Entanglement
VANDANA SINGH

Vandana Singh was born and raised in India, and currently resides with her family in the United States, where she teaches physics and writes. Her stories have appeared in many different markets and been reprinted in several Best of the Year anthologies.
She' s published two children's books in India, Younguncle Comes to Town and Younguncle in the Himalayas, and a chapbook novella, Of Love and Other Monsters. Her other books include another chapbook novella, Distances, and her first collection, The Woman Who Thought She Was a Planet and Other Stories. Her most recent book is an original anthology, coedited with Anil Menon, Breaking the Bow.
In the intricate novella which follows, she shows us the hidden connections between several people in a near- future world who are struggling—and to at least a small extent, succeeding—to combat the worst ravages of global climate change.

FLAPPING ITS ... ...WINGS ...
and flying straight at her. She ducked, averting her eyes. The whole world had come loose: debris flying everywhere; the roar of the wind. Something soft and sharp cannoned into her belly —she looked up to see the monster rising into the clouds, a genie of destruction, yelled—Run! Run! Find lower ground! Lower ground! She woke up. The boat rocked gently; instrument panels in the small cabin painted thin blue and red lines. Outside, the pale Arctic dawn suffused the sky with orange light. Everything was normal.
"Except I hadn't been asleep, not really," she said aloud. Her morning coffee had grown cold. "What kind of dream was that?" She rubbed the orange bracelet. One of the screens flickered. There was a fragmented image for a microsecond before the screen went blank: a gray sky, a spinning cloud, things falling. She sat up.
Her genie appeared in a corner of the screen.
"Irene, I just connected you to five people around the world," it said cheerfully. "Carefully selected, an experiment. We don't want you to get too lonely." "Frigg," she said, "I wish you wouldn't do things like that." There were two messages from Tom. She thought of him in the boat three hundred kilometers away, docked to the experimental iceberg, and hoped he and Mahmoud were getting along. Good, he had only routine stuff to report.
She scrolled through messages from the Arctic Science Initiative, the Million Eyes project, and three of her colleagues working off the northern coast of Finland. Nothing from Lucie.
She let out a long, slow breath. Time to get up, make fresh coffee. Through the tiny window of the boat's kitchenette, the smooth expanse of ocean glittered in the morning light. The brolly floated above it like a conscientious ghost, not two hundred meters away. Its parachute-like top

was bright in the low sun, its electronic eyes slowly swiveling as the intelligent unit in the box below drank in information from the world around it. Its community of intelligences roved the water below, making observations and sending them back to the unit, so that it could adjust its behavior accordingly. She felt a tiny thrill of pride. The brolly was her conception, a crazy biogeochemist's dream, brought to reality by engineers. The first prototype had been made by Tom himself, in his first year of graduate school. Thinking of his red thatch of hair framing a boyish face, she caught herself smiling. He was such a kid! The first time he'd seen a seal colony, he'd almost fallen off the boat in his enthusiasm. You'd think the kid had never even been to a zoo. He was so Californian, it was adorable. Her own upbringing in the frozen reaches of northern Canada meant she was a lot more cold-tolerant than him—he was always overdressed by her standards, buried under layers of thermal insulation and a parka on top of everything. Some of her colleagues had expressed doubts about taking an engineering graduate student to the Arctic, but she'd overruled them. The age of specialization was over; you had to mix disciplinary knowledge and skills if you wanted to deal intelligently with climate change, and who was better qualified to monitor the brollies deployed in the region? Plus Mahmoud would make a great babysitter for him. He was a sweet kid, Tom.

She pulled on her parka and went out on deck to have her coffee the way she liked it, scalding hot. Staring across the water, she thought of home. Baffin Island was not quite directly across the North Pole from her station in the East Siberian Sea, but this was the closest she had come to home in the last fifteen years. She shook her head. Home? What was she thinking? Home was a sunny apartment in a suburb of San Francisco, a few BART stops from the university, where she had spent ten years raising Lucie, now twenty- four, a screenwriter in Hollywood. It had been over a year since she and Lucie had had a real conversation. Her daughter's chatty e-mails and phone calls had given way to a near silence, a mysterious reserve. In her present solitude that other life, those years of closeness, seemed to have been no more than a dream.

Over the water the brolly moved. There was a disturbance not far from the brolly—an agitation in the water, then a tail. A whale maybe five meters in length swimming close to the surface popped its head out of the water—a beluga! Well, she probably wasn't far from their migration route. Irene imagined the scene from the whale's perspective: the brolly like an enormous, airborne jellyfish, the boat, the human-craft, and a familiar sight. The belugas were interested in the brolly. Irene wondered what they made of it. One worry the researchers had was that brollies and their roving family units would be attacked and eaten by marine creatures. The brolly could collapse itself into a compact unit and sink to the seabed or use solar

power to rise a couple of meters above the ocean surface. At the moment it seemed only to be observing the whales as they cavorted around it. Probably someone, somewhere, was looking at the ocean through the brolly's electronic eyes and commenting on the Internet about a whale pod sighting. Million Eyes on the Arctic was the largest citizen science project in the world. Between the brollies, various observation stations, and satellite images, more than two million people could obtain and track information about sea ice melt, methane leaks, marine animal sightings, and ocean hot spots.

It occurred to Irene that these whales might know the seashore of her childhood, that they might even have come from the north Canadian archipelago. A sudden memory came to her: going out into the ocean north of Baffin Island with her grandfather in his boat. He was teaching her to use traditional tools to fish in an icy inlet. She must have been very small. She recalled the rose-colored Arctic dawn, her grandfather's weathered face.

When they were on their way back with their catch, a pod of belugas had surfaced close enough to rock their boat. They clustered around the boat, popping their heads out of the water, looking at the humans with curious, intelligent eyes. One large female came close to the boat. "Qilalugaq," her grandfather said gently, as though in greeting. The child Irene—no, she had been Enuusiq then—Enuusiq was entranced. The Inuit, her grandfather told her, wouldn't exist without the belugas, the caribou, and the seals. He had made sure she knew how to hunt seals and caribou before she was thirteen. Memories surfaced: the swish of the dog sled on the ice in the morning, the waiting at the breathing holes for the seals, the swift kill. The two of them saying words of apology over the carcass, their breath forming clouds in the frigid air.

Her grandfather died during her freshman year of high school. He was the one who had given her her Inuk name, Enuusiq, after his long- dead older brother, so that he would live again in her name. The name held her soul, her atiq. "Enuusiq," she whispered now, trying it on. How many years since anyone had called her that? She remembered the gathering of the community each time the hunters brought in a big catch, the taste of raw meat with a dash of soy. How long had it been since those days? A visit home fifteen years ago when her father died (her mother had died when she was in college)— after that just a few telephone conversations and Internet chats with her cousin Maggie in Iqaluit.

The belugas moved out of sight. Her coffee was cold again. She was annoyed with herself. She had volunteered to come here partly because she wanted to get away—she loved solitude—but in the midst of it, old memories surfaced; long-dead voices spoke.

The rest of the morning she worked with a fierce concentration, sending data over to her collaborators on the Russian research ship Kolmogorov, holding a conference call with three other scientists, politely declining two conference invitations for keynote speaker. But in the afternoon her restlessness returned. She decided she would dive down to the shallow ocean bed and capture a clip for a video segment she had promised to the Million Eyes project. It was against protocol to go down alone without anyone on the boat to monitor her— but it was only twenty-two meters, and she hadn't got this far by keeping to protocol.

Some time later she stood on the deck in her dry suit, pulled the cap snugly over her head, checked the suit's computer, wiggled her shoulders so the oxygen tank rested more comfortably on her back, and dove in.

This was why she was here. This falling through the water was like falling in love, only better. In the cloudy blue depths she dove through marine snow, glimpsing here and there the translucent fans of sea butterflies, a small swarm of krill, the occasional tiny jellyfish. A sea gooseberry with a glasslike two-lobed soft body winged past her face. Some of these creatures were so delicate a touch might kill them—no fisherman's net could catch them undamaged. You had to be here, in their world, to know they existed.

Yet there was trouble in this marine paradise. Deeper and deeper she went, her drysuit's wrist display clocking time, temperature, pressure, oxygen. The sea was shallow enough at twenty-two meters that she could spend some time at the bottom without worrying about decompression on the way up. It was darker here on the seaweed-encrusted ocean floor; she turned on her lamp and the camera. Swimming along the sea-floor toward the array of instruments, she startled a mottled white crab. It was sitting on top of one of the instrument panels, exploring the device with its claws. Curiosity ... well, that was something she could relate to. The crab retreated as she swam above it, then returned to its scrutiny. Well, if her work entertained the local wildlife, that was something.

A few meters away she saw the fine lines of the thermoelectric mesh on the seabed. There were fewer creatures in the methane- saturated water. Methane gas was coming up from the holes in the melting permafrost on the seabed—there were even places you could see bubbles. Before her a creature swam into focus: a human-built machine intelligence, one of the brolly's family unit. Its small, cylindrical body, with its flanges and long snout, looked like a fish on an alien planet. It was injecting a rich goo of nutrients (her very own recipe) for methane- eating bacteria. She was startled by how natural it looked in the deep water. "Eat well, my hearties," she told her favorite life-forms. Methanotrophs were incredibly efficient at metabolizing methane, using pathways that were only now being elucidated. Most of the processes could not be duplicated in labs. So much was still unknown—hell, they'd found five new species of the bacteria

since the project had started. Methanotrophs, like most living beings, didn't exist in isolation, but in consortia. The complex web of interdependencies determined behavior and chemistry.

"If methane-eating bacteria sop up most of the methane, it will help slow global warming," she said into the recorder. "It will buy time until humanity cuts its carbon dioxide emissions. Methane is a much more potent greenhouse gas than CO2. Although it doesn't stay in the atmosphere as long, too much methane in the atmosphere might excite a positive feedback loop— more methane, more warming, more thawing of permafrost, more methane ... a vicious cycle that might tip the world toward catastrophic warming." Whether that could happen was still a point of argument among scientists, but the methane plumes now known to be coming off the seabed all over the shallow regions of the Arctic were enough to worry anyone whose head wasn't buried in the sand.

Maybe her bacteria could help save the world. With enough nutrients, they and their communities of cooperative organisms might take care of much of the methane; in the meantime the thermoelectric mesh was an experiment to see whether cooling down the hot spots might slow the outgassing. The energy generated by the mesh was captured in batteries, which had to be replaced when at capacity. The instrument array measured biogeochemical data and sent it back to the brolly.

Her drysuit computer beeped. It was time to return to the surface—or else she would run out of oxygen. She turned off the camera- recorder and swam slowly and carefully toward the light. "Message from Tom," her genie said. "Not urgent but interesting. Two messages from Million Eyes, one to you, asking about the video, the other a news item. A ballet dancer in Estonia saw an illegal oil and gas exploration vessel messing around the Laptev Sea. There's a furor. Message from your cousin Maggie in Iqaluit, marked Personal. She's in San Francisco, wondering where you are." Damn. Hadn't she told Maggie she was going on an expedition? Maggie hardly ever left Canada so the trip to San Francisco must be something special.

"I'm coming up," she said, just as she felt a numbing pain sear into her left calf. The cold was coming in through a leak, a tear in the suit; her drysuit computer beeped a warning. Her leg cramped horribly.

She looked up, willing herself not to panic—the surface seemed impossibly far away, and the cold was filling her body, making her chest contract with pain. She moved her arms as strongly as she could. She must get up to the surface before the cold spread—she had had a brush with hypothermia before. But as she went up with excruciating slowness she knew at once that she was going to die here, and a terror came upon her. Lucie, she said. Lucie, forgive me, I love you, I love you. Her arms were tired, her legs like jelly, and the cold was in her bones, and a part of her wanted simply to surrender to oblivion. Frigg was chirping frantically in her ear—calling for

rescue, not that there was anyone in the area who could get to her in time —and then a voice cut in, and her grandmother said, Bless you and be careful up there, I'm praying for you. This was really odd because her grandmother was dead, and the accent was strange. But the voice spoke with such clarity and concern, and there was such an emphasis on be careful—and weren't there kitchen sounds in the background, a pan banging in the sink, so incongruously ordinary and familiar?—that she was jolted from the darkness of spirit that had descended on her. Her arms seemed to be the only part of her body still under her control, and although they felt like lead, she began to move them again.

Tom's voice cut in, frantic. "I'm coming, I'm coming as fast as I can, hold on," and Mahmoud, more calmly, "I've contacted the Kolmogorov for their helicopter—and the Coast Guard." But the helicopter had been sent over to a station in Norway that very afternoon. She saw her death before her with astonishing clarity. Then she felt something lift her bodily— how could Tom get here so soon?—an enormous white shadow loomed, a smile on the bulbous face—a whale. A beluga? She felt the solid body of the whale below her, tried to get a hold of the smooth flesh, but she needn't have worried, because it was pushing her up with both balance and strength, until she broke the water's surface near the boat. Hauling herself up the rungs of the ladder proved to be impossible: she was shaking violently, and her legs felt numb. The whale pushed her up until all she had to do was to tumble over the rail onto the deck. She collapsed on the deck, pulled off her mask, sobbing, breathing huge gulps of cold air. Her suit beeped shrilly.

"Get dry NOW," Frigg said in Mahmoud's voice, or maybe it was Mahmoud. She half crawled into the cabin, peeled everything off, and huddled under a warm shower until the shivering slowed. A searing pain in both legs told her that blood was circulating again. There was a frayed tear in the drysuit—had it caught on a nail as she was pulling it out of the cupboard? So much for damning protocol, something she never did if a colleague or student was involved. Her left calf still ached, and the tears wouldn't stop. At last she toweled off and got into warm clothes, with warm gelpacks under her armpits and on her stomach. The medbot checked her vital signs while hot cocoa bubbled.

"Frigg, tell Tom and Mahmoud not to come, my vitals are fine," she said, but her voice shook. "Tell them to call off the rescue." Her chest still ached, but as she sipped the cocoa she started to feel more normal. After a while she could stand without feeling she was going to fall over.

She stepped gingerly out on the deck. The sun, already low in the sky, was falling slowly into the ocean like a ripe peach. The first stars sequined the coming Arctic night. The belugas swam around the boat. She finished her cocoa in a few gulps and felt a shadow of strength return to her. A whale

popped its head out of the water next to her boat and looked at her with friendly curiosity.

She put her arms between the railing bars and touched the whale's head. It was smooth as a hard-boiled egg.

"Qilalugaq," she whispered, and tears ran down her cheeks, and her shoulders shook. "Thank you, thank you for saving my life. Did Ittuq send you?" She realized she was speaking Inuktitut, the familiar syllables coming back as though she had never left home. "Ittuq," she whispered. She had been too young when her grandfather died, too shocked to let herself mourn fully. Now, thirty-nine years later, the tears flowed.

At last she stood, leaning against the rail, spent, and waved to the pod as it departed.

Later that night, when she had eaten her fill of hot chicken soup, she talked to Tom on video. He was touchingly grateful that she was all right and excited about the whale rescue. Irene said, "Don't go around broadcasting it, will you?" She had no desire to see her foolishness go viral on the Internet. Fortunately Tom had something exciting of his own to share.

"Look!" he said. "This is from this afternoon." A photo appeared on the side of the screen. There lay the enormous bulk of the artificial iceberg to which his boat was docked. An irregular heap lay atop it.

"Polar bear," he said, grinning. "Must have been swimming for a while, looking for a rest stop. Poor guy's sleeping off a late lunch. I tossed him my latest catch of fish." "Stay away from him!" Irene said sharply. "Wild animals aren't cute house pets —remember your briefing!" "You're a fine one to talk, Irene." He grinned again, and then, anticipating her protests, "Yes, yes, I know, don't worry. If I go aboard the berg with the bear on it, some kid somewhere is going to notice and send me a message. This morning I stepped out without my snow goggles and a twelve-year-old from Uzbekistan messaged my genie. Thanks to Million Eyes you can hardly take a shit in peace ... er, sorry..." "It's not that bad." She couldn't help smiling. Good for the kid in Uzbekistan. Tom could be absentminded. The screen image of the fake berg was impossibly white. It was coated with a high- albedo nanostructured radiative paint that sent infrared right back into the atmosphere, while leaving the surface cool to the touch.

"Another interesting thing happened today," he said, with the kind of casualness that betrayed suppressed excitement. "You know we have eight brollies on big lump?" Big lump was the largest iceberg in a flotilla about fifty kilometers north of Tom's station. "They've been screening meltwater pools on the berg from the sun, refreezing them before they have a chance to melt deeply enough to make cracks. Well, three nomad brollies arrived from Lomonosov Station—just left their posts of their own accord and

came over and joined them. Mahmoud just reported." "Very interesting," she said.

It was not surprising that brollies were making their own decisions. It meant that as learning intelligences, intimately connected to their environment and to one another, they had gone on to the next sophistication. brolly monitored biogeochemical environment, knowing when to feed the stage of Her own continuously the methanotroph consortia their extra nutrients, and when to stop. Her original conception of linked artificial intelligences with information feedback loops was based on biomimicry, inspired by natural systems like ecosystems and endocrine systems. Her brolly was used to working as a community of minds, so she imagined that facility could be scaled up.

Each brolly could communicate with its own kind and was connected to the climate databases around the world, giving as well as receiving information, and capable of learning from it. She had a sudden vision of a multilevel, complexly interconnected grid, a sentience spanning continents and species, a kind of Gaiaweb come alive.

"How much time before they become smarter than us?" she said, half-jokingly. "This is great news, Tom." Afterward she watched the great curtains of the aurora paint the sky. She sat in her cabin, raising her eyes from the data scrolling down her screen. Temperature was dropping in the ocean seabed —the methane fizzler had perceptibly slowed since the project began. It was a minute accomplishment compared to the scale of the problem, but with two million pairs of eyes watching methane maps of the Arctic, maybe they could get funding to learn how to take care of the worst areas that were still manageable. Partly the methane outgassing was a natural part of a thousands-years process, but it was being exacerbated by warming seas. Didn't science ultimately teach what the world's indigenous peoples had known so well—that everything is connected? A man gets home from work in New York City and flips a switch, and a little more coal is burned, releasing more warming carbon dioxide into the atmosphere. Or an agribusiness burns a tract of amazon rain forest, and a huge carbon sink is gone, just like that. Or a manufacturer in the United States buys palm oil to put in cookies, and rain forests vanish in Southeast Asia to make way for more plantations. People and their lives were so tightly connected across the world that it would take a million efforts around the globe to make a difference.

She touched the orange wristlet and the screen came on. "Frigg, call Maggie." "Irene, Irene?" Maggie had more gray in her hair, but her voice was as loud as before. Demanding. "Where have you been? They told me at your campus you were in the Arctic, and I thought, dammit, she's come home at last, but I hear you're somewhere in Siberia?" "Don't you keep up?" Irene said, growling, trying not to grin in delight, and failing. She

blinked tears from her eyes. "Siberia is where it's at. I'm in a boat, running an experiment on the seabed. Trying to stop methane outgassing, you know, save the world, all in a day's work." "Great, great, but I hate coming all the way here and finding you gone. I have to tell you, I saw Lucie. Yes, you heard me right. She's going into documentary filmmaking—expedition to Nepal—" Nepal! "Well, I am glad she's talking to you," Irene said, after a moment. "Is she ... is she all right?" "She's fine! Irene, she just needs to find her own way— you two have been by yourselves for so long..." "By ourselves! In the middle of the empty streets of the bay area!"
"You know what I mean.
Big cities can be terribly lonely. Why do you think I came back after college? Listen, Irene, nuclear families suck, and single-parent nuclear families suck even more. People need other people than just their parents.
My kids have issues with being here in Iqaluit, but at least they are surrounded by uncles and aunts and cousins and grandparents—" "How are your parents? How is everyone?" "Waiting for you to come home. Come and visit, Irene. It's been too long. We all thought you were the one who was going to stay because of everything you learned about the old ways from Grandfather." "The last time I came, when my father died ... your mother threw a fish at me and told me to gut it." Maggie laughed.
"Which I think you did pretty well. Surprised me. Now you have to come on up, Irene! Or down, I should say. Come talk to my boy. Peter's part of a collaboration between Inuit high schoolers and scientists. Hunters too. Going out with GPS units, recording information about ice melting and wildlife sightings." Irene wanted to say, Maggie, I almost died today, but Qilalugaq gave me the gift of life, and that means I have to change how I live. I need your help. The words wouldn't come out. She said, instead:
"Maggie, I got to go.
Let's talk tomorrow ... we have to talk." "Irene, are you all right? Irene?" "Yes ... no, I can't talk about it now. Tomorrow? If ... if you see Lucie again, tell her—give her my love." "I'm seeing her Friday for lunch before she leaves. I will, don't worry. Tomorrow, for sure then. Hang in there, girl!" She waved good-bye and the screen went blank. The lights of the aurora reflected off the walls and desk in the darkened room. The boat swayed gently—out there, the pale top of the brolly floated. Something splashed out at sea, a smooth back. She remembered the small house in Iqaluit where she'd grown up with her parents and grandfather and two aunts and cousins. The great sky over the ice, sky reflecting ice reflecting sky in an endless loop. Her grandfather had been an immensely practical man, but he had also taught her to pay attention to intangible things, things you couldn't quantify, like the love you could feel for a person, or the land, or the whale. She had been rescued by a whale, a whale from home. What more of a sign did she need? She had stayed away first because it was

inconvenient to go all the way, and then because she had been so busy, doing important work—and later because she was confused and ashamed. How to face them all, knowing that despite her successes she had lost her way, wandered off from her own self? How to return home without Lucie, knowing herself a failure in so many ways? Now she saw that the journey home was part of her redemption, and as the belugas migrated, traveling in great closed loops in the still- frigid waters of the Arctic, visiting and revisiting old ground, so must she. "Enuusiq," she whispered, practicing. She thought of her daughter's eager, tender face in childhood as she listened to a story, and the bittersweet delight when Lucie went off to college, so young and beautiful, intelligence and awareness in her eyes, at the threshold of adulthood. She thought of herself as a small child, watching her mother weaving a pattern on the community loom: the sound, the rhythm, the colors, her mother's hands. The world she loved was woven into being every moment through complex, dynamic webs of interaction: the whales in their pods, the methanotrophs and their consortia, the brollys and their family units, the Million Eyes of eager young people trying to save the world.
"Ittuq," she said aloud, "I'm coming home." ★★★

... IN THE AMAZON ...
... There is a city in the middle of the rain forest: Manaus. This year there is a drought. The rains are scant. When they fall, they fall kilometers downwind of the city ...
In the heat, outside the glitzy hotels and bars, there is the smell of rotting fruit, fish, garbage, flowers, exhaust. Rich and poor walk the streets with their cell phones or briefcases or Gucci handbags or baskets of jenipapo or camu-camu, and among them prowls the artist. He's looking for a blank wall, the side of a building. Any smooth, empty surface is a canvas to him.
His favorite time is the early morning. In that pale light when the bugio monkeys and the birds begin to call, he is there with black oil chalk and a ladder , drawing furiously in huge arm strokes, then filling in the fine-detail work. He never knows what animal will emerge from the wall—the first stroke tells him nothing, nor the next, or the next, but each stroke limits the possibilities until it is clear what spirit has possessed him, and then it emerges. When it is a jaguar, he, the artist, feels the bark of the tree limb; he flickers through the jungle on silent, padded feet. When a manatee emerges from the blank wall, the artist knows the watery depths of the river , the mysterious underwater geography. When it is a bird, he knows the secret pathways of the high jungle canopy. Then he is done. He looks around, and there is nobody, and he breathes a sigh of relief. He slips away through the sleeping streets to another self, another life.

Fernanda stared out from the airplane window at the city that was her home. It was a bright splash of whiteness in the green of the Amazon rain forest. Urban heat island indeed, she thought. The city had grown enormously in the last decade, with the boom in natural gas and high-tech manufacturing—returning to it was always a surprise—a populous, economically vigorous human habitation in the middle of the largest forest in the world. Despite the urban forests that made green pools in the white sea of concrete, it lay before her like scar tissue in the body of the jungle. The Rio Negro was languid as an exhausted lover—the water was lower than she could remember since the last drought. She hadn't forgotten what it had been like, as a child, to stand on the dry bed of the river during the big drought, feeling like the world was about to end. Bright rooftops came up toward her as the plane dipped, and she tried to see if there were any green roofs—hard to tell from this height. Never mind, she would know soon enough, when she joined the new project.

"Been on holiday?" the man next to her said pleasantly.

Fernanda was caught off guard. She had spent three months in the coastal jungle studying the drought, counting dead trees, making measurements of humidity, temperature, and rainfall, and, on one occasion, fighting a forest fire started by an agricultural company to clear the forest. Her left forearm still hurt from a burn. The team had camped in the hot, barren expanse, and after two months she and Claudio had broken up, which is why she was coming back alone. They'd established beyond doubt that barren wasteland was hotter than healthy forest, and that less rain fell here, and that it was similar to an urban heat island. Far from being able to regrow the forest, they had to fight greedy marauders to prevent more of it from being destroyed. Claudio remained behind with the restoration team, and the rest of them had trekked through the deep coolness of the remaining healthy forest until they had got to civilization. She had grown silent as the forest muttered, called, clucked, and roared around her, had felt its rhythms in some buried ancestral part of her, and her pain had quieted to a kind of soft background noise. Now she looked at the man in his business suit and his clean- shaven, earnest face, the shy smile, the hint of a beer belly, and thought how alien her own species seemed whenever she returned from the forest.

"Business," she said coldly, hoping he wouldn't inquire any further. The plane began its descent.

The city was the same and not the same. She found out within the next few days that the cheerful family gatherings at Tia Ana's, which she'd always enjoyed, were a lot more difficult without Claudio, mostly because of the questions and commiserations. Tia Ana had that look in her eye that meant she was already making matchmaking plans. Her mother had tickets for two for a performance of Aida at the Teatro Amazonas, no less, which

was something to look forward to. Inevitably she thought about that last fight with Claudio, when he accused her of being more sexual with her saxophone than with him. Not that she'd brought her sax into the rain forest—but she hadn't been able to take it out of its case as yet.

What was different was that there wasn't enough rain. When the clouds did gather, there might be a scant shower over the city, but most of the rain would fall about fifty kilometers downwind. Meanwhile the humans sweltered in their concrete and wooden coops—those who had air-conditioning cranked it up—the poor on the city's east side made do without, some falling victim to heat exhaustion. But for the most part the lives of the middle and upper classes went on much the same apart from the occasional grumbling. It seemed peculiar to Fernanda that even in this self-consciously eco-touristy city, people whom she knew and loved could live such oblivious lives, at such a remove from the great, dire warnings the biosphere was giving them.

The other thing that was different was the artist.

An anonymous graffiti artist had hit the streets of Manaus. Sides of buildings, or walls, were transformed by art so startling that it slowed traffic, stopped conversations. She heard about all this with half an ear and didn't pay attention until she went running the day before her new project began. White shorts and tank top, her black hair flying loose, along the harborway, through the crowded marketplaces with their bright awnings and clustering tourists, she ran through the world of her species, trying to know it again. She paused at a fruit stand, good-naturedly fending off the flirtations of two handsome youths while she drank deeply of buriti juice. There were ferries as usual on the Rio Negro, and the water was as she remembered it, dark and endless, on its way to its lover's tryst with the Solimões to form the Amazon, the Amazon she had known and loved all her life.

She turned onto a side street and there was a jaguar, about to leap at her from the windowless side of a building. She stopped and stared. It was abstract, rendered in fluid, economical brushstrokes, but the artist knew which details were essential; whoever it was had captured the spirit of the beast, the fire in its eyes, what Neruda had called its phosphorescent absence. For a moment she stood before it, enthralled, the jungle around her again.

After that she looked for more of the work, asking at street corners and market stalls. The drawings were everywhere—a flight of macaws, a sloth on a tree branch, or an anaconda about to slide off a wall onto the street. Wherever they were, there was a crowd. The three- dimensionality of the drawings was astounding. The ripple of muscle, the fine lines of feathers, the spirit come alive in the eye. She was contemplating a particularly stunning rendering of a sauim-de- coleira that a real monkey would be

forgiven for mistaking for its relative, when a car full of university freshmen went by, loudly playing what passed for music among the young (she was getting old and jaded at twenty-seven!). The car stopped with a screech of brakes and the youngsters piled out, silenced, and Fernanda thought in triumph: This is the answer to the oblivious life. Art so incredible that it brings the jungle back into the city, forces people to remember the nations of animals around us.

But the next day, looking at the data from her rooftop lab, she was not encouraged. The city's pale roofs were glaring back at the sun. What impact did the city's heat island have on the local climate, compared to the drought-ridden sections of the forest? The drought was mostly due to large-scale effects connected with warming oceans and coastal deforestation, but she was interested in seeing whether smaller-scale effects were also significant, and by that logic, whether small-scale reparations at the right scale and distribution might make some difference. It was still a controversial area of research. She spent days poring over maps on her computer screen, maps generated by massive computer models of climate, local and regional. Could the proposed green-roofing experiment be significant enough to test the models? How to persuade enough people and institutions to install green roofs? Scientists were notoriously bad at public relations. Tia Ana would say they weren't good at other kinds of relationships either, although that wasn't strictly true. Her former advisor, Dr. Aguilar, had been happily married to his wife for half a century.

There was a private home in the Cidade Nova area that was already green-roofed according to the design— native plants, chosen for their high rates of evapotranspiration, mimicking the radiative properties of the rain-forest canopies. If they could get enough city officials, celebrities, and so on to see a green roof in action, maybe that would popularize the idea. The home was in a wealthy part of town, and the owner, one Victor Gomes, was connected to the university. She went to see it one hot afternoon.

It was quite wonderful to stand in a rooftop garden with small trees in pots, shrubs in raised beds arranged with a pleasing lack of respect for straight lines, and an exuberance of native creepers that cascaded lushly over the walls. There were fruits and vegetables growing between the shrubs. This was the same model that the restoration team was using in the drought-ridden portions of the Atlantica forest—organically grown native forest species with room for small vegetable gardens and cacao, rubber, and papaya trees, inspired by the cabruca movement: small-scale agriculture that fed families and preserved the rain forest. Fernanda looked over the railing and saw that the foliage covered almost the entire side wall of the house. A misting sprayer was at work, and a concealed array of instruments on poles recorded temperature, humidity, and radiative data. It felt much cooler here. Of course, water would be a problem, with the rationing that

was being threatened. Damn the rains, why didn't they come? But she was encouraged. On her way back, her smartphone beeped. There was a message from Claudio that the initial plantings had been completed in the experimental tract, in the drought-ridden forest, and that the local villagers were tending to the saplings. The grant would help pay for the care of the trees, and when the trees were older, they would bear fruit and leaves for the people. There were only a few cases worldwide where rain forests had been partially restored—all restoration was partial because you couldn't replicate the kind of biodiversity that happened over thousands of years—but it was astonishing how things would grow if you looked after them in the initial crucial period. Only local people's investment in the project would ensure its success.

Claudio sounded almost happy. Perhaps healing the forest would heal him too. The heat wave continued without respite. Fernanda saw people out in the streets staring up at the sky, now, looking at the few clouds that formed above as though beseeching them to rain. The river was sullen and slow. Everyday life seemed off— the glitter of the nightlife was faded too, and the laughter of the people forced. She spent an evening with her cousins Lila and Natalia at the Bar do Armando, where the literati and glitterati seemed equally subdued. The heat seemed to have gotten to the mysterious artist too, since there had been no new work for several days.

Fernanda found herself making the rounds of the graffiti art in the evenings. There were tourist guides who would take visitors to the exhibits. Small businesses sprouted up near these, selling street food and souvenirs. There was outrage when one store painted out the drawing of macaws on its side walls. Each time Fernanda went to see the artwork there would be people standing and staring, and cameras clicking, and groups of friends chattering like monkeys in the jungle. Once she bumped into the man she had sat next to on the plane. He was standing with his briefcase balanced against his legs while he tried to take a picture. She thought of saying hello, apologizing for her coldness on the plane, but he didn't look her way.

She noticed him on three other occasions at different parts of the city, clicking away at the graffiti with his camera. He was photographing the crowds as much as the graffiti. Just a businessman with a hobby, she told herself. But one day, he dropped his briefcase and papers flew open. There were sheets of accounts, tiny neat numbers in rows, a notepad, a notebook computer, a badly wrapped half-eaten sandwich, and a piece of black chalk. The chalk rolled near where Fernanda was standing. The people near the man were solicitously bending over and picking up his things, but he looked around at the ground wildly. Without thinking Fernanda put her foot over the piece of chalk. She dropped her bag, bent down to retrieve it, and got the chalk in her purse with a fluidity that surprised her. It was

hard and oily, not at all like ordinary chalk. There was a loose sheet of paper not far from her that the crowd had missed—she picked it up, hurriedly scribbled an address on it, put her business card and the chalk behind the sheet, and gave the whole thing to the man, looking at him with what she hoped was the innocent gaze of a good citizen. She saw recognition leap into his eyes. Obrigado. He averted his gaze and hurried off.

She spent the rest of the day feeling restless. If only she could reassure him! She wasn't going to give him away. She'd seen the name of the company where he worked on top of the sheets. Now if only ...

At home she touched her wristpad, turning on her computer. She scrolled through the news. The tornado in an eastern state of India. Arguments in the United States Senate about the new energy strategy. Floods here, droughts there, the fabric of the biosphere tearing. She thought of the Amazon rain forest, so often called the Earth's green lung. Even some tourist guides in the city, taking their mostly North American charges into the jungle, used that term. Did anyone know what those words meant? She thought of the predictions of several models, that the great forest, currently a massive carbon dioxide sink, might turn into a source of CO2 if it was stressed enough by drought and tree-cutting. What would happen then? "Hell on Earth," she said aloud. She wondered how many people looked up into the sky and imagined, as she did, the invisible river of moisture, the Rios Voadores, roaring in over the Amazon from the Atlantic coast. It thrilled her to think of it: flying river, the anaconda of the sky, carrying as much water as the amazon, drawn in and strengthened by the pull of the forest so that it flowed across Brazil, hit the Andes, turned south, bringing rain like a benediction. What had human foolishness done to it that there was drought in the Amazon? The green lung had lung cancer. She remembered Claudio's face in the lamp-light at camp, speaking passionately about the violated Atlantica forest, the mutilated Mato Grosso, the fact that nearly seven thousand acres of forest were cleared every year.

"What do you think—are we a stupid species, or what?" she asked the lizard on the wall. The lizard gave her an enigmatic look.

She rested her head on her arms, thinking of Claudio, his physical presence, his kindness. The work they had been doing had drawn them together—maybe the relationship had never been more than that. And yet ... the work was important. To know whether such reparations would make a difference was crucial. She was usually so positive, so determined despite the immensity of the task. Perhaps it was the drought, the lack of rain when it should be raining buckets every day, that was making her feel like this. "What shall I do to bring the rain?" she asked aloud. The wristpad beeped, and then there was a kid's voice, distorted by electronic translation

software. On the computer screen he was sitting in a hospital bed, his dark, thin face earnest. His ears stuck out.

"Sing," he said. Behind the translation she could hear the kid's real voice speaking an unfamiliar language. He sounded tired. What had he said? "Sing," he said again. "Sing for the clouds, for the rain." He started to sing in an astonishingly musical voice. She could tell he was untrained, even though the musical style was unfamiliar. But it was strangely uplifting, this music that would bring the rain. She wanted his voice to go on and on, even though the translation software was off-key. Then abruptly the screen went dark.

Where had the kid come from? She had signed on to an experimental social network software device at a friend's urging, but the kid wasn't in her list of contacts. The connections were really bad most of the time. She hoped he was all right.

The next day the idea of music bringing the rain still haunted her. Of course such things didn't happen in the real world—as a scientist, she knew better. The vagaries of the climate were still beyond them, and the reparations, the stitches in the green fabric of the jungle, had just begun. The trouble with repairing the forest was that it would never be enough, without a million other things happening too, like the work at the polar ice caps, and social movements, ordinary people pledging to make lifestyle changes, and governments passing laws so that children and grandchildren could have a future. The crucial thing was to get net global carbon dioxide emissions down to zero, and that would take the participation of nearly everyone. The days of the lone ranger were gone; this was the age of the million heroes.

Still, she opened her saxophone case the next day and caressed the cool metal. It drew her, the music she had put away from her. She hadn't answered her bandmates' e-mails. Now she had to run to the lab—maybe this evening, she told her saxophone. We'll have a date, you and I.

But she never got to the lab, because her colleague Maria called her, excited. As a result she went straight to the home in Cidade Nova with the experimental green roof. She went around the house to the side wall, where a crowd had already gathered. People were getting out of cars, and there was even a TV truck. From behind the foliage cascading down the wall of the house peered a jaguar, a gentle jaguar, sleepy even, at peace with the world. Fernanda let out a long breath. The artist had understood her message. The owner of the house, elderly Victor Gomes, was standing with the crowd, his mouth agape.

Within a few hours, the news spread and the crowd swelled until the traffic became a problem. Sensing an opportunity, she talked briefly and urgently to Victor Gomes, and he gave an impromptu tour of the rooftop garden. Suddenly everyone was talking about green roofs. Imagine, if you went

ahead and got one (and there was a grant to help you out with costs if you couldn't afford it), not only did your air- conditioning bills go down, but maybe, just maybe, the artist would come paint the side of your house.

Two days later there was a gala fund-raiser and awareness event at the Hotel Amazonas. Fernanda played with her old band. She put her lips to her saxophone and into each note she poured her yearning for the rain, for a world restored. The music spilled out, clear as light, smooth as flowing water, and she sensed the crowd shift and move with the sound, with her breath. During a break, when she leaned against the side wall of the stage, watching Santiago's fingers ripple over the piano keyboard, a waiter came up to her and handed her an envelope. Curious, she opened it, and inside was a paper napkin, and an Amazonian butterfly drawn on it, so vivid she half expected it to rise off the napkin. She searched for him in the crowd but there were too many people. Her wristpad beeped. "A butterfly," she whispered, and she felt the wings of change beating in the light-filled air around her.

★★★

"... CAN CAUSE A TORNADO..." "... but scientists now know more than they did only five years ago. We will now speak to an expert..." Can you please turn off the TV? I can't bear to see anything more about the storm ... it was the same program this morning.

I am too sad to tell this story. You'll have to wait a moment.

I am sad because my grandfather the professor died. He was not really my grandfather, but he treated me like I was his own. I called him Dadaji. He let me sleep on the verandah of his bungalow, on a little cot. I felt safe there. I cleaned and cooked for him, and he would talk to me and tell me about all kinds of things. He taught me how to read and write. From the place where I slept I could look down a low incline to the village, my village.

Are you translating this into English? Does that mean I'll be famous all over India? I want to help my village. I want people to know about it, even though it is only a Harijan basti sitting on stony ground. I want to make sure the world knows that we did something good.

Let me tell you about my village. The river is many hours' walk from us, but the floods are getting worse. Last year during the monsoons the water came into the huts and the fields and drowned everything except what we could carry. The ground where the village sits is very stony, and things don't grow well. We don't have fields of our own, not really. We are doms —most of us work in town, or for the big Rajput village—Songaon—two miles away. We do all the dirty work—sweeping and cleaning privies, that sort of thing. Me, I am lucky because the professor employs me and takes care of me and treats me as though I were not a dom. He doesn't observe

caste even though he is a Rajput himself—he says it is already dying out in the towns and cities. He says the government laws protect people like us, but I don't know about those things because if the Rajputs are angry then they can do what they like to us and nobody can stop them. But the professor, he is a different kind of person—a devata. He even has me cook his food, and pats my head when I do my lessons well—and when there is a festival we share a plate of sweets together.

See this thing I am wearing around my wrist, like a watch? The professor gave it to me. He has been teaching me the computer and this thing makes it come on and we can see and talk to people from around the world. Once I spoke to a man all the way in Chennai—it was very exciting. It was really like magic, because the man didn't know Bhojpuri or Hindi and the computer translated his words and mine so we could both understand. The translator voices were funny. Mine didn't sound like me at all.

What I love most is music. In the early morning when the mist lies on the river, the first thing I hear is the birds in the bougainvillea bush. When I bring the tea out on the verandah and we have drunk the first cup, the professor gives me his tanpura to tune. Then he starts to sing Bhairav, which is a morning raga. Listening to him, I feel as though I am climbing up and down mountain ranges of mist and cloud. I feel I could fly. I sing with him, as though my voice is a shadow following his voice. He tells me I have a good ear. It isn't the same kind of singing as in the movies—it is something deeper that calls to your soul. When I told the professor that, he looked pleased and said that good music makes poets of us. I never thought that just anybody could be a poet.

From his house, I can see all the way to the river far beyond the village. In the last few years we have either had drought or flood. This year seems to be a dry year. Always there is some difficulty we have to deal with. But we have been changing too, ever since the professor came and began to live in his house. He has problems with his sons; they don't get along, so he lives alone except for me. He and some other people have been working with our basti. The other people are also dalits like us, but they can read and write, and they know how to make the government give them their rights. They have traveled all over the country telling villages like ours that the climate is changing, and we must change too, or we won't survive. So now we have a village panchayat, and there are three women and two men who speak for all of us. You see, new times are coming, difficult times, when Dharti Mai herself is against us because instead of treating her like a mother, human beings have treated her like a slave. Most of those people who did this are in America and places like that, but they are here too, in the big cities. It is strange because at first we used to think places like that were the best in the world, because of what we saw on TV, but the professor explained that living like that, with no regard for Dharti Mai,

comes with costs. Why doesn't Dharti Mai punish them, then? I asked him that once. Why is she punishing us poor people, who have done nothing to cause the problem? The professor sighed and said that Dharti Mai was punishing everyone. So people ask him all the time, what can we do? This makes the professor happy because he says that earlier most people in our basti just accepted their lot—after all, for thousands of years it has been our lot to suffer. He is pleased because now we want to do something to save ourselves and make the world better. If all those rich, upper- caste people and all the goras have been wrong all this time about how they should live, maybe they're wrong about us too. Maybe our time has come.

But Bojhu kaku—he's the one who took me in when my parents died—he says what's the good in pointing fingers? Even the goras are changing how they live. The question is what can we do to heal Dharti Mai? How can we help each other survive the terrible times that are upon us? So in the village people take turns being lookouts when there is a bad weather forecast, and they help each other more, and they've got a teacher to come twice a week to teach them how to read and write. They sent Barki kaki off to the town to be trained by a doctor—she's the midwife— so that she can help us all be healthier. You should have seen her when she came back, she was so proud—she got to see how they work in the big hospital and she came back with pink soap for everyone. We now have our own hand pump and don't have to drink river water. All this is because of the professor, and because of people like Bojhu kaku, and Barki kaki—and Dulari Mai, even though most people are scared of her temper. The professor and I are treated like royal guests whenever we go to visit. The professor studies people— anthropology—and even though he is retired, he hasn't stopped. He goes around all the local villages, tap-tapping with his cane—he's got a bad leg—and he tells people about the world.

Which is how we know about how the world is getting hotter, and even the goras are burning up in their big cities with all those cars and TVs. But that is not all. You know there is a big coal- mining company that wants to buy all the land around us? The professor gets angry whenever the coal company is mentioned, so angry he can hardly get a word out. It is burning coal and oil that is making the world hotter and Dharti Mai so angry with us. He says the government, instead of finding ways to use other things, is mining more coal and making more coal plants so that the people in the big cities can have electricity and cars and TVs, which warm the world even more. It sounds to me like when Dhakkan kaka gets drunk, he wants to keep on drinking. So maybe the way the rich people of the world live is like a sickness where they can't make themselves stop. Also most people in my village don't want to give up their ancestral land for the coal company, small and poor and stony though it might be, even though the government has promised compensation. That tiny piece of earth is all

we have. But some of the young men think that the money would be good, and they can go to the big city and make it big. The professor told them that there are already too many people trying to make it in the city, but behind his back they grumble and talk about the good life they could have. It's mostly people like Jhingur kaka's older son, who is a malcontent. The Rajput village—Songaon—doesn't like the coal-mining idea either and the professor persuaded them to let us join a protest delegation in the town, although we had to keep our distance behind them. The professor sat with us and argued against the coal company from the back. You should have seen how furious the Rajputs were! They respect him for his education and his caste, even though he doesn't keep caste, but his ways upset them. Later, when we were walking back, one of them told him, "If you weren't an old man, and learned too, I would take my stick to you, for the example you are setting to our children." I know, because I heard him. It was Ranbir Singh. He is the one with the biggest mustache and the biggest, stoutest sticks, and the biggest temper. His mood changes so quickly, everyone is afraid of him. He even has guns. The professor just said quietly that if Ranbir Singh did that with every Rajput in the country who had broken caste, he would run out of sticks pretty quickly.

The day it all happened, in the morning we were listening to the classical program on the radio because the professor wanted to hear a new bandish that was playing. There were clouds in the sky but no sign of rain. Just then we heard a roaring sound. The radio crackled and the announcer said something about an unusual cloud formation. The sound of the wind became so strong that we couldn't hear the radio. The sky became dark, even though over the river it was still light. There was a tapping sound over our heads: hail! I was very excited. Hail has fallen only once in my village in my lifetime. I ran down the verandah steps to collect some, and then I saw the storm.

I had never seen anything like it. I saw a whirling monster towering in the fields behind the house, like a top spun out of clouds and wind. The professor looked alarmed. He said he had heard of things like this in other lands, and that it was called a tur-nado. He said we would be all right in a pukka house like his, but then he stared out into the distance toward my village. People were coming out of their homes and getting ready to walk to Songaon or the town for the long day of work.

"Bhola," he said to me, "I am going to check on the computer what we should do. Get ready to run down to the village and warn people." "Dadaji, will you be all right?" he's an old man, and lame, too. But he pushed me impatiently off, saying of course he would be fine. That's the last thing he said to me.

I ran down toward the village. The wind was strong, and I saw a crow in the sky struggling to keep its wings under control. It swooped down in a

big arc and came right at me, flapping its wings, and hit me in the stomach. I grabbed it and held it to my chest—a full- grown crow. I thought it was dead, but I couldn't just throw it away. So I held it to my chest and I ran.

The sky darkened and the wind howled in my ears. I looked behind me at the house. The tur-nado was over it. The verandah was so dark I couldn't see the professor. I saw the lit screen of the computer disappearing as he went into the house. Above us the tur-nado looked like a monster. I have never been so scared. Then my wrist strap beeped. A woman's voice said out of nowhere, "Find low ground, low ground," and "Run! Run!" I wanted to see if the professor was all right, but he had told me to warn the village. So I ran.

There is a narrow ravine not far from the village. Old people say that it is a crack that opened in the earth during an earthquake. In the monsoons it fills with water, but right now it is dry, full of thorny bushes and rocks. The goats like it there. That was the only low place I could think of. I began to shout as I got closer, yelling to people to stop gawking and trying to lead them to the ravine. I couldn't hear my own voice because of the wind, but Dulari mai started to scream at people and gather them and point them to the ravine. Everyone worked quickly; they are afraid of her temper. There was even someone carrying Joti ma, old Gobind- kaka's mother, on his back, the terrified children were all holding hands, some were carrying the babies. Behind me the tur-nado danced across the fields, ripping up everything in its path. It picked its way across the land. I saw people rushing toward the ravine, some carrying bundles with them. There was a lot of shouting but everyone was moving. I thought: I'm not needed here, I could have stayed with the professor. I thought I should see if I could go around the tur-nado and get to his house. I made my way back across the fields, keeping a careful eye on the storm.

When I was halfway there, I saw the children. It was Ranbir Singh's younger daughter and son, returning from school on the footpath through the fields. Usually someone takes them from Songaon to the town and back by bicycle, but they were walking home. She is older than me, maybe fourteen, and he is only about five years old. Her father once had Bojhu kaku's son beaten because he said he— Kankariya bhai—dared to raise his eyes and look at his daughter. Before I was born, there was trouble that nobody talks about and the Rajputs came and burned down some of our huts, and three people died. That's what I mean when I say they can do anything to us. I hesitated, because if I said anything to the children they didn't like, their father could have me thrashed and the village burned down.

The children looked scared. The girl was trying to use her mobile but she gave up and put it in her schoolbag, looking upset. They looked at me and

looked away, and the older sister said to the boy, "Come," urgently, and pulled on his arm. He was tired and about to cry.

I thought: Why should I try to help them? But I pointed to the tur-nado raging behind us: "Sister, that is a bad toofan. The professor told me we have to hide. We are all at the ravine near my basti. I can take you there." I took extra care to be polite. I didn't want her to accuse us later on and get the whole village in trouble. She hesitated. The little boy said: "Why are you holding a dead crow?" The girl came to a decision. She said: "Show me where this place is."

They followed me. There were leaves and branches flying around, and I saw the thatched roof lift off a hut and vanish. A brick came hurtling through the air and missed us by two spans of my hand. I didn't dare look back—we were racing over the fields. The little boy stumbled, and the girl picked him up. Panting, she followed me. It would have been faster if I'd carried the child, but she wasn't going to let a dom boy touch her brother. Then she half stumbled. She said: "Wait!" I almost didn't hear her but when I looked back she was crying. She thrust her brother at me. Her breath was coming in sobs. He was crying too.

"You want me to carry him? Your father will break my neck!"

She was wailing and shaking her head, and the tur- nado was very close, so I put the child on one hip and handed her the still-warm body of the crow.

"I'm not going to hold that," she said, scowling.

"Then take your brother back," I said, losing my temper. "This crow is a vahan of Shani Deva, and we must not disrespect it. Don't you keep pigeons?" She wrinkled her nose but took the crow in her dupatta, and we ran the rest of the way until we were at the ravine.

It was dark inside, because the low, thorny bushes growing on the top edges of the ravine blocked the sky. Wind screamed over our heads and we heard the most terrible sounds, as though the world was being torn apart.

And then silence.

We all looked at each other. Bojhu kaku and the others saw that I was holding Ranbir Singh's son in my arms, and his daughter was standing next to me, holding the body of a crow in her dupatta, her eyes wide with fear.

"Bhola, what have you done?" someone said. Maybe it was Barki kaki. People gasped.

"I couldn't leave them to die," I said. The boy wriggled out of my grasp and went to his sister. She handed me the crow and held her brother close. Tears ran down her face.

Bojhu kaku said to the girl, "We will see you home. Come, there is nothing to be scared of."

So the children were escorted to Songaon by the crowd. If Bojhu kaku

went by himself, he might have to bear the brunt of Ranbir Singh's mood. There was no telling whether he'd be grateful or angry. So Barki kaki said she would go, and then Dulari Mai (and we had to tell her no because she would insult even the gods if she lost her temper, and where would we all be then?). So about fifteen people went.

We climbed out of the ravine. The village was smashed flat. There were pots and pans scattered about the fields, and bricks also. The bargad tree that has stood at the crossing on the way to Songaon for two hundred years was completely uprooted. The pathway was covered with big tree branches. Our homes were gone. You might say, What's a mud-and-thatch house? It is nothing. But to a poor person it is home. Our hands shape it, our hands weave the bhusa. It is where our hopes live. When you have very little, everything you have becomes more precious. We wept and in the same breath we thanked the gods for sparing our lives.

I didn't go with them. My duty was to my dadaji now, and I had a terrible fear growing inside me. I went to the house on the hill. Midway the crow stirred in my arms, and I saw that it was only stunned, not dead. I stopped in the field and found a pocket of moisture where some hailstones had fallen, and let a few drops trail from my fingers into its throat. Suddenly it struggled and flapped its wings. I opened my hands and it flew. It was unsteady at first, but it got stronger as it flew, making two big circles over my head before it went off. Then I went up to what was left of the house.

The windows and doors were gone, and I could see the sky through the roof. Two walls were down. I thought: This is a pukka house, how could this have happened? How could brick and mortar come down like this? There was dust in the air. It made me cough. There were pages and pages torn from his books, fallen everywhere like leaves. I saw that his computer had fallen under his desk and was all right. Bricks fell as I walked around. I fell too, and broke my arm, and hurt my leg. That's why I'm in hospital.

I was the one who found him. He was near the drawing room window, under a pile of bricks.

He was my grandfather, no matter what anyone says about caste and blood. He gave me everything I have— he was like a god to me. I would have given my life for him, but instead he is the one who is gone. He said I would grow up to be a learner and a singer—someone who could change the world. A dom boy like me—nobody has ever told me such things. I'm telling you, he was my dadaji; I don't care what anyone says.

His sons came for his body. I'm not allowed to be there for the last rites. But I know, and he knows, that I should be there. He used to tell me that if you look at things on the surface, you don't k now their true nature. You also have to look with your inner eye. He looked at me with his inner eye. He was my dadaji and he's gone.

That's his computer on the table. His sons didn't ask about it.

Nobody has come to see me and I am scared.
What is that you say? Half of Songaon is destroyed? That is a terrible thing. Seven people dead! I am glad Ranbir Singh's children gave a good account of us. It is strange for him to be in our debt.
Earlier today there was a TV program about the tur- nado. They interviewed an expert. He said that although a tur-nado is strong, it is also delicate. I think I know what he means. Before it is born, the tur-nado is a confusion of cloud and wind. It takes only a little touch here and there to turn the cloud and wind into a monster that can destroy houses. Even once it is made, you can't tell where it is going to go, because it is so delicate a thing that maybe one leaf on one tree might persuade it to go this way instead of that. Or one breath from one sleeping farmhand in the field.
When I leave the hospital, I'm going to help rebuild my village. And I'm going to collect all the pages of dadaji's books that are scattered all over the fields. I imagine I will find the thoughts of a scientist or philosopher, or the speeches of a poet, stuck in a tree's branches, or blowing in the wind with the dust. I will pick up every page I find and put it together.
I have to find out how I can keep learning. Dadaji was going to teach me so that I could be a learned man like him when I grow up. How is it possible for a tur-nado to be so powerful and so delicate at the same time? How do we tell Dharti Mai we are sorry? How do we stop the mining company that wants to take our land? Please print that in your newspaper —we cannot let them mine and burn more coal, because that is destroying the world. Please tell the big people in the cities like Delhi and in faraway places like America. They won't care about someone like me, but ask them if they care about their own children. I saw just yesterday that it is not just the poor who will suffer in this new world they are making. Tell them to stop.
I have been seeing crows at the window all afternoon. They land on the sill and caw. The orderly says Shani Deva has shown me grace, because of the crow I saved. Everyone fears Shani Deva because he brings us difficult times. But crows remember, and they tell each other who is a friend, and maybe the crows will help us. It's their world too.
I'm very tired. In one day I lost my grandfather, hid my people from the tur-nado, saved two Rajput children, and became a friend of crows.
Something strange happened after dinner. I was half asleep. I heard a woman saying very sadly, "What shall I do to bring the rain?" then I saw it wasn't a dream, because there was this young woman on the computer screen, a foreigner. I thought she must be one of the people who used to talk to the professor. She looked sad and tired. I told her, you have to sing to the clouds. You have to sing the rain down. Between the radio and my

dadaji's lessons I have learned a little of the raga —Malhaar, the rain-calling raga. I sang a line or two for her before the connection broke.
Dadaji told me once that sound is just a tremble in the air. A song is a tremble that goes from the soul into the air, and thus to the eardrums of the world. The tur-nado is a disturbance of the air, but it is like an earthquake. Perhaps it is the song of the troubled Earth, our mother Dharti Mai. One day I will compose a song to soothe her.
★★★

... IN TEXAS ...
... it was the kind of day Dorothy Cartwright's husband wouldn't have allowed. Wasn't it just a year and a half ago—he'd gotten so mad at the heat wave at Christmastime that he'd cranked up the air- conditioning until she had to go find a sweater? But they'd had the traditional Christmas evening fire in the fireplace, and weather be damned. It was nowhere near Christmas day, being March, but it was hotter than it should be, the kind of day when Rob would have had the AC going and the windows closed. Closed houses always made her feel claustrophobic, no matter that her old home had been over four thousand square feet— just the two of them after their son, Matt, grew up and left home. But now Rob was dead of a heart attack more than a year ago, and Dorothy lived in a little two-room apartment in an assisted- living facility. She could open the windows if she felt like it. She did so, and turned on the fans, and checked the cupcakes baking in the oven. There was a cool breeze, no more than a breath. The big magnolia tree in the front lawn made a shade so deep you could be forgiven for thinking evening had come early. She arranged the chairs in the living room for the fifth time and glanced at the clock.
Fifteen minutes and they would be here.
As she was taking the cupcakes out, the phone rang. She nearly dropped the tray. Shaking, she set it on the counter and picked up the phone. It was Kevin.
"Gramma! Guess where your favorite grandson's calling from?" He was cheerful in the faked way he had when he was upset. Which meant— "I'm in rehab and this time I'm going to quit for good."
"Of course, hon," she said. Who could believe the kid when he'd been in and out of rehab six times in two years? She remembered Rob's cold fury the last time the boy had been over. Her grandson was adrift, and she was helpless and useless. The other day she'd watched a show on PBS about early humans and how the human race wouldn't have survived without old people, other people than the parents, to help raise the young and transmit the knowledge of earlier generations. Grandmothers in particular were important. That was all very well, but in this day of books and computers and all, who needed grandmothers? They lived in retirement

homes, or in huge, echoing houses, at the periphery of society, distracting themselves, waiting for death. Times had changed. Kevin was beyond anyone's help. She gripped the edge of the counter with her free hand. An ache shot through her chest. She felt a momentary dizziness.

"I'll send you some cupcakes," she said. All she had been able to do for the people she loved was to offer them food, as though the trouble in the world could be taken away by sugar and butter and chocolate. She said good-bye, feeling hopeless.

He had sent her an orange wristlet, rather pretty. It had jewellike white buttons on it that allowed her to communicate with her new notebook computer (a gift from her son) with a touch. She looked at it and thought how nice Kevin was, to get her a present. She touched the button and her notebook computer lit up, and there was an image of a woman in a diving suit suspended in murky blue water, her arms working, and a reedy electronic voice like a cartoon character saying something about cold Arctic waters and repeating a name, Dr. Irene Ariak, Irene Ariak. Surely she had heard the name in some show or other. A scientist working in the Arctic. What a dangerous thing to do, to go up there in the cold and dark. "Bless you and be careful up there, I'm praying for you," she said. The cartoon voice said, Mrs. Cartwright, thank you! And the screen went blank. Dorothy wondered if she'd heard right. Well, this was a new world, to be sure.

The doorbell rang as she was setting the cupcakes on a plate. Patting her hair, glancing at the small oval mirror over by the little dining table (her lipstick was just right), she went to the door.

There they all were, smiling. Rita, with her defiantly undyed white hair in a braid tied with rainbow- colored ribbons (Rob would have thought them loud), said, "How nice of you to host the meeting, Dorothy!," and planted herself in the comfortable armchair. The others, Mary-Ann, Gerta, Lawrence, Brad, Eva, and three women she didn't know, crowded into the small living room. Dorothy handed around cupcakes and poured tea and coffee and felt as awkward as a new wife hosting her first dinner party. She scolded herself: Now, then, you've known these people for eight months, and you've hosted more parties in your life than you can remember! This was about reinventing herself. Stretching outside her comfort zone, learning new things. Rob would have never allowed these people in their house—there was something not done about their passionate intensity. "Aging hippies," Rob would have said. He would have told her what was wrong with each of them, and she would never have invited them again. Once she'd had a local mothers' group over for tea; Rob came home early. He'd been pleasant enough greeting them and had gone upstairs. The women were upset about the firing of the principal at the local elementary school, and one of them had raised her voice emphatically, making her

point. Rob had banged the bedroom door so hard upstairs that the reverberation made the windows rattle.
She'd never invited those women over again.
She sat down and let the conversation swirl around her, trying to ignore the tightness in her chest. Keeping up the smile was becoming difficult.
"Well," Rita said, "Our energy-saving campaign has been successful beyond anything we expected. Management has stopped grumbling. We've saved them $14,504 in energy bills, annually!" "New lightbulbs and more insulation, and cranking down the AC so it isn't freezing in the middle of summer, and one set of solar panels ... who'da thought it?" "Our see-oh-two emissions are down by ... let's see ... 18 percent..." "Multiply individual actions by millions or billions, and you're looking at real global difference..." It was one of the new women, a blonde with intense blue eyes. Not from the apartment complex. Dorothy had already forgotten her name. Now the woman was smiling at her a little uncertainly.
"Mrs. Cartwright, we need to recruit people for the protest. The pipeline is coming to us. Janna Helmholtz's land is being violated—they got a court order to cut a corridor through her woods to bring the oil pipes through, and we're going to protest. Can we count on you?" "Yes, yes, of course," Dorothy said, feeling foolish. What had she agreed to? "... they say fracking for shale oil and gas is going to reduce carbon dioxide emissions, but can you believe they base that on completely ignoring the methane emissions from the fracking?" "Methane is twenty times worse than see-oh-two ... cooking the planet..." "My objection to fracking is entirely on another plane— see, less coal burned here means coal prices fall, and it gets exported elsewhere, so coal usage will go up somewhere else if fracking happens here in the United States—idiots don't understand the meaning of global..." "Yes, but there's also the issue, I told him that, I told him just because you work for Texas O&G, try to have an open mind for fuck's sake —I told him, think about switching to green energy. Fracking for oil and gas just means putting off what we need to do. Like, you know, you need to fucking quit, not go from cocaine to ... to meth!" Rob wouldn't approve of the f-word either. Dorothy told herself to stop thinking about Rob. Rob used the f- word as much as he liked, but he couldn't stand women swearing. Generally, he said that meant that either they were common, or they needed a good lay. Shut up about Rob, she told herself.
"Well, Mrs. Cartwright?" She cleared her throat. What had they been talking about? "I don't know," she said. What could she do? Her life behind her ... she felt a sudden wave of utter misery. "What can I do? I'm not trained..."
"Dorothy, you don't need training for this," Rita said, in her proselytizing voice. Rita was a You-nitarian, You- niversalist, as Eva had once said in

mincing tones—Rita, there's so much You in UU, where's the room for God? They'd had quite a spat about it, but they stayed friends.
Rob had always said you could only be friends with people who thought like you.
"Honey, there are retired people all over the country like you and me who care about the world we are leaving our grandchildren—" "—hell, everyone thinks we are old fogies, useless relics, and I say we are a totally untapped resource, a revolution waiting to happen..."
Lawrence ("not Larry") nodded. "We have experience, and knowledge of human nature—Dorothy, just by being who you are you can make a difference—" She found herself signing up to recruit five people and be at the meeting place today in three hours. Janna Helmholtz had called to say the earthmovers were going to be on her property ripping up the trees her granddaddy had planted and she needed them to be there. Three hours! (Well, the fracking company doesn't wait at our convenience, honey; besides imagine if you were in the middle of the workday, you wouldn't be able to make it. But we have the time and the determination! So be there or be a quadrilateral! This from Eva, retired math teacher at Pine Tree Elementary.) After they had all left, Dorothy found herself putting the dirty dishes by the sink in a mood of despair. How was she going to go to wing 5 and recruit five people? She couldn't imagine being able to convince anyone. Talking to people was difficult anyway, especially when they didn't wear their hearing aids or were taking a nap. She heard Rob's voice: You're being a fool, Dottie. We Cartwrights don' t get into other people's business. Do you really think you can make a difference? It was hard to remember that she had been second valedictorian at her school, and that she had got into a prestigious college and been on a debating team. After she met Rob —he'd chased and flattered her relentlessly—she had seen the possibility of another life, the kind that she'd only glimpsed through the iron lattice gates of rich acquaintances—a life of going to theater and art museums and raising children to send off to the best schools. Who in the world would love her like Rob? She remembered when they were both young, and he had lost his first job, how much he'd looked up to her, needed her. She began to scrub the baking tray, thinking of Rob's love for her cooking. He'd always praised her culinary skills to his business friends whenever there was a party. She sighed. He would not have been pleased about her involvement with this cause. But she'd given her word— what had made her agree to talk to five strangers? She wiped her sudsy hands absently on the towel, and her wristlet beeped. "I'm no use to anyone," she said aloud. "I don't know what to do." And she heard a voice from the little computer on the mantelpiece say, with the utmost conviction: "Something good will happen to you today." Very clear English, but a strange accent. She went and picked up the computer but the screen had gone dark.

She rearranged her hair and put on fresh lipstick and went determinedly down the hall to wing 5. There were several people in the lounge. She told herself second valedictorian and made herself smile and say hello. By the end of an hour she had recruited eight people. Would have been nine, if Molly hadn't had her annual physical that afternoon. Damn, you're good, Rita said, when she called and told her, and Dorothy thought, with pleased surprise, Yes.

In an hour they were loading into cars, driving over the long, empty roads soon to be filled with rush-hour traffic, over to Janna's place.

Janna had a big house on a hundred acres, and there was already a crowd in the middle of a field, and at least half a dozen cars, and my goodness, was that a TV truck? There was Janna, with a new perm and her big smile, waving to the newcomers walking over to her. The sun was hot. Along one side of the field ran a dark line of woodlands, presumably the place where the pipeline was going through. Dorothy walked over determinedly, ignoring the odd breathlessness that caught her at moments, gritting her teeth, closing her ears against Rob's voice. That woman should never wear shorts, her legs are too fat, and that one, dressed like a slut, tells you what she wants. These wannabe hippies are a laugh. Can barely walk and they want to change the world! Well, that bit was true of some of the protesters, old ladies with walkers and even a man in a wheelchair. There was Rita, high-fiving him. Dorothy found herself standing at the edge of the crowd, grateful for her hat. There were the earthmovers roaring up in front of them. A young man at the helm of each, one of them grinning, the other one nervous. The sun glinted off the windshields.

A black woman was making a speech. Eva nudged Dorothy and whispered, "Myra Jackson, professor over at the university." "It's not just about land," the woman said. "Global warming is real, and we have to do something about it now, not tomorrow. Shale gas only puts off what we really need, which is green energy, and a new alternative-energy-based economy. Germany's already ahead of us in solar energy. We need a Marshall Plan for the ecological-economic crisis!" There were cheers.

Now they could hear police sirens getting louder. The protesters began to shout slogans. Dorothy's heart began to beat thunderously in her ears. What had she gotten herself into? There was Janna, yelling above the noise. "Y'all pack up your equipment and get outta here, we're not gonna let you clear my family's woods! No more fracking!" There were signs now going up, and cameras flashing, and people yelling "Don't frack Texas!," and the big yellow machines kept coming, although slowly. The professor woman jumped off the table—she was too young and fit to be one of the oldies — and someone moved the table away. The cops arrived, waving the protesters to the side so that the machinery could get to the trees. The crowd shifted and surged, without backing away. The man in the

wheelchair waved his stick at a policeman and yelled something. Handcuffs clicked, cameras rolled. The giant machines kept inching forward. Dorothy found herself ignored by everyone, even the cops. She felt the cool air of the woods at her back, through her thin cotton dress. She was just in front of one of the machines. She stared at the young man in the driver's seat. He looked like Kevin. She wondered why his face was set—goodness, the boy was nervous! She thought of him suddenly as a sacrifice, like all the young men in her life, her son gone to the army, returned a silent shadow of his former self, her grandson beset by demons, all that youth and strength turned wrong. She thought of the poor woman out in the bottom of the ocean in the Arctic trying to save the world so that her grandchild, Dorothy's grandchild, and all, everyone's grandchild could live in the world. And she thought how cruel the world that makes young men hold the guns against their own temples, the knives at their own throats, so that their own hands poison the Earth and its creatures that the good Lord made—and Rob said in her mind, Dottie, you're talking like a fool—and something broke inside her.

She was standing with a Tupperware box of cupcakes —stupidly, she waved it in front of the boy like an offering. She walked toward him, her own face set, as though she could save him, as though she, Dorothy Cartwright, B.A., M.R.S., could do anything. The kid's eyes went wide, and he waved frantically at her, and she turned around and saw the great yellow arm of the other machine swing, and the horrified face of the other man, who saw her only at the last minute—then it hit her shoulder, and the side of her head, and then she was falling, and cupcakes falling everywhere.

She awoke in the hospital.

The light was too bright. Someone drew the curtains across the window. She could hear some kind of hubbub outside her door. She slept.

Hours later she woke feeling better. A lantern- jawed doctor who looked like a very tired Clint Eastwood told her she had a mild concussion, and a cracked bone in her shoulder. The man at the bulldozer had turned the thing off just in time; it was the momentum that had gotten her. Otherwise she might be dead. She was really lucky. All the scans were clear, but they were going to keep her overnight for observation. After that, six weeks of rest for her shoulder.

"I can see you're a wild young rebel, Mrs. Cartwright, but promise me you won't be up to those shenanigans for a while," he said, smiling.

She told him, smiling back, surprising herself, "You do your job, I'll do mine." Her son called. Matt was driving over the next day. He sounded more bemused than anything. She thought with satisfaction that she had finally managed to surprise someone.

And then Molly was there, praising her like she had done something heroic.

"Wish I could have been there," she said wistfully. "Rita and Eva are in jail, and that black professor too, and about ten other people. They're probably going to charge you as soon as you are well." Dorothy couldn't imagine going to jail—but Molly made it sound like it was the thing to do. Well, it had been some day. She decided not to worry. Over the doctor's objections she let two journalists interview her and take pictures. Her mother used to call her a chatterbox, a trait that had disappeared with time and Rob, and now she couldn't stop talking.

"When my husband was still alive," she said, "he used to tell me how impractical it was to worry about the environment. Practical people run the economy, make sure things work. That attitude, combined with greed, has ruined the Earth to a degree that threatens our grandchildren. I'm only a housewife, but I know that we need good, fresh air to breathe, and trees to grow, and we need the wild things around us. As a grandmother, I can't think of one single grandparent who wouldn't want to do the best for their grandchildren. That's why I believe we need to protect what the good Lord gave us, this blessed Earth, else how can we live? And what's more practical than that?" After they had all gone, in the silence of the room, she lay back against the pillows, spent. An incredulity rose in her. What had she done? The whole day she had been putting herself forward, Rob would say. The elation subsided. She hid her face in the pillows.

Then the phone rang. This time it was Kevin.

"Gramma! I saw you on TV! You kicked ass!" She laughed. It was so very nice of him to call. They talked for half an hour, until the nurse came and frowned at her.

"Gramma, I'm going to get clean this time," Kevin said. Dorothy took a deep breath.

"Kev, soon as they let me out of here I'm going to come see you. This time you will get clean, love. You've got a life to live." And so do I, she thought after she hung up.

Lying back in the darkened room, she saw from the digital clock on the side table that it was nearly midnight on March 16. Heavens, no wonder Rob had been haunting her all day—it was his birthday! And she had forgotten. Well, at least she had baked his favorite cupcakes. She thought about how her life had changed in one day, and the work left to be done. It wasn't going to be easy, and she had no illusions that she was any kind of heroine, or that her few minutes of fame were going to lead to any major changes. But Molly had told her that the phone lines of No Fracking Texas were swamped with calls from other assisted-living facilities and retired people's associations. It seemed the old ones, the forgotten ones, were coming out of the woodwork. In times gone by, the old were the ones to whom the young turned for advice. Now the old had to bear responsibility for ruining the Earth, but they also, by the same logic, bore the

responsibility for setting things right. The press was calling it the Suspender Revolution. The Retirees Spring. Kind of disrespectful, but they'd show them. And she, Dorothy Cartwright, had helped it come about. Viva la revolución, and poor Rob, rest in peace, and Happy Birthday.

THE END

The Story Begins Or does it end here?

It ends, the young man thinks, as he climbs the last mountain, emerging into the last alpine valley. It ends with his own life winding down as he climbs to the roof of the world. The strength that has allowed him to leave the busy streets of Shanghai and journey to this remote place in the Himalayas is like the sudden flaring of the moth caught in the flame. Lately he's had a vision of simply lying down in the tall green meadow grass, and falling asleep, and feeling the grass stalks growing through his body, a thousand tiny piercings, until he is nothing but a husk.

He pauses to catch breath against the rocky wall of the cliff. His breath forms clouds of condensation in the cold air. His rucksack feels heavier now. He can't remember when he last ate. Probably at the village he left in the morning. He takes out a flask of water, drinks, and finds a small bag with trail mix and walks again.

When he emerges from the narrow pass, he finds himself at a vertiginous height. Below him, lost in mist and distance, is a rocky, arid valley through which a silver river winds. On the other side the mountains are gaunt and bare, the white tongues of melting glaciers high on the slopes. But the place he seeks is immediately to his right, where the path leads. The stone facade of the monastery comes into view, a rocky aerie impossible to conceive of—how could anyone build here, halfway up to the sky?—but it is solid, it is there. So he walks on, up the narrow path, to the great flight of steps. The tiers of windows above him are empty, and there is an enormous hole in the roof of the entrance hall, through which he can see a lammergeier circling high in the blue sky. Could it be that the last refuge is destroyed after all? He had dreamed of a great university hidden deep in the Himalayas, a place where people like him could gather to weave the web that would save the dying world. He had dreamed of its destruction too, at the hands of greed and power. Can it have happened already? Wearily he sinks down on the dusty floor at the top of the steps. In the silence he hears his own breath coming fast, and the faint trickle of water in the distance. He is conscious of being watched.

A man is standing on a fallen column. He is tall, dressed in rough black robes. There is some kind of small animal on his shoulder, brown, with a long, bushy tail —a squirrel, perhaps, or a mongoose? Y uan bows, clears his throat.

"I dreamed of this place," he says in English, hoping the monk can understand him. "I came here to try to do something before I die. But it's too late, I see." The monk gestures to him, and Yuan stumbles over broken pieces of stone, follows him around a corner into a small, high courtyard open to sun and sky.

"Sit," the monk says, indicating a low wooden seat. There is tea in a black kettle, steaming over a small fire. "Tell me about your dream of this place." There is white stubble on his shaven chin, and deep lines are etched on the brown face. His English is fluent, with an accent that is vaguely familiar. Yuan clears his throat, speaks.

"It was a monastery first, then a university. It was a place for those who sought to understand the world in a new way, and to bring about its resurrection. I saw the humblest people come here to share what they knew, and the learned ones listened. It didn't have the quietude of the monastery it had once been—at every corner, in every gathering, I heard arguments and disagreements, but true peace is dynamic, not static, and rests on a thousand quarrels.

"It wasn't a secret, although not many people knew about it. It was rumor and it was real, because at the university where I studied in Shanghai, there was a woman —a scientist from Nigeria— who spoke of this place. She came and taught for five days and nights. After that we were all changed. I got a new idea, and even though I was dying, I made sure it came to light. Then I thought I needed to find her, my teacher, and this place. Here and there I heard rumors that it had been destroyed—because there are people who will try to hasten the end of the world so they can make a profit. And this place stood in their way.

"It was the hope of the world. I heard that there were branches in a few other places. There was an idea about connecting it through small world architecture to webs of information, webs of knowledge and people, to generate new ideas and, through redundancy, ensure their survival. If it hadn't been destroyed before that hope was made real, its disappearance may not have mattered so much." His voice fades, as he slumps to the ground. The monk gathers him up and carries him effortlessly through long corridors into a room of stone, where there is a rough bed. He wakes from his faint to see the wild creature sitting on a wooden stool by the bed, staring at him with dark, round eyes. The monk helps him up so he can sip hot yak butter tea, rich and aromatic. Then Y uan sleeps.

Over five days and nights they talk, the monk and Yuan, sometimes in this room with its narrow windows, sometimes in the high, sunny courtyard.

"This place was destroyed in an avalanche," the monk tells him, pointing to the mountain behind them, from the high spur on which the monastery perches. "The glacier melted and brought down half the mountain with it. It rained boulders. Many were killed, and the place abandoned. I live here

alone, except for the odd scientific team that comes to study the glacier." Yuan is silent. So much for the university that would save the world. But how could his dreams be so vivid, if they weren't true?

When he feels a little better, Yuan goes with the monk to a high terrace from which he has the best view of the glacier. The terrace is broken in places—holes have been torn out of it, and the room below is littered with massive stones. The still- intact portions of the floor make a zigzag safe pathway across the terrace.

The terrace is open to wind and sun, and the immensity of the mountain overwhelms him for a moment. Squinting, he looks up at it and nearly loses his balance. The monk steadies him.

Far above them, what remains of the glacier is a bowl of snow above sheer rocky walls. A great, round boulder bigger than a house stands guard at the edge of the bowl, rimmed with white.

"Don't worry," the monk says. "If that falls, it will fall right here and finish off this terrace, and what's left of the western wing. The part of the monastery where we sleep is not going to be affected—see that ridge?" Yuan sees a ridge of rock high above and to his right, rising out of the steep incline of the mountain. A fusillade of snow, ice, and boulders falling down the slope would be deflected by it just enough to avoid the eastern edge of the monastery, which is why it is still intact.

Yuan begins to shake. The monk guides him silently across the broken floor, and they return to the room. He sinks onto the bed.

"Why do you remain in this terrible place?" he cries. The monk brings him tea. "Thirty-three died in the avalanche," he says, "my teacher among them. So I stay here. The others left to join another monastery." Yuan is thinking how this does not answer his question. He is beginning to wonder about this monk and his excellent English. After a pause the monk says: "Tell me about yourself. You said you came up with an idea." Y uan rummages in his rucksack, which is at the foot of the bed. He draws out a handful of orange wristlets. Each has a tiny screen on it, and some are encrusted with cheap gems.

"I am a student of computer engineering," he says. "In my university in Shanghai I was working toward some interesting ideas in network communications. Then she came—Dr. Amina Ismail, my teacher—and changed everything I knew about the world.

"Most of us think there is nothing we can do about climate disruption. So we live an elaborate game of denial and pretend—as though nothing was about to happen, even though every day there are more reports of impending disaster, and more species extinctions, and more and more climate refugees. But what I learned from my teacher was that the world is an interconnected web of relationships—between human and human, and human and beast and plant, and all that's living and nonliving. I used to feel

alone in the world after my parents died, even when I was with friends or with my girlfriend, but my teacher said that aloneness is an illusion created by modern urban culture. She said that even knowledge had been carved up and divided into territorial niches with walls separating them, strengthening the illusion, giving rise to overspecialized experts who can't understand each other. It is time for the walls to come down and for us to learn how to study the complexity of the world in a new way. She had been a computer scientist, but she taught herself biology and sociology so she could understand the great generalities that underlie the different systems of the world." "She sounds like a philosopher," the monk says.

"They used to call scientists natural philosophers once," Y uan says. "But anyway, I learned from her that whether we know it or not, the world and we are interconnected. As a result, human social systems have chaotic features, rather like weather. You know Lorenz's metaphor—the butterfly effect?"

"I've heard of it," says the monk.

Yuan pauses.

"She said—Dr. Ismail— that we may not be able to prevent climate change because we've not acted in time—but perhaps we can prevent catastrophic climate change, so that in our grandchildren's future—my teacher has two grandchildren —in that future maybe things will start turning around. Maybe the human species won't go extinct.

"So one day I was walking through the streets, very upset because my girlfriend and I had just broken up, and I didn't look where I was going. I got hit by a motor scooter. The man who was driving it yelled at me. I wasn't seriously hurt— mostly bruises and a few cuts —but he didn't even stop to ask and went on his way. I dragged myself to the curb. People kept walking around me as though I was nothing but an obstacle. I thought—why should I go on with my life? Then a man came out of a shop. He bent over me, helped me to my feet. In his shop he attended to my cuts, and he gave me hot noodle soup and wouldn't let me pay. I stayed there until I was well enough to go home.

"That incident turned me away from my dark thoughts. I realized that although friends and family are crucial, sometimes the kindness of a stranger can change our lives.

"So I came up with this device that you wear around your wrist, and it can gauge your emotional level and your mood through your skin. It can also connect you, via your genie, to your computer or mobile device, specifically through software I designed." He sighed.

"I designed it at first as a cure for loneliness. I had to invent a theory of loneliness, with measures and quantifiers. I had to invent a theory of empathy. The software enables your genie to search the Internet for people who have similar values of certain parameters ... and it gauges security and

safety as well. When you most need it, based on your emotional profile at the time, the software will link you at random to someone in your circle."
"Does it work?" said the monk.
"It's very buggy," Yuan says. "There are people working on it to make it better. The optimal network architecture isn't in place yet. My dream is that one day it can help us raise our consciousness beyond family and friend, neighborhood and religion, city and country. Throughout my journey I've been giving it away to people. In every town and village." He taps the plain orange wristlet on his left arm.
"I'm connected right now to seven other people, seven strangers. The connection is poor, but sometimes I hear their voices or see them on my notebook screen. On the way here I stopped at a grassy meadow criss-crossed by streams, a very beautiful place. The reception must have been good because all at once I saw an old woman on my computer screen. She was standing at a kitchen counter feeling like she had nothing to give to the world. Helpless, useless, because she was old. So I told her—I didn't know what to tell her because I felt her pain—but finally I told her something clichéd, like a fortune from a fortune cookie. I said, 'Something good will happen to you today.' I don't know if that turned out to be true. I don't even know who she is, only that she's from another country and culture and religion, and I felt her pain like it was my own." The monk listens very carefully, leaning forward. The little creature has gone to sleep on his lap.
"Perhaps you suffer from an excess of empathy," he says.
"Is that a bad thing? I suppose it must be, because of how I've ended up. As you grow up you are supposed to get stronger and harder, and wiser too. But I seem to be less and less able to bear suffering—especially the suffering of innocents. I saw a photo of a dead child in a trash heap, I don't know where. The family was part of a wave of refugees, and the locals didn't want them there.
There was violence. But what could these people do? Their homeland had been flooded by the sea. They were poor.
"I once saw a picture of a dead polar bear in the Arctic. It had died of starvation. It was just skin and bone, and quite young. The seals on which it depended for food had left because the ice was gone.
"There are people who don't care about dead polar bears, or even dead children in trash heaps. They don't see how our fates are linked. Everything is connected. To know that truth, however, is to suffer. Each time there is the death of innocents, I die a little myself." "Is that why you are so sick?" the monk says harshly. "What good will it do you to take upon yourself the misery of the world? Do you fancy yourself a Buddha, or a Jesus?" Y uan is startled. He shakes his head.

"I've no such fancies. I'm not even religious. I'm only trying to learn what my teacher called the true knowledge that teaches us how things are linked. My sickness has nothing to do with all this. The doctors can't diagnose it—low-grade fever, systemic inflammation, weight loss—all I know is that no treatment has worked. I am dying." The monk walks out of the room.

Yuan sits up weakly, finds the cooling yak butter tea by the bedside, and takes a sip. He is bewildered. Why is the monk so upset? Later the monk returns.

"Since the third day you came here," he says, "you haven't had a fever. Once your strength returns, you should go back, down into the world. You have things to do there." Yuan is incredulous.

"Even if what you say is true," he says after a while, with some bitterness, "how can I trust myself? My vision of this place—remember? The university I dreamed of—the hope of the world. My reason to keep going. It was all false." "Maybe it was a vision of the future," the monk says gently. "After all, your teacher was real. If she mentioned this place to you, then that must mean that others are dreaming the same dream. Go back down. Do your work. This malady, I think it is nothing but what everyone down there has. Most of the time they don't even know it." He gestures savagely toward the world below and falls silent.

Yuan has not allowed himself to feel hope for so long that at first he doesn't recognize the feeling. But it rises within him, an effervescence. He looks at the monk's averted face, the way the animal on his shoulder nestles down.

"If I am cured, then you have saved my life. You took me in and nursed me back to health. The kindness of strangers. I am twice blessed." The monk shakes his head. He goes out of the room to attend to their next meal.

As Yuan's condition improves, he begins to explore the ruined monastery. There are rooms and rooms in the east wing that are still intact. The meltwater from the avalanche has filled the lower chambers of the west wing. In that dark lake there are splashes of sunlight under the holes in the roof.

"We got all the bodies out," the monk says.

Then one afternoon, when he is exhausted from exploring and has taken to his bed, Yuan is woken by the monk's little pet. The animal is scrabbling frantically at Yuan's shoulder, whimpering. Sitting up, Yuan looks around for the monk, but there is no sign of him. There is a great, deep rumble that appears to come from the Earth itself.

At first Yuan thinks there is an earthquake, because the mountain is shaking. Then he realizes what it is. He rushes out of the room, conscious of the little creature's scampering feet on the stone floor behind him. He

runs up the stone stairway to the broken terrace that lies directly in the glacier's path.

The monk is standing on the terrace, gazing upward, his black robes billowing behind him. The enormous boulder that was poised at the lip of the glacier has loosened and is thundering down the mountainside, gathering snow and rocks with it.

"What are you doing?" Yuan yells, grabbing the man. "Get away from here —you'll be killed!" He grabs the man's robe near the throat, shakes him. The monk's eyes are wild.

With great difficulty Yuan pulls him across the shaking, broken terrace floor, toward the stairs.

"You die here, I die here too!" he yells.

At last they are half falling down the steps, running down the broken corridors, over to the east wing. When they get to the terrace, there is a sound like an explosion, and the ground shakes. It seems to Yuan that the whole monastery is going to go down, but after what seems like a long, endless moment, the shaking stops. They look around and see that the east wing is still standing. The small creature leaps up the monk's robe and trembles on his shoulder. The monk caresses it.

There are tears in his eyes, making tracks down the lined face. Y uan sits him down on the low wooden seat. The kettle has fallen over. He brings water from the great stone jar, pours some into the kettle, gets the fire going.

When the first cup of tea has been made and drunk, when the monk has stopped shaking, he starts to speak: "I'm not a monk. I'm only the caretaker. They took me in when I came in as sick as you, but where the world made you feel like you would die of grief, it made me burn with anger. I was a city man, living what I thought was the only way to live, the good life. Then some things happened and my life unraveled. I lost everything, everyone. I ran away up here so that I wouldn't hear the voices in my head. I was full of anger and pain. My sickness would have killed me if the monks hadn't calmed it, slowed me down. Instead thirty-three of them died when the avalanche came—my teacher among them. And I lived." "So you were waiting for that last rock to come down," Yuan says slowly, "so you'd have your death." The man starts to say something, but his eyes fill with tears, and he wipes them with the back of his hand. The creature on his shoulder chitters in agitation.

"Your little animal needs you to live," Yuan says. "He came and called me. That is why you are alive." The man is holding the animal against his cheek as the tears flow.

"Life is a gift," Yuan says. "You gave me mine, I gave you yours. That means we are bound by a mutual debt, the kind you can't cancel out. Come back with me when I return." Several days later, much recovered, Y

uan made his way back the way he had come. His companion had decided to stay in the village nearest the monastery. Here, under a sky studded with stars, Yuan heard the man's story. Yuan left with him an orange wristlet, even though the satellite connection was intermittent here. When they parted, it was with the expectation of meeting again.

"In the future that you dreamed of," said his friend. "Don't be too long!"

"I'll be back before you know it," Yuan said.

After he had passed through the high mountain desert, Yuan descended into the broad alpine meadow. He lay down in the deep, rich grass and felt his weight, the gentle tug of gravity tethering him to the earth. Around him the streams sang in their watery dialect. Sleep came to him then, and dreams, but they weren't about death. His wristlet pinged, and he woke up. He must be back in satellite range. He heard, faintly, music, and the sound of a celebration. A woman's voice spoke to him, a young voice, excited. Two words.

"... A BUTTERFLY..."