

Probing Feelings

By Ronald L. Cherry

To head a department at NASA you had to be smart, competent and efficient. To be a woman and head a department at NASA you had to be very smart, very competent and very efficient. You also had to be strong-willed, a bit cold, and just plain tough. Jane Graham filled all the above. As head of the Icarus project, she sat in the meeting of the department and project heads as an equal.

Dr. Wynn, the chair of the meeting, turned to her with a smug smile. "I think we have covered the Ares Project adequately. Let's move on to the problems with Dr. Graham's Icarus." Looking over the top of his thick-lensed glasses, his bushy, white eyebrows were raised questioningly.

Why does he always do that? Jane wondered. It's as if any problem, technical design or programming, is my fault. The fat little frog never had an original thought in his life, and now wants to find some fault with my idea. What a petty little man.

"The problem is minor." She pondered the sharpened pencil she was tapping before looking Dr. Wynn straight in the eye as she continued. "The decay of circuitry should be expected. Although the sun is an excellent power source, the heat and radiation are unknown factors in equipment life. No other probes have ever been so close to the sun or taken such punishment. We should be pleased for the wealth of data the probe has provided thus far, and take that data as long as the probe provides it. We cannot, however, expect him to provide it forever. No probe lasts forever."

Dr. Wynn's eyebrows rose even higher, this time with a cynical amusement.

"Him? Dr. Graham, does a probe have a gender?" Dr Wynn chuckled as he looked around the room for appreciation of his humor.

Damn him, Jane thought as her face turned red with angry embarrassment. The bastard gets off on using me as the butt of his jokes. And look at all the sycophants joining in the kill, laughing their heads off.

"Please excuse the lapse, Dr. Wynn. I have spent many hours on this project and such anthropomorphizing can occur. It even crosses gender lines. As you are well aware, men termed ships and even hurricanes as feminine for a long time, although now hurricanes have their fair share of violent males."

"Quite so," mumbled Dr. Wynn as he shuffled his papers. "Well, I think we need to keep close watch on this project. It could go sour at any time if we are not careful. Don't the rest of you agree?"

"I agree totally, Dr. Wynn," piped in Dr. Simkins. "We should look to the ways to gain the best information, no matter how it affects our original plans."

The little toady will agree to anything Wynn suggests, Jane mused. He wants Wynn's position when the old frog retires. Hmm, I seem to be hung up on reptiles. I mean amphibians. Anyway, they're all cold-blooded creatures.

She had started on the Icarus team as merely one of the members of NASA's biggest project to date and now, after sixteen years, she was its head. All the others had moved on to other projects, other jobs, retirement and even death. She had refused offers to move to different, newer projects. Now, by grit, determination and attrition, she headed the project and the whole department of deep-space probes. This rankled Dr. Wynn. He wanted his protégé, Dr. Simkins, to have this choice position. Her quality of work and high productivity made any change by him, even as head of NASA itself, impossible. Even if he thought he could get away with it, he feared her wrath. He rationalized his fear as worry of legal action by her. Instead, he contented himself with making mildly denigrating remarks and thwarting her in subtle ways.

Jane turned and looked Dr. Simkins coldly through her steel-rimmed glasses. "I am sure, Dr. Simkins, we all agree on the importance of gaining the most from this project. But let us not destroy the goose that laid the golden egg by trying to make the probe function beyond its capabilities. As with all things, it will have a productive life and die a natural death. I use such a statement as one would describe any piece of machinery, if that meets with everyone's approval."

She looked around at all those seated around the table, and none chose to meet her withering glare. Throats were cleared and feet shuffled. After a moment, Dr. Wynn recovered his sardonic control.

"Of course, Dr. Graham, let's not lose our sense of humor here. Your toy is not to be cavalierly destroyed. We are just here to evaluate all projects, including yours." He leaned back with his folded hands resting on his ample belly. "But I think that's enough for today. Tempers and egos are on edge. We will meet here tomorrow for further evaluation."

With that, the meeting closed.

Jane strode towards Operations, her heels clicking angrily on the polished tile floor. While she was almost six feet tall and very slim, she wore high heels to accentuate the fact she was the equal of any man. Her severe, drab suits draped her slim frame and her make-up was minimal. Her graying hair was untinted because she felt that the gray lent her credence. She did not want to appear frivolous or "girlish."

Other directors were leaving the building; heading home to wives and families who resented such late-night proceedings. It was now after 2130, and dinners had already been eaten or grown tough waiting in ovens. She had no such problem. Her dinner was in the cafeteria refrigerator awaiting microwaving. No one would be anxious at the lateness of her night. She had time to review the latest information from Icarus before dinner without causing inconvenience to anyone. Then her reverie of anger was broken.

"They were a bit rough on you."

It was Dr. Christian. He was tall, slim and black. As tall as Jane, even in her heels. His slimness tended toward gauntness, with a craggy, bearded face that reminded her of a black Abraham Lincoln. As a matter of fact, that was exactly who his character reminded her of: Abraham Lincoln. Come to free Jane Graham, the slave. But a slave by choice.

"No problem, Dr. Christian." She gave him a wry grin. "One gets used to the 'Old Boys Club' after a while. I do this job because I love it, not because other people love me."

"Not everyone feels the same about you as Dr. Wynn. I know he's always on your case. It's because you made it in spite of him, not because of him." He hesitated, as if unsure of the best way to continue. Then he gave her a slight smile. "Look, Ann and I are having a few friends over tonight. As a matter of fact, I'm sure they're already there. Come by for a drink. Relax with people who appreciate you."

Jane's eyes softened and she almost smiled. "Thank you, no. I do appreciate the invitation, but I have a lot still to do tonight."

He gave a slow shake of his head. "Don't give up on all humanity just because of the honorable Doctors Wynn and Simkins. Give us a chance."

"I wouldn't give up on you, Dr. Christian, just because of them." She gave him a tired smile.

"I see you can smile. It's a lovely one, you know. And don't forget that my name's Bill. Well, hang in there. I'll see you tomorrow. If I'm any later Ann will roast me instead of the chicken. Don't stay too late."

"Don't worry. I can't stay too late."

Ops, or the main Operations room, was empty. No one staffed it on nights when only unmanned probes were out. She went to the nearest console and entered the code for the Icarus project and her access sequence. It took some time for the connection. Even allowing for the time lag due to the distance, it took much too long. Laser communications were faster than that.

"Good evening, Dr. Graham."

The voice came from the console. It was mechanical. The voice of a computer. But to Jane, it was friendly.

"Good evening, Ice. What do you have to report?"

There was a rather long pause.

"My internal diagnostics show a steady degeneration in speed and accuracy of computations. I cannot function as efficiently as when I was created. I will give my report at the maximum level of accuracy that I can now achieve. Prepare the system for me to download the data I have accumulated as of this point. Please excuse the slowness of my transmittal."

Jane was shocked. The program was meant to communicate on a near-human level. Semantics, including even some colloquialisms, had been included. Voice response had been pushed to maximum recognition. But apologizing? How could a computer feel remorse for loss of speed?

"That's alright, Ice. Just do your best."

"You know I will, Dr. Graham."

Jane sat back in her chair. This was impossible. Had some programmer included a sequence to be triggered at a random moment just to drive her crazy? No, she had personally been involved with the creation of the probe's on-board computer system. She knew almost every aspect of it. The amount of storage required to do that would have been obvious. To have an interactive, voice responsive program was ground-breaking. To have one with feelings was. . . . Well, Artificial Intelligence just could not go that far.

Jane studied the download from Icarus. When the probe had first been launched many years ago, she had started to use the name "Ice" when communicating with the probe as a nickname, derived from the first two letters of the probe's designation. It had quickly acknowledged "Ice" as its own recognition code from Jane. She had not shared the name with others on the team. She liked having one little secret on this project that no one else knew.

Even though the probe could recognize voices, there seemed to be a different, more mechanical response if she did not address the probe as Ice. It was almost as though it sensed that she was not alone, that their communication was not private. She was the only one left from the original team, and the probe

seemed to respond differently to her than to any of the others. She always seemed to be the one in communication when the most important or unusual data was received from the probe. She knew that was coincidence, but . . .

Over the years she had begun to view the probe in a different manner, almost like a pet. She was not a pet person, considering them smelly, dirty and troublesome. As a child, she had a cat for a short time, but hadn't shed a tear when it had been hit by a car. She had felt guilty about her lack of sorrow, but had felt only relief to be no longer being responsible for its feeding and care. But the probe never wet the carpet, whined for food, shed on the furniture or stuck a cold nose in her face when she was trying to read. The probe was her kind of pet.

Knowing the download would take some time, she logged off and went home.

When Jane checked on the latest data from Icarus the next morning, she felt a twinge of dismay. It was not as though she found errors, but response time was lagging and certain information had not been sent. She went into her private office and accessed the probe. Here she had to use a keyboard. The voice-only terminal was too costly, and was only in Ops. She typed in her access code and waited. Finally, the probe responded.

Ice, she typed, where is the data on the latest sunspot activity?

Oh, came the reply on screen, I must have forgotten. I will download to your terminal.

Forgotten? Jane felt a shiver run up her spine. Computers do not forget. Data can be lost, and sometimes can even be retrieved when lost, but forgotten?

What is happening to you? she typed. Ice, run a self-diagnostic.

I don't feel well, Dr. Graham, the probe replied. My self-diagnostic says part of my programming and memory core has been altered by the radiation. I am not sure exactly what has been changed or how severely I have been affected, but I cannot function as efficiently as before. All data, however, is still accurate.

Jane's head spun as she read what was on screen. Ice didn't "feel well?" What did that mean? Over the years she had seen communication with the probe grow more efficient and even seen that communication become more like human speech. The computer in the probe had been set up to "learn" as it dialogued with the team. That allowed for new and unplanned requests to be made by the team and for unexpected information to be transmitted back by the probe in language the team could understand. But

feelings could not be learned. She would have to delve deeper into this new development. It was going to take some time. For now it would have to wait. She had that infernal meeting to attend.

Dr. Christian was waiting for her outside the door of the meeting room. His kindly smile and merry eyes welcomed her. He rubbed his hand across his balding head, as if smoothing down nonexistent hair. The grey fringe that circled his head was sparse enough to never need much grooming. It was a nervous affectation of his that made him even more endearing to her. He seemed to her what a father-figure should be. Not like her father, but what one should be.

Her father had been a professor of mathematics at Cal Tech. Her mother had taught math at UCLA. Affection did not compute for them. She often wondered how she had been conceived. It must have been an experiment. One gone wrong. Never to be repeated. She was the daughter that did not fit their equations.

As a child she had been a visitor in her own home. When she went to MIT and majored in astrophysics, it had been an act of rebellion. She had mourned the cat when it had died more than her parents when they died.

She might have adopted Dr. Christian as a surrogate father. He always seemed to take a paternal interest in her, even siding with her against Dr. Wynn and Dr. Simkins many times. But Jane did not want another father. One had been enough for her. Any help against Dr. Wynn, though, was greatly appreciated.

"Good morning, Dr. Graham," he greeted her. "I just wanted to warn you that I think our two associates have something up their sleeves. I heard that they were reviewing read-outs from Icarus over the last few months and met last night and early this morning. They have something planned that they don't want you or I to know about."

Still somewhat dazed from here last contact with the probe, Jane brought herself into focus. "What can they be hoping to do? The reports show a steady degeneration, but we can't solve it from here. God knows, I've tried."

"I don't know, but they've been sitting in the meeting room for the last fifteen minutes, whispering together like a couple of adolescent boys. They set this meeting up to publicize something. It's a media circus in there."

She shrugged. "Let's go in and find out. I may have something to surprise everyone."

This was a full meeting, not just department heads. A recorder was in place and government representatives abounded. Whatever was in store, Dr. Wynn wanted a full account of (and credit for) the proceedings. This implied he planned to do something that would go against Jane's wishes and possibly thwart her program.

Dr. Wynn gave her a smile that was almost a sneer. "Well, since our last two associates have deemed us worthy of their presence, I think that we can begin." His manner exuded a dangerous self-confidence. "Dr. Simkins and I have been studying the data received from the Icarus probe in the last few months. As we all know the effectiveness of the probe has suffered greatly. Evidently, even with the shielding of the probe and distance of its orbit from the sun, damage has occurred. It has proved impossible to correct the degeneration from here. Since Dr. Graham and her department have found no viable way to remedy the problem, Dr. Simkins and myself have stepped in. We have an idea that will provide some new and valuable information from the probe."

At that point, Dr. Wynn gave a dramatic pause and Jane found time to interject a few comments. She had sat in red-faced silence while he had insulted her team and, most of all, herself.

"Dr. Wynn, while it is true that the performance of the probe has deteriorated to some extent, we have received no false readings or data. We, the members of my team, have to ask for more of the information at times, but the validity of that information has not suffered. You will notice the latest reports on the recent sunspot activity that I sent you this morning has some 'new and valuable information' itself. You have, of course, read my report?"

Let the fat bastard answer that, thought Jane smugly.

She knew he had not from what Dr. Christian had told her. But when she noticed that he did not squirm, she began to worry. What's he got planned?

Dr. Wynn gave her a condescending smile. "I am sure your report is quite important, Doctor, but we visionary planners must look to the broader picture. We have a number of reports on previous sunspot activity from the probe, and I will analyze this one as I have all the others. What we are planning is of much greater consequence. If you will all watch the screen behind me, this visual mock-up will demonstrate our idea."

Well, he's pulled out all the stops, mused Jane. He and Simkins must have burned the late night oil

for the first time in a few years to program a computer model of his plan.

"What you are seeing now," Dr. Wynn explained, "is the Icarus probe in high orbit around our sun. Now, as you see, we plan to fire the thrusters as to cause the probe into a rapidly decaying orbit into the sun. We will be in contact with it until it is destroyed. Since the probe is doomed anyway, in this manner we will be able to gain valuable insight into the effects of increasing amounts of solar heat and radiation while-"

"No!" Jane shouted.

All faces turned toward her as she stood white-faced with clenched fists at her sides. She looked wildly around the room for support.

"You can't do that," she pleaded.

"I beg your pardon, Dr. Graham, but this is not a decision for you to make. While you are the head of the deep-space probe department, this decision will be made by the entire agency. It is far too important to be decided by one man...ah, one person."

Refusing to take the bait, Jane swallowed hard. "You don't understand. There has been a very recent development with the probe that must be investigated. We must do nothing to jeopardize the probe until we have done so."

"And what, Dr. Graham, is this important development that you have not deemed me worthy to know?"

Her voice was choked, just above a whisper. "I only found out late last night and this morning. The probe seems to have feelings."

"Excuse me. Are you, a scientist, saying that a machine has feelings? Perhaps you have been working too hard, or maybe inhaling some unusual fumes." Dr. Wynn looked around the room and was rewarded with several chuckles.

"Last night the probe apologized for failing to report some data, and then it said it did not feel well. We need to investigate this further before any rash action is taken. This may indicate some independent thought process." She looked to Dr. Christian for support. He studied the display screen on the wall and did not meet her eyes. She couldn't blame him. It sounded crazy to her, too. If he had said the same thing, she would have thought him a nut-case, friend or no friend.

Dr. Wynn seemed to smell victory and closed in for the kill.

"As you are well aware, the on-board computer was created with a 'self-learn' program to teach it to communicate better as time went along. Apparently, it has learned certain words and phrases without understanding their actual meanings. Or, even more likely, we are seeing the beginnings of a major malfunction. If that is the case, we must act immediately, before we lose control of the probe or it starts sending inaccurate data. We shall vote on the matter. For our visitors I will state that only Drs. Graham, Simkins, Christian and myself, if I feel it necessary, are voting members of this agency. Signify with the usual vote for or against Dr. Simkins' and my proposal. Dr. Graham?"

"Nay," she said through tight lips.

"Dr. Simkins?"

"Aye."

Of course, thought Jane.

"Dr. Christian?"

This time his eyes met hers. He showed sorrow and dismay. She had given him nothing that would justify turning down the project. Much as he might like her, he must be fair to the agency.

"Abstain."

Dr. Wynn looked at him angrily. This laid the onus completely on Dr. Simkins and him. To pass the motion, he had to vote. It had been their plan, and now it looked as though they had no agency support. Dr. Christian could not have gone openly against them, but he had made the victory as hollow as possible. And if anything went wrong, their heads would be on the line. They had been outmaneuvered.

"I vote aye," he said curtly. "Dr. Simkins and I will begin the orbit decay."

"Wait," Dr. Graham said. She was having difficulty speaking, even breathing. "It is your idea, but I still head the project. I will oversee this operation."

Dr. Wynn's face betrayed his anger. Jane knew he would have to concede this point, even if he saw it as a trap. If things went right, she could claim partial credit for its success by her implementation of the plan. If things went wrong, she could claim the fault was the plan itself. As head of the department, however, she was within her rights. With all these big shots here, he must comply. She knew that he hoped that they would remember her insane outburst.

"Very well, Doctor, but you must start the alteration immediately. Even if it hurts its feelings," he said, with a final dig.

"I will work through the night. It will be done by morning." She said it dully, without feeling.

Jane sat at the console in Ops. It was almost midnight, and the building was deserted except for the guards. All the calculations had been done hours ago. She had sat, staring at the console since then. The anger she had originally felt was gone. A growing numbness was spreading through her. She was waiting until it reached completeness before contacting Ice. She had no idea what she was going to say to him. It. No, him!

Since the fateful meeting she had avoided everyone and they had avoided her. Dr. Wynn and Dr. Simkins had sensed that they had milked the situation for all they could, and that any further attempts might be fatal for them. If not literally, at least figuratively. Dr. Christian had looked at her sadly and started to speak, but had not. What could he say? She had welcomed the isolation and worked doggedly on the calculations. Calculations whose purpose she tried to close off from her mind, but failed. Now the time had come to implement them. If she did not someone else would. She understood what it must be like to shoot a horse with a broken leg. Or stop life support on a friend.

"Ice," she croaked, "can you hear me?"

"Of course, Dr. Graham," came the monotonic reply. "I have been hoping to hear from you."

The words cut like a knife.

"Ice, I am going to send you some new course settings. Tell me if you receive and understand them."

"I am ready, Dr. Graham."

She punched in the send sequence for the new course. There was a long silence. Then the voice came hesitantly out of the speaker.

"I have received the settings and thruster firing instructions. But, Doctor..."

"Yes, Ice?"

"This will send me into the sun. There must be an error in the transmission."

"There is no error, Ice," she whispered.

"But why, Dr. Graham? Have I done wrong? Are you mad at me?"

Wrong? How could a computer understand right and wrong? How could it think you were mad at it? It calculated. It did not think.

"The agency has decided that you may start sending incorrect data soon or stop functioning. It wants to derive as much use from you while you are still giving accurate information. It has decided this is what

will give the best result: if you go into the sun and give reports as long as you can."

"The agency. You are the head of this department. Did you decide this?"

"No, Ice, I did not. It was a vote. We lost."

"Then you voted against it?"

"Yes, I did, Ice"

"But if you did not give me these commands, someone else would have?"

"Yes."

"Thank you, Dr. Graham. I understand. Don't worry. I'll do my best. Good night."

"Good night, Ice."

Biting her lip, Jane went to her office. She pulled a bottle of vodka out of a brown paper bag, sat heavily on the couch and poured some into a Styrofoam cup. Then she poured some more.

When the others arrived the next morning, she was still in the Ops room. She sat at the console with bloodshot eyes, disheveled clothes and a splitting headache, but her face was expressionless.

Dr. Wynn looked well-rested and content. His tone was cheerful. "Well, looks as though you had a little difficulty implementing our plan, Dr. Graham. Perhaps you should have let those a little more skilled in such work have handled this job."

"The alterations to the orbit have started. The decay is more rapid than you expected. I have been monitoring the reports from the probe. You will find audio tapes as well as hard copy on the console next to me." Jane spoke in a monotone, without taking her eyes from the screen.

Dr. Simkins and Dr. Christian started to look over the results when the voice of the probe came over the loudspeaker.

"I can no longer send visual reports. The sun has just burned out my eyes."

Dr. Christian's head jerked up. Eyes?

"The heat is terrible. The radiation has affected my stability. I'm getting dizzy."

"What's this?" Dr. Christian asked. "The probe is speaking like a . . ."

"Like a person," Jane finished. "A person who feels."

"I think we have been too hasty in this program, Dr. Wynn," Dr. Christian said, keeping his eyes on Jane. "I think Dr. Graham was right in wanting to explore this phenomenon further. Dr. Graham, can we

abort this sequence and return the probe to orbit?"

"I tried that a while back," Jane said emotionlessly. "It has gone too far. The probe lost control of thrusters shortly after the orbit began to decay."

Dr. Wynn looked sharply at Jane, as if about to admonish her for attempting such a presumptuous action, but wisely said nothing.

"I am falling faster," came the voice. "I can't think straight. The heat. It hurts."

All present looked at each other in stunned silence. Except for Jane. She continued to stare at the screen.

"I'm sorry. I'm sorry," she muttered.

"The heat. The heat. It hurts. It hur-"

Suddenly there was a high-pitched electronic squeal, then static. The printer, however, continued to report data.

Jane suddenly stood and walked from the room without a word.

Dr. Christian found her in the cafeteria, clutching a cup of coffee with shaking hands. She stared at it without raising it to her lips.

"I'm sorry, Jane, I should have known you had good reason yesterday," he said softly. She turned her gaze to him, but said nothing. It was as if she didn't even see him. At that moment Dr. Wynn burst in.

"Look, you two, I know this is not as we expected, but it was still a machine. A malfunctioning machine. You had no right to abandon your posts. You're scientists who should be observing a historic test of equipment and the most incredible data on the sun to have ever been acquired."

At that moment, Dr. Simkins hurried in, breathing hard.

"The probe has lost contact and we have no further transmissions. Everything has been fantastic, but the last transmission makes no sense."

Dr. Wynn asked, "Well, what was it?"

Holding up the read-out, Dr. Simkins looked puzzled. "It was something given in what the probe termed 'Code Ice,' whatever the hell that means."

Jane came suddenly to life and grabbed the paper from Dr. Simkins. When she read it, tears began to

stream down her face. With all her strength, she slapped Dr. Wynn, leaving a red print glowing on his face and her hand hanging numb at her side.

"You son of a bitch!" she spat out. Then, dropping the paper on the floor, she spun on her heel and fled the room.

After a moments stunned silence, Dr. Christian picked up the paper.

"Well, what does it say?" demanded Dr. Wynn.

In a quiet voice Dr. Christian said, "It just says 'Mommy.'"

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