

## MOSQUITO SONG: DREAMS IN OLD SAN JUAN

1

Antonia needed to be near the water.

She stumbled slowly along in the predawn light, making her way down from her tiny apartment in New York City's West Village over to the Hudson River. Though she had only meant to have one drink last night, once she'd started, she couldn't stop. Now she craved the open space of the riverfront. Fresh after a good rain, the swollen current undulated like a pregnant woman. The river was stretching in the predawn light on the last day of summer. Antonia sucked in the cool air and looked downstream. Her eyes followed ripples from under her toes and the slats of the pier out to where the water met the milky horizon. It was somewhere between lower Manhattan and the Statue of Liberty. She peered through the yellow-gray water beneath her feet where it swirled and rolled. What was that strange organic odor? Fish, algae, or bacteria? Living or dead? Last week she'd read that an unidentified body had surfaced not far from where she stood. The Hudson was a dirty and secretive river.

In two hours she would fly over the water from John F. Kennedy Airport to San Juan, Puerto Rico. Staying home daydreaming and napping through the hangover would have been preferable, but she had to go. She was going because she was driven to, and it was no vacation. Her goal was grim; she would pick up a fetal human brain sample. She'd bring it back to the lab, run tests, and try to find out what had killed an unborn baby. It was a mystery. A series of molecular questions would yield a trail of answers. That was her day-to-day. This one was full of unknowns. She didn't know the lab technicians who had the specimen. She didn't know how she was going to ship the sample back. But she did know how to search for a disease-causing pathogen once she got the pieces back to the lab.

A virus had done it, she suspected. But which one? Or could it have been bacteria, even a parasite? Where had the infection come from? What it had become? Finding out the DNA sequence of genes in infected fetal matter could tell her all that, and more. Virus hunting seemed like dirty work to others, but to be honest, she enjoyed it. They weren't going to do the analysis there, and she was willing enough to do it here.

On the way back to the apartment Antonia crossed the West Side Highway. She dodged cabs and trucks. Across Hudson Street the lights turned off automatically as she headed up Leroy Street to her place. It was only daybreak. By noon, she'd be walking on another island. Puerto Rico.

She had not been able to resist when her lab director, Phoebe, called at five in the morning and asked her to make the trip. The director knew she didn't have to push, though she had bought the plane tickets and reserved the hotel. Antonia generally loved taking on new DNA

projects, and she said yes on impulse before thinking it through. For her, decoding DNA was like reading a good book. Sometimes it was an instruction book for building each of the billions of cells that made up a life form, and for the microscopic pathogen that could kill it, too. Other times a DNA sequence told a tale of secret origins, the identity of an unknown father for example, providing a molecular family history of sorts for scientists who knew how to read it. For the very lucky, a DNA sequence might tell a story of the future. It was better than science fiction.

She labored up the steps to her third-floor apartment slowly, feeling increasingly nauseous. The hallway's lights were out, and a fetid odor coming from the carpet overwhelmed her. Her head throbbed. She vowed never to drink again. At the very least, no drinking until she'd moved to a place where the staircase didn't smell like someone had drug a corpse over it. On one of the doors to a second floor two-bedroom was a handwritten sign, "Can't you tell the place smells like a dead elephant? Call management!" She didn't know where to find the phone number, and disregarded the sign.

Upstairs, she unzipped an old leather backpack, tossed in a travel guidebook, a change of clothes, and her laptop. She opened her passport and looked at the picture critically. Hazel eyes, pink skin, brown hair, pretty, she thought, but that was nine years ago when she was only 28. A swimsuit, sunscreen, and insect repellent were important. Puerto Rico would have mosquitoes. And last, a box of colored pencils and a sketchbook pulled from her bookshelves, causing a whole row of books to topple. A scientist's day wasn't all Eureka moments and she'd have time to kill while looking for a new virus.

She sat down on her bed, more to quiet her revolting stomach than to reflect.

The trip could be exciting, she told herself. Viruses fascinated her. She was especially intrigued by newer ones, like Zika. It was the first virus to cause birth defects in the United States since the Rubella epidemic of 1965. Rubella, also called German measles, had hit 12 million people at the time. Infections caused deafness and blindness. Worse, they caused hidden damage to the hearts and brains of unborn babies developing inside infected women. Pregnancy was brave. Pregnancy meant walking through a land mine of potential crises.

The Rubella threat was over years before Antonia was born. Who even brought it up these days? No one. They didn't have to think about it now that childhood vaccinations were nearly universal. Mandatory MMR shots which protected from measles, mumps, and Rubella were scheduled to start on everyone's first birthday. And that took care of it.

There was Tommy, though. She remembered a high school friend's younger brother. He was so slight, so fragile. His mother had Rubella during her pregnancy and Tommy was born deaf. He was sweet and attractive but slow to learn and didn't talk to anyone. Didn't come out to play. Painful for his mother.

Zika had become a similar danger, leading to birth defects, vision and hearing loss, or seizures in one out of seven pregnancies. This year most of the U.S. cases had been in Puerto Rico. So it might be Zika.

Antonia ran to the bathroom, threw up twice, and brushed her teeth for the third time that morning. She slowly drank two glasses of water.

Vaccinations! Did she need any before going to San Juan? She didn't think so. It was part of the U.S. after all. It was too late now, even if she did, and no Zika vaccine had come along yet.

She went back to packing and from her peripheral vision saw a crushed cigarette pack fall down from her bookshelf. She stopped and puzzled over the bit of trash. When she leaned forward, her head pounded. Bile rose to her throat. No, she did not want to have to lean over. She slowly bent her knees and crouched down to take a closer look.

"Derby, Azul mar," she read. Her lips pulled up into an involuntary smile. She didn't remember seeing this label before, with an azure flag floating across a white background. The empty box lay there innocently enough, inert on her green jute rug. But it meant something important. Someone else had been here. And they were probably from a Spanish-speaking country.

Antonia didn't smoke, and hadn't for years. She certainly wouldn't smoke here either, in a place so small she could touch both walls if she spread her arms out. And nothing smelled like smoke this morning. Curious.

Her favorite Cuban bar on Avenue A in the East Village, Cien Fuegos, had been crowded last night. Hot. She remembered that she'd stopped by after work at about six, but could not recall much more. She had walked up the crowded stairs, they had let her in, and she had ordered rum punch. Probably switched to rum shots. Should have had dinner first, such an idiot. She must have been black-out drunk. What had happened? She wiggled her toes. Feet weren't sore. Well then, she certainly hadn't walked the eleven blocks from the Cuban place back home. And she didn't remember anyone coming over last night. Her things from the night before, a white shirt, beaded camisole and skinny black pants, were neatly folded beside her futon. Puzzling, because as a rule, she never folded her clothes. Still, she didn't stress about her mental lapse. Memories in bits and pieces would come to her later, as they usually did.

She could find out. She'd ask Katy when she got over the embarrassment of it. Katy stood out in front of Cien Fuegos all night long. If you didn't know her, you'd think she was a hostess drawing people in, but she was a bouncer keeping out those too drunk to tolerate. Sometimes a man would make a pass at her, always a mistake. One night, a patron on his way in had glimpsed her in her sleeveless dress flexing her arm while putting her hair back.

"I like my women strong," he said.

Katy shot back, "I like my men quiet," and watched him back off looking flattened and confused.

Antonia knew Katy had a martial arts black belt, never forgot a face or a name, and of course, didn't drink on the job. She was five foot ten, a hundred and twenty five pounds, and not yet 30. Katy would remember who left together, and whether they were drunk or sober. She had the memory of an elephant. A matriarch without a herd. Antonia laughed to herself. Katy would make a great mother one day.

## 2

This was the morning after a big mistake, a new day, and a fresh start. Antonia got to the airport early. No inconvenience bothered her on the early leg of her journey as she focused on solving the mystery of her quest. She didn't mind standing in the meandering airport security line for an hour, nor waiting for her flight at the gate. She didn't get aggravated sitting on the plane waiting for lift off, either. That was because she had bottled water with her, no appetite, and was absorbed in reading research papers on mosquitoes as vectors of lethal diseases. Must be prepared for what she might find while investigating this infection killing the unborn. Other planes receded into the background as her plane took off over the water, and she barely noticed from her window seat.

During lift-off, her stomach turned again. In a moment of intense anxiety she looked away from her papers. She took a muscle relaxant and, as a distraction, forced herself to run through her mental library of the biographies of tropical diseases mosquitoes might carry. Malaria, dengue, chikungunya, West Nile, and Zika.

Malaria was a real monster. It killed Alexander the Great. And it felled more soldiers than ammunition did in most of the big wars. Even within the last year malaria had killed more than 400,000 people all around the globe. The ancient disease continued, passed along through infected mosquito saliva teeming with parasites. The insects gave the infection to people through their bite. Once the microscopic parasites were inside the body, they attacked a person's liver and blood cells causing a disease that could be chronic and was often fatal.

Antonia hated mosquitoes. All the little creatures needed to work their devastation was animal blood to feed on and a little water to hatch their eggs. Mosquitoes had carried dengue virus from African monkeys to people causing a 1950s epidemic in the Philippines. Dengue had reached the Caribbean in the 1980s, and it persisted to this day. Chikungunya, another virus that traveled in mosquito saliva, had emerged in Africa in the 1950s. But it was transported to North and South America only within the last few years. West Nile virus had come from that river region of Uganda in 1937. It made its way to Asia, the Middle East and Europe, eventually New York in 1999, and was still causing new cases this summer. Like all the others, the virus was given to people by infected mosquito hosts.

A newcomer, Zika virus had jumped from Africa's Zika Forest monkeys in the mid 1900s to Polynesia's human population by 2007. Biting mosquitoes carried the virus from person to person. The virus had mutated on the way to Latin America in 2014. Zika had arrived unnoticed

at first. But then cases peaked in the hot rainy seasons causing a painful rash, a fever, and pink-eye. None of the early symptoms were remarkable or lasted long. The worst effects, the ones that emerged later, were horrible.

Zika flowed in the blood of travelers who picked it up on their way through more than 50 affected countries, caught from infected mosquitoes. People brought their infections with them before they showed any outward signs of being sick. But strangely, Zika virus could also pass from person to person. Some infections passed silently between lovers and the viruses traveled unseen from men's semen to women's blood. Pregnant women had to worry the most about the consequences of infection, and there were 4,800 of them in just the last two years in the U.S. territories. The virus migrated through the umbilical cord, up unborn babies' spinal cords, and into their growing brains. There, Zika virus wrecked havoc. In some pregnancies, it caused birth defects like microcephaly, a dangerously small brain, or other brain damage. It also affected the sight, hearing, nerves, and the infection sometimes ended lives before childbirth. Miscarriage was more frequent than was expected. Too many mosquitoes and too little birth control, Antonia thought.

Doctors, politicians, and even the World Health Organization started to take notice in 2016. Two years later, when Antonia made her plan to visit Puerto Rico, Zika had already been to Miami, Texas, and New York among other states. Dozens of U.S. babies had been born with birth defects from the virus. In response, the federal government had established a registry to monitor pregnant women and their children, and was following over one thousand of them. Still, no one paid much attention to Zika where Antonia lived at first, outside of a few government scientists and curious university scientists planning research projects.

Antonia paid attention. But because virus hunting was a living for her as a researcher, and she loved it, she was careful not to get involved in the heartache. She took precautions. She avoided personal stories. She turned her eyes away from the press photos of Zika-deformed babies with small heads held up by loving mothers, or cradled in the arms of protective fathers. She would plan well-tested methods to study this or any other disease. From a safe emotional distance, she would dissect the secrets of the pathogen with the molecular tools of her trade. In the cold sterility of a research laboratory, columns, gels, and radioactive labels would allow her to methodically map out a pathogen's DNA code, and maybe, explain how it worked its unique brand of chaos.

As the plane steadily gained altitude, someone started kicking the back of Antonia's seat, hard and didn't stop. She whirled around and glared behind her. A little gap-toothed girl smiled back, but kept right on flailing with skinny legs. The child was relentless. When the plane reached maximum altitude, a baby in the seat next to Antonia started to scream. During the sputtering gasps between shrieks, the nursing mother looked over at Antonia.

“Change in air pressure. His ears can’t take it.” She said sweetly, and covered her breast, petting the baby lovingly.

Antonia hated children. With so many reasons not to have a child, she felt blessed to be free of the burden. Just look at them! Bundles of randomly firing neurons. Kicks, sobs, and tears. Her ex husband Tony had wanted to have a family. But after six years of being unable to conceive, they stopped trying and drifted apart. It was just as well. He was such a pessimist. And moody. Tony would have been a lousy father, she predicted. By now, at 37 she’d given up on the idea of children entirely. She had no regrets, felt no guilt.

Motherhood and the molecular biology research lab were hardly compatible anyway. Her mentor Phoebe had no children. Some female peers who’d gotten pregnant dropped out of the science race altogether. At the very least, they found themselves significantly slowed down by babies and young children. Handicapped, even. Antonia had come to think of motherhood as a real disability for female scientists. It was an inequality that must be remedied! But pregnancy was simply an impossibility for her, she thought, as somewhere far above the ocean on the three-hour flight from New York to San Juan, she fell sound asleep.

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