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A PRION LOVE STORY

BY D. T. MAX

Not long ago, I got an e-mail that began this way: "I am writing to introduce myself and my wife and our quest to cure fatal familial insomnia." The writer had found me because, in 2006, I published a book called "The Family That Couldn't Sleep (http://dtmax.com/)." It's the story of a remarkable family in the Veneto who, for two hundred years, have had a hereditary insomnia that leads to death, usually in their fifties. No one escapes the fate. The family's experience with it, their attempt to live despite it, was the focus of the book. One reviewer commented that the book was "cannily plotted." I had never been sure.

Nonfiction is fickle. The best character may present herself long after publication; maybe even after you've stopped thinking about a subject that once meant the world to you. I had always felt like I was missing a hero for my story. Starting the book, I had expected that the Italian family, with their deep desire to conquer the centuries-old affliction, would play that role. But by the time I got to the end of four years of research, it was clear that the realities of their situation—shame, fear, confusion, discord, inertia, all the human verities, not to mention the complexities of their disease—had pretty much stopped their progress. I felt bad for them, depressed. My book was destined to end in the same dark place where it had begun. Maybe that's how it goes, I remember thinking, maybe that's life. I thought of a line I love from a Wallace Stevens poem: "The natives of the rain are rainy men." It turned out the rain could not be outrun, not even by the canniest of plotters.

The sender of the e-mail was Eric Minikel, and his wife, whose family had the disease-causing mutation, was Sonia Vallabh. Quickly, I wrote back to them. We agreed to meet up on a snowy morning this past winter, at the Squeaky Beaker, a coffee shop near M.I.T. Minikel was slender, wearing the smart Cambridge-graduate-school uniform of jeans, a collared shirt, and a down vest (his: golden yellow). Vallabh, then twenty-eight years old, softer, brown-eyed, more reposeful, of Indian ancestry, told me her story: Her mother had died in

December, 2010, at fifty-two, after a terrifying and confusing illness. During most of her sickness, her doctors were baffled—she had such terrible dementia that no one focussed on her sleeplessness, a classic symptom of Fatal Familial Insomnia. Later, an autopsy—her brain had to be shipped to a special lab—showed the cause of death to have been F.F.I. The diagnosis was extraordinarily rare—prion diseases, of which F.F.I is one, afflict only one in a million people. F.F.I is an autosomal dominant disease, which means you have a one-in-two chance of having the disease if your parent has it.

Often the descendants of F.F.I victims prefer to be left in the dark about whether they, too, carry the mutated gene, but Sonia immediately wanted to know her status. "I didn't think it ever occurred to me not to get tested," she said. Results showed she had the defective gene. I hate the phrase "death sentence," because it pretends life gives anyone anything else, but having the mutation does make brutally specific what most of us live our lives fearing in a nebulous way: the likely cause of death and, to some extent, the timing. Sonia and Eric hesitated briefly, and then decided to make it their life's work to find a cure for Sonia before she got sick. They have roughly twenty-five years to crack an amazingly difficult scientific puzzle, maybe—hopefully—a decade more.

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Meeting them on that snowy day, I liked them both immediately. They radiated charisma, hope, health. Minikel was a transportation planner; his master's thesis was on bike safety. Sonia had gone to Harvard Law School but never taken the bar exam, and worked for a firm that consulted on city infrastructure. When they married, they had each taken the other's surname as their middle name. It became clear to me that her disease was, for him, his disease as well. They finished each other's sentences.

What they decided to do was, as far as I know, unprecedented. They quit their jobs and became researchers on F.F.I. and related diseases. This is not as easy as it sounds—F.F.I. is one of a group of diseases involving problems with the formation of proteins, like Alzheimer's or Huntington's Disease. You don't research it in your garage. Proteinomic labs run on money; they want postdocs, not patients. Fortunately, the couple lived in Cambridge, home to many major research institutions.

In the months after learning Sonia's genetic status, they set out to educate themselves. Sonia recounted that her typical morning involved four consecutive stops on the Red Line. First, Central Square, where she lived; then Kendall Square, where she sat in on lectures and seminars at M.I.T.; next,

Charles Street, where she volunteered and later worked in a neurogenetics lab at the Center for Human Genetic Research, at Mass General; and, finally, back to Harvard, where she attended night classes at the university's extension school, Meanwhile, Eric learned to analyze genetic data to see if there were factors—such as intensity or the age of onset—that might affect the course of the disease.

Sonia would come home at 11 P.M., excited and jazzed. Obviously, some of this had to do with the race she was in, but not most of it. She told me that in the lab she had found a pleasure she'd never before taken in work. "Stem cells," she told me, "they're so beautiful." She loved being among people thirsting for knowledge, and saw her earlier life as a wrong turn. "I had spent so long in law school," she said, "surrounded by people who were not passionate. They either weren't by nature, or had given it up."

Sonia and Eric applied what they learned by day to their moonlighting project: curing her disease. They turned to their friends and to the Web for money and expertise. They founded a Web site, Prionalliance.org (http://prionalliance.org/) ("Not if, when"), and another, CureFFI.org (http://CureFFI.org/), where Eric blogged about developments in the field. They got involved in a way that many patients hope to but few can. They've begun to see some progress. They have raised eight thousand dollars, through Microryza, for an experiment involving ANLE138b, a compound that inhibits prions, which Eric first read about online. He had blogged about it, and a researcher had contacted him. Now scientists will inject the drug into mice with another prion disease, called G.S.S., under the prion expert James Mastrianni at the University of Chicago. And, having surpassed their fundraising goal, they are now raising money to do a similar experiment on mice with the F.F.I. mutation. Showing the drug is effective against two forms of prion disease would help it get into human clinical trials. It's a first step.

"There are a tremendous number of unknowns about when we will have a treatment, when we will have a cure," Sonia told me recently. "These breakthroughs are unseeable even ten minutes before they happen." She added, "I think were going to have a great life on this quest and with this project and we'll see what we see."

Recently, she wrote me an unprompted follow-up e-mail. It was not about the research but about Eric:

> I thought when I married him that I could never love anyone more than I did that day. But I was wrong. We are in a new dimension of partnership now, and I am more in love and, frankly, more in awe of him with every day we spend together. His brain is outstandingly powerful and I am seeing things I never would have known he was capable of in any other way. He was meant to do this work, and the world will be better for it.

A few minutes later, she felt she'd gone overboard. "That came off as too dramatic!" she corrected, and instructed me: "Add some sort of diminutive to the end: 'better for it, in some small way, I have to believe.' "

I realized then that what my book had needed wasn't a hero or heroine marching fearlessly to a cure. That doesn't brighten rainy men. What it needed —what we can all use—is a good love story.

D. T. Max, a staff writer, is the author of "Every Love Story Is a Ghost Story: A Life of David Foster Wallace (http://dtmax.com/)," just out in paperback from Penguin.

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