

Doctor Jane, I presume

Jane had been at her desk in the basement of Rolling Hall for about three hours. For the first two hours, she made good progress on her calculation. The problem was to calculate the predicted mass of the Higgs particle in a particular version of string theory that Professor Hawley had invented. He called it the "whole ball of string" theory because of his belief that it was, finally, the one string theory that explained the entire physics of our universe. It had become known popularly as the "whole nine yards" theory, playing on the rather derogatory notion that it would amount to nine yards of string rather than an explanation of the entire universe. Nevertheless, several already-established predictions of the theory had been very accurate, so worldwide interest in the theory was growing, and her result would be of interest to the entire string theory community. The last hour had been spent mostly staring out the window at students walking by, at a delivery truck coming and going, and at the duck in the Faculty Club pond.

But, of course, her mind was not idle, it just wasn't doing string theory. She had recently seen a documentary on Stanley and Livingstone and the search for the source of the Nile river. She had seen many similarities between the hardships they endured, the self-doubts, and disbelief of others, and her travails in working on the Higg's mass problem. She smiled to herself whenever she thought about comparing herself to Stanley and Livingstone.

In the last few days, as she seemed finally on the right track with the calculation, she had been alternately elated and depressed. The prospect of announcing her result to the world, possibly at a dedication ceremony for the Large Hadron Collider at CERN, thrilled her. On the other hand, the quite likely prospect that this approach to the calculation would hit an insurmountable barrier, as all the others had done, depressed her. When she was excited, it was tempered by the memory of how she had been excited before only to find out that she was on the wrong path. When she was depressed, she was just depressed.

To her, Professor Hawley's formulation of the "whole ball of string" theory was like the British explorer, John Speke, who had discovered Lake Victoria and, although he saw only the southern tip of the lake, he jumped to the conclusion that it was the source of the Nile. It was decades later and after unspeakable travail that his hunch was proven to be right. So that meant that she was either Livingstone or Stanley, both of whom tried to prove Speke's conjecture. Livingstone had gone first, veered too far west, and descended into the Congo River valley. Stanley had finally discovered the magnificent waterfall emptying from Lake Victoria at its north end and forming the Nile. She had begun describing each day to her boyfriend, Peter, as either a Livingstone day or a Stanley day, depending on her progress and mood. Today was turning out to be a Livingstone day. She wasn't sure she could go back to the calculation.

Summoning at least enough determination to get up, she wandered out into the hallway, made a visit to the ladies' room that involved maybe five minutes of just staring into the mirror over the lavatory, and then went up the stairs to the mailroom. She filled and started the teapot, put two teabags in her cup, and idly studied the bulletin board that overflowed with seminar notices, conference announcements and job openings. She couldn't bear to read the job openings since her graduation seemed like a remote and possibly fictional event. When the pot whistled, she filled the large cup, and without any real conviction, went back to her desk.

She didn't even pick up her pencil. She thought about how it had been when she was enrolled in classroom courses. She would be given a problem set to solve as homework. Sometimes the problems were very tough; sometimes, the sheer number of them was daunting. But, she remembered, she always got them done. She always got at least close to the right answer. What was the difference between those problems and this Higg's mass problem? Why did she find it so hard to concentrate?

It came to her almost immediately. She knew that the homework problems had an answer. Not only that, but the answer would be found by applying the material that had been covered in that course. Now she was really headed into the unknown. The homework problems were like getting on the train to go from Baltimore to Los Angeles. It took time, the train might be delayed, some idiot might even throw a track switch the wrong way and the train would take a detour. But arriving in Los Angeles was not really in doubt. The Higg's mass problem was like Livingstone headed west from the coast of Africa into unknown territory. He might eventually return to London some day to great adulation or he might die of a tropical disease or at the hands of disgruntled natives. She might speak at CERN to thunderous applause or die a too-typical graduate student's death in obscurity. Well, maybe not die, but she knew about Ralph Sciota, and how it took him eleven years to get out. A chill shook her and she put her head down on the desk.

Maybe she fell asleep. She wasn't sure, but when she raised her head, the sun seemed lower than she remembered. She stared at her notebook. "I'm not sure whether I'm Livingstone or Stanley," she said out loud to no one. "But I'm sure not going to lie down in the wilderness and let the dingoes eat me." She stopped and tried to remember: are there any dingoes in Africa?

She picked up the pencil and retraced her work from earlier in the afternoon. After seeing that it seemed to make sense, she began to evaluate the sum of the string configurations she had written down earlier. She smiled as she took one configuration at a time and evaluated its contribution to the mass. "Get away you grody dingoes," she said over her shoulder a couple of times.

It was about six months later that the paper authored by Professor Hawley and her came out in Physical Review Letters. She was a couple of months late to get the invitation from CERN, but she was a big splash at the Fall Meeting of the American Physical Society.

On a cold, rainy, late-Fall day, as she sat curled up next to Peter on the window seat of their graduate-student apartment, Peter asked, "Tell me again, with all the details, how you figured out the Higg's mass problem. Give me the way it felt as well as the blow-by-blow."

Jane looked at him to see if he was kidding. He wasn't. No grin, no smirk. "I've told you I-don't-know-how-many times. Why do you want it again?"

"Well," he said as he gave her a tighter hug, "I can never be Stanley seeing Rippon Falls for the first time. I'm just not an explorer; but I am an avid, insatiable tourist in the world of particle physics and string theory; and you are my favorite explorer guide."