





















about math. Is that right?"

"My father was born and raised on Haiti. His parents, my grandparents, were both black at least for a few generations back. Few people in the Caribbean will hazard a guess about bloodlines if their lineage has origins among slaves working the plantations. Whatever the bloodlines, my father became an accountant, and he was successful enough to be recruited by a major US firm, then relocated to New York, where he met and married my mom.

"My mom was a math teacher, and she and my father both spent a lot of time with me on my homework. Now, I like to think that I know quite a lot about mathematics, especially the application of some math in the area of statistics that has never been attempted before. I don't know what you can tell me, but whatever you can tell me about your current problems in computation, I can certainly tell you what I know and have experience with."

Feynman paused. "I've read your papers on Maxwell's work in optics and electromagnetism. We are finding that some of the mysteries he and Faraday exposed at the molecular level are still mysteries today, but they are mysteries now more at the level of the atomic nucleus and surrounding cloud of atoms."

"I agree with what you say about Maxwell and Faraday," Thomas said, "but what can you tell me about the math and computation problems you are having at the subatomic level?"

Feynman stared at Thomas for several moments. Thomas was calm under this close scrutiny. "Do you know any magic tricks?" Feynman asked.

Now it was Thomas' turn to stare. "Is this a question about whether or not I believe in black magic; whether or not I believe in the scientific method; or whether or not I might prefer to believe in voodoo over mathematics?" He frowned as though he had been profoundly offended. Then he looked up at Feynman to see if he could read his intent.

"It's a simple question," Feynman said. "Give me your honest answer so we can move on."

Thomas thought for a moment, then raised both his hands in front of his face and waggled his fingers at Feynman. "Booga-booga."

Feynman's bursts of raucous laughter could be heard across the room. At Julio's Feynman learned that Thomas also played music, the trumpet. He suggested an uptown jaunt to the Braddock Hotel, where they could listen to the house band play its signature Caribbean music.

They never made it to the Braddock, Feynman told us, and a shadow came over his face. The day was Monday, August 2. On Sunday, the day before, a black GI had seen a white police officer trying to arrest a black woman for disorderly conduct. The GI sought to intervene. A scuffle ensued, and the policeman apparently shot the GI. A riot began that lasted for two days.

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"Focus on the question at hand," Feynman would say. "Ignore all of the issues and history that brought us to this particular problem in the first place."

This was Feynman's entire life and his entire attitude toward the problem's others had long since given up on. His doctoral thesis merely reflected his most fundamental attitudes. Paraphrasing again: "When confronting a problem, ignore everything that has nothing to do with it, and be alert to all the possibilities for fixing and repurposing. Don't hesitate to try off-the-wall fixes that might sound stupid at the time.

"Most important of all," Feynman instructed us, "try not to make a mess."

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## Now I Am Become Deathj

A month after the incident at the Braddock Hotel in Harlem, Feynman calls me, Thomas, and Konstanty to a short meeting in one of the labs used by the Theoretical Division. Though still somewhat shaky on his feet, Konstanty is back at work and trying his best to reconnect with the other members of his field team and his other collaborators on the Diffusion Unit team.

"I assume you've met Thomas, Sarah?" Feynman asks.

"Yes. Of course." I turn to Thomas. "I have been showing him around and introducing him to the human computers while we wait for our new computing machines to show up. Maybe he has some thoughts he would like to share with us about what he has seen so far?"

Thomas clears his throat. "Yeah, thanks to you both, very much, for bringing me on to this project. I have been getting the whole story from the women who are working the Marchant machines about the kind of data you are processing, and the steps you have set up to handle the calculations. My compliments on your process arrangements for handling the data. It should all go quickly from paper onto the punch cards. If we can get those machines set up quickly, we should be able to start processing real cycles of digital data within a couple of months.

"I think I do have a few mathematical tricks I can contribute to the solution of the main problem you are dealing with now, the shape of the blast effects. You will have to merge the partial differential equations of Maxwell with the statistical mechanics that can deal with the fuzzy positions of nuclear particles. Have I got that right, more or less?"

"My compliments to you, Thomas," I say. "You have picked up a lot in a few days."

Feynman agrees "I'm looking forward to seeing your work once you get your teeth into some of the real problems we're dealing with here. One more thing I want you to take a look at before you start locking yourself into approaches and methods that you think will work: read my doctoral thesis, and work through enough of the math to get an understanding of how I think we need to work out the identification and analysis of forces when particles collide in a condition of critical mass."

"I'll get right on it," Thomas says.

Konstanty chooses that moment to jump into the discussion, glaring at Thomas. "Wait a minute. With all due respect, who the fuck are you? I don't remember seeing your name on any paperwork." He looks toward Feynman and me. "Did you guys forget that I work here? What the fuck is going on? Are you guys just hiring off the streets now? What is his security clearance?"

I do my best to hide my frustration. "I had to make a lot of decisions in your absence, Konstanty, including the recruitment and hiring of Thomas. There was no way to know your real condition, nor could we know if you would be back on the job in the foreseeable future. Dr. Feynman and I consider Thomas to be a capable addition to our group. We both expect him to do very important work in the integration of our manual data processing with the IBM systems that are being installed and tested as we speak."

I cross my arms. "Frankly, Konstanty, I am a little concerned about your attitude toward Thomas. I assume you have never met him, so I am wondering if you have ever had to work with a black man before?"

"No. And I don't particularly want to start now."

"If that is what you want, we can arrange that," I say. "You need to understand that I am not going to let Thomas go without a fight, let alone on your say so. I need his skills on my team. Besides, after the fights I have had with some of my sisters and faculty members in college, I don't think you are going to be much of a problem."

There is now a pause in the discussion. Konstanty is looking down at the floor. Thomas looks like he is about to say something. I scowl at Konstanty. At this moment, in my mind, he has no right to free

speech.

Feynman speaks up. "You need to say something, Konstanty. Right now, I am wondering if we have a team that is capable of the kind of collaboration I need to help me get through the work in front of me. So, answer the question: do I have a team or not?"

"You have a team, Dr. Feynman," Konstanty says, "but I am not sure I should continue to be a member of it. My parents are typical Russian peasants; they suspect everybody who does not swear to the Russian Orthodox faith, and their obeisance to the practice of that faith has not mellowed during their time in America."

Konstanty walks over to Thomas with his right hand extended. "I'm sorry for my bad behavior," he says. "I am sure you are a good man, and I'm sure you are well qualified to do the work Dr. Feynman and Sarah have in mind for you. My parents have given me a load of bad impressions to carry with me in life about the evil done by people who do not live by The Book."

"I have only recently begun to realize that almost every one of those evil people my parents talk about is of a different race than are the white European 'true believers' in the Russian Orthodox Church. I am sorry."

Thomas clasps Konstanty's hand in his. "You don't need to apologize to me, but I have to admit that I have had warmer receptions on meeting someone new. On the other hand, I have had much worse receptions, but none of those perpetrators has ever stepped forward to shake my hand afterwards. I hope you will stay on with us because I look forward to working with you."

"Sarah, I think this is a good time for you to take Thomas and Konstanty down to the explosives shack and introduce everybody around to the sapper crew down there. Once you're done, I'd like to have Thomas give me his thoughts on what we need to do to speed up the turnaround on explosion data once we get our computers set up," Feynman says.

Inod. "I'll call up a jeep. Konstanty, are you up to reintroducing yourself to your crew?"

"Yes, I am. But I want you and Dr. Feynman, and Thomas, to know that I still need to assess what I am now seeing as my new life since the accident and the coma. I still need to decide if I am in the place I need to be and want to be."

Feynman spoke up. "While you consider your options, Konstanty, I have some news you might all find interesting. Some of part of the scientific staff here have been working to resolve the technical problems of manufacturing Plutonium in the quantities we need to even run an initial test of our designs for the implosion model of the bomb chamber. We were told that the process designers for the making of plutonium might be able to produce a few grains as samples last spring. However, that proved to be way too optimistic."

Feynman continued. "In fact, they have only this past week managed to produce a couple of tiny specs of U-239. As part of my job to keep track of the manufacturing process I was able to get one of the techs involved with the process prototype at Hanford to send me these."

Feynman pulled a small box out of his pocket. It looked like a box for an engagement ring and perhaps it had been that exact thing once perhaps in making a proposal of marriage to his wife, Arline, now bedridden in Albuquerque with tuberculosis. By one barely legal subterfuge or another Feynman has managed to escape the mesa almost every weekend in order to visit his dying wife.

He flipped the lid up and with a pair of tweezers he lifted aside one corner of a piece of black cloth.

Inside, laying on the black backing lay two tiny, barely perceptible dots of something that looked like they might have been carefully scraped off a piece of light grey metal. Perhaps they had.

## Now I Am Become Deathj

“Behold. Plutonium,” Feynman said. “Don’t touch.”

I got closer. I had to take my glasses off and move them toward and away from the two particles in order to bring them into some kind of minimal focus. Suddenly my flesh grew cold and I could not stop shaking. My mind became flooded with the horrible images my family pass along to me almost every week from what they hear of persecutions of our close relatives in Europe; about Kristallnacht, and about neighbors and friends being stripped of their possessions then taken away to work camps. In 1937 my parents arranged a trip to Paris with some school friends to celebrate my good grades. My mind now flies to Pablo Picasso’s Guernica hanging in the pavilion at the Paris International Exhibition.

Shortly before, Picasso had the painting taken away to the United States to keep it away from Spain’s Fascist dictator Francisco Franco.

Even so my vision of the painting and of the people and animals being torn apart and the awful screaming of the children as Hitler’s bombs exploded gripped me in the terrible embrace that Picasso’s work had created and held inviolate in my suddenly disordered mind. At Franco’s invitation German Chancellor Hitler had done his bombing of Guernica, a small Basque farming community in northwest Spain, just to give his pilots and bombardiers and new bomb-carrying aircraft some practice dropping high explosives on helpless civilians. No warning had been given.

I backed away. I was overwhelmed with emotion. Tears came to my eyes. It was our job to take these tiny specs, these two tiny particles, and apply sciences to them that we barely understand in order to create a destructive device that we can barely imagine to burn and destroy an enemy and the men and women in their armies and navies that we have never met.

“And what of the children?” I thought to myself. “What of all of the little children?” My tears now flowed more freely. I excused myself and stepped from the room.

The last thing in my mind before I ran into the bright sunshine outside the building were the words of Alexander Graham Bell on the first successful test of a device that would become a telephone in every American home: “What hath God wrought.”

It has become so easy to ignore what we’re doing, holed up in our offices, distracted by the day-to-day minutiae of finding computers and hiring staff. I am ashamed that I have lost track of the gravity of our situation. We are doing something that will change the twentieth century beyond recognition. The dark spaces between atoms will strike like flint, become weaponized. They will mushroom, and light the air afire. They will rain down on children. They will enforce pain and suffering. They will support the war machine. They will enforce peace.

I look around from face to face. There is grim hope, there is fearful expectation. There is a fevered sense of discovery.

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