vessel up at the Hanford Project went critical, and it pulsed for a while afterward. You better stay out of that hot cell until we're sure about this one."

The team leader looked at her, surprised. "Good plan, thank you. "The response team ushered Diana and Bill out of the control room, and took them to separate decontamination facilities. In a room that resembled a doctor's examining room, Diana stripped off her clothes. A female technician checked her for contamination on her person and on her clothing, using a Geiger counter and an alpha detector with a probe that looked like a fat spatula.

"Are you finding anything?" Diana asked.

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"Everything seems clean so far." The technician exchanged Diana's old film badge for a new one. "You can get dressed now."

Diana emerged from the decontamination facility shaken, her head spinning with all the possibilities of what could have happened to her. When she saw her supervisor, Steve McGregor, coming toward her down the hallway she began to unravel. Tears welled up in her eyes and she choked back a sob. "Oh, Steve, I'm so glad to see you."

He opened his arms as she came to him, and he held her as she cried on his shoulder. After a while, her sobbing subsided and she pulled back from him, wiping the tears from her eyes.

"Thank you for that port in a storm," she said.

"Are you going to be okay?"

"I think I can keep it together now."

Steve had been her mentor as well as her boss since she started working here. Though she considered him a friend, she'd never had more physical contact with him than a handshake. She thought he looked a little embarrassed.

"The technician called me while you were dressing," he said. "She said she didn't find any contamination on you or your clothing, and no apparent activation of any of the metal in your clothes or on your person."

"What about the radiation exposure?"

"Your pocket dosimeters showed some exposure, but we won't know the extent until we get the film badge results."

"What about Bill? How bad is he?"

"They don't have his film badge results yet, but it doesn't look good. The metal in his glasses frames, belt buckle, and the fillings in his teeth had been activated and were reading about 2 R "

Diana gasped. "Oh my god, that's a lot."

"It sure is."

"Steve, if Bill got hurt because of something wrong with my calculations, I don't know if I could live with myself."

"It's unlikely that your calculations were in error. When I spoke to Bill as they were putting him into the ambulance he said he'd had to change to a different process vessel because the one he was supposed to use was damaged. The one he ended up using was larger. There will be a formal investigation, but I don't think you have anything to worry about"

"I'll have to get the dimensions of that vessel and run the calculations to see if the change of shape caused the criticality."

"Not you, not now. You're going home. Someone else will do those calculations."

"I think I'll be all right. I feel so responsible . . . "

"Go home Diana, try to put this out of your mind for now. We'll get into it tomorrow." He gave her a wry grin. "This time the tiger snapped back."

"What a strange thing to say."

"In the old days, in the Manhattan Project, when they needed dimensions for the bomb assembly, they put the plutonium hemispheres on a surface like a bench or table and manipulated them until a radiation counter showed an increase in activity, indicating the beginning of criticality. They called it 'tickling the tiger's tail.' So this time the tiger snapped back."

"Odd, in all my training, I never heard that before."

"You know all those constants you use in your calculations came from those early experiments."

"So my education continues."

Diana thanked Steve for letting her go home early and walked down the long corridor. She stopped to deposit her new film badge in the long metal rack on the wall for the film badges, then continued to the locker room. As she hung her lab coat in her locker and retrieved her street coat and purse, she felt cold and shaky deep inside. She pulled on her coat and walked out past the security guard post to her car in the parking lot.

The cold, trembling feeling grew stronger, made worse by the chilly wind blowing across the parking lot. She got into her car and sat with her head on the steering wheel. *I don't think I can drive home*. Diana's first impulse was to call her husband, Scott, but she remembered he was working in the field today. Her big sister, Sandy, who lived in nearby Thornton, had always been her rock of calm stability whenever Diana needed it. She decided to call and see if Sandy would come and rescue her.

She walked back to the security guard post and asked to use the phone. When Sandy answered, Diana described her predicament.

"I'll be there as soon as I can. Hold tight."

Her sister's cheery voice had a calming effect on Diana. Help was on the way. She returned to her car, started the engine and switched on the heater, and waited.

During the forty minutes Diana sat in her car waiting for Sandy she went over the entire incident in her mind. When that blue flash happened only the bottom third of the vessel was glowing blue. In that process, a tall narrow vessel should have been nearly full. When Bill changed to a different cylinder he apparently didn't understand the concept of "safe by shape."

The revelation relieved some of Diana's anxiety, but she still felt devastated by what had happened to Bill. She was amazed that some of the technicians, despite their training, didn't seem to fully understand the dangers of working with this stuff. She tried to clear her mind with some meditation, using techniques Sandy had taught her. Counting her breaths and visualizing the numbers.

When she saw Sandy drive up in her new '98 Volvo station wagon, Diana got out of her car. She locked it and slid into the Volvo's passenger seat. Sandy leaned across the console and hugged her.

Diana clung to her sister. "I'm so glad you could come rescue me, Sis.

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"How are you really doing Di?" asked Sandy, in what Diana recognized as her professional psychologist's tone.

"I've calmed down quite a bit since I called you. I shouldn't have called at all. I think I'd be okay to drive now."

"It's okay Di, I'm here now and you're probably worse off than you think you are."

"You may be right."

Diana sat quietly for a moment. Sandy's not only my big sister, but my therapist as well, she thought. I wonder if she knows that she's the only one I let call me Di?

As they pulled out of the parking lot and turned onto the road to Denver, Sandy asked, "What happened and how did it happen?"

Diana went through the whole scenario as she remembered it.

"Wow! What about Bill, is he going to be all right?"

"Nobody knows for sure yet. From what I saw and heard it looks very bad. He probably won't live through this."

"Oh my god, how can that be? Was there an explosion or something?"

"No explosion. But when he opened the hot cell door he was standing right in front of the vessel that was reacting, and that reaction was generating very large amounts of radiation, both gamma and neutrons. That radiation did the damage to his body."

"Would that be enough radiation to kill him?" asked Sandy.

"It could be. We all wear these things called film badges. They record on photographic film the amount of radiation we're exposed to. We won't know how much he got until his film badge is processed."

"Don't you have safeguards to prevent this sort of thing from happening?"

Diana explained about Bill changing the process vessel. "I don't believe there was anything wrong in my calculations for this particular process."

Sandy asked, "Have you told Scott yet?"

"No, he's in the field today. I'll wait until he gets home to I tell him."

"You okay with that?"

"Yeah, I'm fine."

They drove in silence until they reached Diana's home. Sandy parked in the driveway, got out, and put her arm across her sister's shoulders as she walked Diana to her door.

Diana's hand trembled a bit as she unlocked the door. "Thanks, Sandy, I'm still feeling a bit shaky."

"Do you want me to come in and stay with you until Scott comes home?"

"No, I think I'll be okay. It'll only be an hour and a half until he gets here."

"Do you want me to give you a ride to work tomorrow?"

"No, that's all right. Go on home to your family. I'll call Steve. He can pick me up on his way in tomorrow." "Okay, call if you need me." Sandy returned to her car and waved before she got in.

Diana stepped inside and crossed the living room to check her answering machine. No messages. She took off her coat and hung it in the hall closet, then turned up the thermostat to warm the spacious, ranch-style home she'd shared with Scott for nearly ten months. She didn't feel much like cooking, so she took some leftovers out of the refrigerator to heat up in the microwave for dinner.

After pouring herself a glass of wine, she sat in her recliner in the living room. She laid the phone's handset on the table beside her and clicked on the TV to watch the news. The local portion of the broadcast included a blurb about an incident at a nearby government nuclear facility, in which one person was injured, but offered no additional information "for security reasons."

Diana turned off the TV and settled back in her recliner. She closed her eyes and began reminiscing about the events that had brought her to where she was today. Growing up she'd been a daddy's girl who loved and idealized her father. He worked as a chemical process operator at the same government facility where she worked now. Her dad had done much the same kind of work as Bill Wardrup did. In fact, her father had trained Bill. *Oh how I wish Daddy were here now. He'd hold me and tell me everything's going to be all right.*

As she sipped her wine, feeling the liquid warm her insides, she thought of Bill and what he must be going through

this afternoon. I don't really know what that much radiation would do, but it would probably cause serious damage to his organs.

The phone rang, interrupting her thoughts.

"Diana, it's Steve. We received Bill's film badge results."

"How is he?"

"It looks like he got over 900 REM."

"Wow, that's bad. But I guess that doesn't really surprise me, considering how long he stood there before I grabbed him."

"You got a lot of radiation, too, when you pulled him out. We'll talk about that tomorrow when you come into work."

Diana felt a stab of panic in her stomach. "That sounds ominous."

"We'll talk about it tomorrow, okay? The doctors tell me that Bill's organs are shutting down and he probably won't make it much longer."

Although Diana had been expecting this news, she wasn't prepared for the effect it had on her. Her stomach knotted. She could feel the blood draining from her face and she felt limp. "I am so sorry, that makes me feel really sad."

"We all feel really badly, Diana. Is there anything I can do to make your life better?"

"When I left work today I wasn't feeling up to driving so I called my sister to come and get me. My car is still at work. Could stop by and pick me up in the morning?"

"Sure thing, no problem."

"I'll see you about 7:30 then, okay?"

"Seven-thirty it is. Did you tell Scott what happened?"

"Not yet. I'm going to spring it on him when he gets home. Better to hear it from me face-to-face than over the phone."

"I guess you're right. I'll see you in the morning."

At 5:30, Diana heard the garage door open and went to greet Scott when he came into the kitchen. Scott Westphal was a big man, over six feet and weighing 220, with short-cropped sandy hair and hazel eyes. He worked as a postal inspector. She hugged him tight, holding him for longer than usual before she kissed him with the passion of the newlywed she was.

"What did I do to deserve this?" he asked.

"I'm so glad you're here. I really need you to hold me now."

"What's going on?" Scott asked as he stepped back to remove his coat and shoulder holster and put them on the table.

"There was a very bad incident with Bill Wardrup at work today."

"What kind of incident?"

"I was in his control room when he was processing some chemical waste from the casting facility. We knew this stuff was rich in plutonium. The vessel he was doing the process in went critical. He apparently thought the flash of blue light was an electrical short in the stirring motor, so he was going to fix it. He opened the door to the hot cell and was exposed directly to the radiation before I could stop him."

"What about you, were you exposed?" Scott asked, his concern apparent in his voice.

"I grabbed him and pulled him out of the radiation, but I was only exposed for a couple seconds."

Scott hugged her tightly again. "Do you know how bad the exposure was?"

"No, when I left for home they hadn't finished processing my film badge. I'll find out tomorrow."

"How's Bill?"

"They took him to the hospital. It looks like he's not going to make it. This whole thing has really rattled me."

Scott stroked her soft brown hair. "My poor darling. I'm here for you. Is there anything I can do to help?"

"Just hold me," Diana said and started to sob.

They stood there swaying together while she let it all flow out. After a bit, she released Scott and started to unwrap the leftovers on the counter.

Scott said, "Don't bother with cooking tonight, we'll go out for dinner."

"Okay. I'll just freshen up. I must look a sight."

He kissed her on the tip of her turned-up nose. "You look beautiful as always."

CHAPTER 2

Steve poked his head in the doorway of Diana's office. "There's going to be a panel of inquiry in the conference room at 1:30. You need to be there."

"Is this something I should dread?" She'd just finished going over her calculations for yesterday's process and found no errors.

"I don't think so. They just want to get your version of what happened. I'll be there and will present Bill's side of what occurred, based on the conversation I had with him at the hospital while he was still conscious."

"How's Bill?"

"He's in a coma. The doctors don't think he'll last through the night."

"From what you said before, I guess that's inevitable now. Oh, Steve, you look so sad. You knew him a lot longer than I did. I'm so sorry."

"I've never lost anyone from my team before. It really feels shitty, and yes I'm sad."

"You know his wife and kids. How are the holding up?"

"Their kids are both grown and live out of state. His wife is with him—she's devastated."

"How terrible this must be for her."

Steve nodded. "See you at 1:30."

As his footsteps echoed down the hall, Diana turned back to her work and went over the events of yesterday afternoon yet again. Oh my god, that tiger's been waiting just out of sight all along.

When Diana entered the conference room, three men were sitting at the table waiting for her. The man in the middle directed her to a seat facing them. A moment later Steve came in and sat next to her.

The man in the middle said, "I'm George Mixon. I head the health physics department. The man to my left is David Ferrel, he's head of manufacturing, and Daniel Davidson is head of administration. Please tell the panel what you observed in yesterday's incident."

Trying to keep her voice calm and steady, Diana related everything as she remembered it.

"Why do you think this criticality occurred?" Ferrel asked.

Diana answered, "The vessel was only one-third full. In that process the vessel should have been nearly full. I therefore concluded that the process vessel must have been changed from the one specified in process protocol."

"By Bill Wardrup?"

"Yes"

"Are you saying that Bill switched to a different vessel than the one specified, and that caused the criticality?" Davidson asked.

"That seems to be the most likely explanation for what I saw in that cell," Diana answered and explained the concept of safe by shape.

"When you first saw the blue flash what did you think had happened?" Mixon asked.

"I thought a criticality had occurred."

"Why didn't you stop Bill Wardrup from opening the door?"

"I called out to him to wait but it was too late. He'd already opened the door."

Mixon jotted some notes on a yellow pad of paper, then asked Steve to give a report of his conversation with Bill Wardrup.

"Bill told me the special vessel designed for this process had a crack and was leaking, so he changed to a different vessel that was larger," Steve explained. "He thought as long as he didn't put anymore liquid in the vessel it would be okay. Bill had been having trouble with the power cord for the stirring motor—it had been shorting out. He believed the blue flash he saw was caused by that, and he opened the door to fix it."

"Did you ask him if he remembered having training about the effect of shape on the likelihood of a criticality?" Davidson asked. Steve rubbed his face with both hands. "I did ask him and he said he didn't remember."

"I think that will be all for now, thank you, but we may need to speak with you again," Mixon said. "You are excused."

As Diana and Steve walked back to their offices, he said, "The way those questions went, I got the impression their main concern was to protect themselves from a lawsuit."

"From Bill's wife?"

"Yes."

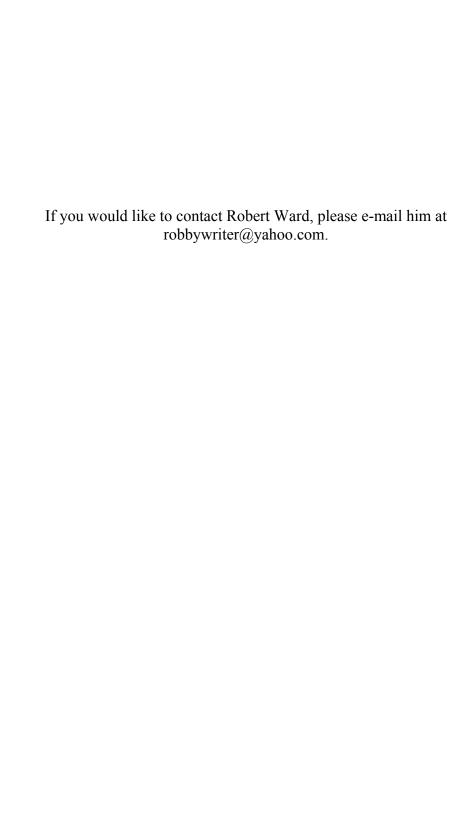
'You think she would do that?"

"She might," he said. "I read the report from health physics about your film badge. You'll get a copy of the report. Your exposure was high enough that I'm going to have to transfer you to a facility where you won't be exposed to any more radiation."

"Will that be permanent?"

"You're already coming up on your lifetime limit, so yes. I'll get back to you on that," Steve said when they reached the door to her office. He put his hand on her arm and gave her a gentle squeeze, then continued down the corridor.

Diana stepped into her office and closed the door. She hadn't expected this would change her whole career and future. She sat at her desk and stared into space, not seeing the pictures of Scott and Sandy on her desk or the diplomas and degrees on the wall. *Is this a sign that I shouldn't even stay in the nuclear business?*





A young Egyptian man involved in a terrorist group sweeps an unwitting American woman, a nuclear physicist, into an international plot that endangers her life and that of her husband.

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