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"You're late," said Stanton Lockwood, indicating a chair for Wyman Ford to sit in.

Ford settled himself in, plucking a bit of lint from his best cheap suit, not bothering to furnish an excuse. Once again, he realized how much he disliked Lockwood, the science adviser to the president. The man's office hadn't changed since his last visit—it still sported the power wall of photographs showing Lockwood with important people. There was still the same antique desk, Persian rugs, bricked-up marble fireplace. The only change Ford noted was that the photographs of the towheaded children on Lockwood's desk had been replaced by clean-cut teenagers in sports attire. The photos of the attractive but aging wife were gone—completely.

"I'm sorry about your divorce," Ford guessed.

"It happens," said Lockwood.

Ford took a moment to observe the changes in Lockwood himself. He hadn't seen the man in three years. He was older, a little more salt than pepper in his hair, but still fit and trim. The four-hundred-dollar haircut, the bespoke suit, the perfectly tanned skin and crisp Turnbull & Asser shirt were all reasons why Ford did not particularly like this Beltway specimen, or the president he worked for.

This morning, Lockwood was more nervous and wound up than usual. Ford wondered what was up.

"Coffee? Water?" Lockwood asked.

"Coffee, please."

Lockwood pressed a button on his intercom, spoke into it, and a moment later an old-time servant in starched, ironed white came in, wheeling a tea table on which sat a nineteenth-century English coffee service. The coffee was, as usual, fresh, strong, and hot. That was, at least, one point in Lockwood's favor.

"So," said Ford, leaning back and sipping the brew out of a china cup, "what's the new assignment?"

"We're waiting for someone."

As if on cue, the door opened and two Secret Service men with earpieces entered, followed by the president's chief of staff, followed by the president of the United States.

Ford leapt to his feet. "Mr. President." He wished he had spent more time making himself presentable, brushing the dog hairs off his suit, or better yet, finally springing for a tailored suit that would fit his tall, muscular frame. He would have to start playing the Washington game at some point if he ever wanted his private investigative agency to get off the ground.

The president looked irritated, his big gray head with its jutting chin and unfeeling eyes roaming about the room, taking everything in. Ford hadn't voted for the man four years ago, and he certainly wasn't planning on voting for him this time around. It had been an ugly, partisan four years. It was three weeks from the election, and Ford had to admit the man didn't look good. In addition to the nasty sniping, there had been rumors of a heart condition, firmly denied, and other health problems. Ford thought he could see a gray tinge to the president's skin and dark smudges under his eyes showing through a layer of expertly applied makeup.

"For chrissakes, sit down," the president said. He himself sank into a wing chair, the Secret Service agents taking up discreet positions on either end of the room, one by the window, the other by the door. "Hit me with some of your coffee, Stan. They just can't get it right in the Oval Office."

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He was served with alacrity by the waiter. A short silence ensued as he swilled one cup—black, no sugar—and was poured another.

The president put down his cup with a decisive rattle. "All right, Lockwood, let's get this show on the road." He looked at Ford. "Glad you could make it, ah, Dr. . . ."

"Ford."

"Very good," said Lockwood briskly. "We all know about the tragic accident up at the Goddard Space Flight Center a week ago." He flipped open a file. "The explosion killed seven people and destroyed an important test facility, along with a hundred-million-dollar space probe. But we've got another problem—one that wasn't reported in the *Times*." He paused, looked around. "Everything that we will discuss from this point on is classified."

Ford clasped his hands, listening. He figured this must be a big deal for the president to be involved. Especially now, in the run-up to the election.

"As you all know, they were testing a probe known as the Titan *Explorer,* a raft that was to have been parachuted into the largest sea on Titan." He gave a quick summary of the Kraken Project. "The problem," he went on, "seems to have been a glitch in the software controlling the *Explorer.* The software was planned to operate the probe autonomously. The specs therefore called for AI. Artificial intelligence. The software was designed to respond to anything that might threaten the safety or survival of the raft." He paused. "Following me so far?"

Ford nodded.

"The head of the programming team is a woman named Melissa Shepherd. She was injured in the accident and taken to the hospital. Mild concussion, nothing serious. A policeman was assigned to watch over her."

"Why was that?" Ford asked.

"There were questions about possible errors or even negligence on her part. There were also indications of sabotage."

"Sabotage?"

"Correct. Immediately after the explosion, someone hacked into the Goddard network and erased all the *Explorer* software. Every last bit of code—backups, drafts, modules, source and compiled code, machine code—everything. Gone."

"It's not easy to truly and completely erase data."

"And yet that's what happened. The hacker or hackers knew exactly where it all was, had passwords to everything, broke through supposedly unbreakable firewalls, and erased every last shred of it. That night, Melissa Shepherd disappeared from the hospital. She got past the guard, went to her apartment, took some things, picked up her car at Goddard, crashed through a barrier, abandoned her car, and rented another. The FBI found this rental car, along with her cell phone, wallet, and credit cards, abandoned on a remote ranch near Alamosa, Colorado. The car and its contents had been set on fire."

"Any evidence of foul play?" Ford asked.

"None."

"Did she leave a note?"

"Nothing. The ranch where her car was found is known as the Lazy J. It lies at the base of the Sangre de Cristo Mountains in a remote area bordered by the Great Sand Dunes. She was traced into the mountains, where she's vanished."

"Does she have survival skills?"

"As a teenager, she spent a summer at the Lazy J as a ranch hand. She's also a mountain climber, backpacker, and fitness freak."

"Any idea why she fled?"

"Not really, except that we know the explosion was caused by a malfunction in the software she designed."

"What happened?"

"The *Explorer* had been lowered into a large testing tank full of liquid methane, which simulated the seas of Titan. The software directed the raft's arm to drill through the wall of the tank, which caused the explosion."

"Any idea why the software would do that?"

Lockwood swallowed. "We're not sure, since the software code

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has vanished, along with the main programmer. It might have been an honest malfunction. It might have been sabotage. It might have been gross negligence. We just don't know."

"I see."

Lockwood went on: "We've interviewed the programming team. It appears this software program simulates a kind of disembodied human mind. It's creative. It's clever. It's been programmed to simulate emotions such as fear, avoidance of danger, flight from negative stimuli, as well as curiosity, courage, and resourcefulness. One theory is the software got stuck in some sort of panic or emergency mode and precipitated the accident that way."

"Why was this kind of AI software necessary, especially software that has emotions?"

"It doesn't actually *have* the emotions, you understand. It has code that *simulates* emotions. Emotions are useful. Fear, for example, stimulates caution, planning, and judgment. Curiosity is equally beneficial—it would direct the *Explorer* to anomalous or unusual phenomena to investigate. There are reasons why human beings have emotions—it helps us survive and function efficiently. The same is true for a raft a billion miles from Earth, unable to communicate with mission control in real time. At least this is what the engineers at NASA have explained to us."

Now the president spoke. He leaned forward on his elbows, his gravelly voice filling the room. "Here's the rub: this AI program is something totally new. It's got tremendous military and intelligence potential. *Tremendous*. It's astounding that NASA developed this on its own without appreciating the military ramifications or sharing the breakthrough with the Pentagon. These people at NASA have created a national security emergency."

Ford swallowed. The president was infamous for cutting NASA's budget to the bone while force-feeding the Pentagon.

Lockwood cleared his throat. "In all fairness to NASA, nobody, not even Shepherd herself, seems to have appreciated the larger ramifications of her AI breakthrough. Or the full capabilities of this software."

The president spoke again: "Bullshit. This Shepherd knew exactly what she was doing. It was deception. The Joint Chiefs are livid. As commander in chief, I'm responsible. There are a thousand uses for this software far more important than sending a hockey puck to Triton."

"Titan."

"Think what the Pentagon could do with intelligent software like this!"

Ford didn't want to think about it.

"This program in the wrong hands could be used to break into our military networks, threaten our national security, steal billions from our banks, crash our economy, bring down the power grid. We could use it as a strategic asset against our adversaries. Mobile, highly intelligent AI programs will be the nuclear weapons of the twenty-first century!"

The president sat back, breathing hard. Ford wondered if the man would drop dead before the election. He wasn't sure how he would feel about that—except that his vice president was even scarier than he was.

Ford finally spoke: "And my assignment?"

Lockwood said: "Go into the mountains and find Melissa Shepherd. Bring her back."

Ford looked at the president and back at Lockwood. "Isn't that what you have the FBI for?"

"To be frank," said Lockwood, "we already tried that. The FBI put up a drone, they had armed men on ATVs, they had choppers flying all around those mountains. It was a disaster. They spooked her completely, only drove her deeper into the mountains. That's vast country up there, and she knows it well. The mountains are riddled with abandoned mines. The psychological profilers tell us that with her early history of petty crime and drug use, she might be a suicide risk. She's what you might call an erratic genius. We absolutely must have her back alive. She's the only one who understands the software."

"Why me?"

"We need a lone operator. Someone who goes in quietly, posing as a hiker or climber. Someone with wilderness experience and a track record of success in lone-man operations."

"What about these hackers who erased the program? Did they also steal a copy?"

"Actually, we believe Shepherd herself stole the program, and then erased all copies."

"Why?"

The president broke in: "She's looking to make a buck selling it to Iran or North Korea—that's my take."

Ford said, "If she intended to sell the program, why would she go into the mountains and burn her car and cell phone? That doesn't seem like the behavior of someone looking to make a profit."

"I don't give a damn about her motives or state of mind," said the president. "Your job, Ford, is to bring her out. Is that clear?"

"I understand, Mr. President. A question, if I may. Where's she storing the program? Did she bring a computer with her?"

"The software was designed to run on almost any platform," said Lockwood. "It's only two gigs and could be stored on thumb drive or a cell phone. You could run it on your PC or Mac—or perhaps even an iPad."

"That's amazing."

"Not really," said Lockwood. "Over the past twenty years, software has lagged way behind hardware in power. It turns out creating strong AI is all about coding. It's not about computing speed. A billion instructions a second, which is what an iPad can achieve, are enough to simulate a human mind. It just takes the right programming. This woman, Shepherd, found the key to that. And there are some on her staff telling us that she kept back secrets, in particular a programming trick necessary to make the software stable, which none of them were able to decipher. We are, of course, extremely concerned about that."

The president's chief of staff murmured in his ear. The president scowled and stood up, setting down his cup with a rattle. "I'm already late for campaign rally." He leaned over and put his face

close to Ford's. "We're three weeks from the election. This program is a software nuke. And it appears to be in the hands of a god-damned crazy woman. I want her and the program back. Is that clear?"

Ford said, "Yes, Mr. President."