Introduction

DENGUE IN THE LANDSCAPE

FATIMA'S SYMPTOMS—soreness and coughing—appeared on a Monday. Her parents initially thought she had a throat infection, but by Wednesday, her fever and joint and muscle aches had gotten worse, and she had developed a faint skin rash. On Saturday, she was bleeding through her nose. Fatima was admitted to a private hospital, where she remained for three days and nights. On Tuesday, she was back at home, in her family's small house in Ciudad Sandino, Nicaragua. Her fever was finally abating, but her body aches, rash, and nosebleeds indicated that she had contracted dengue fever. The Nicaraguan Ministry of Health (Ministerio de Salud, henceforth MINSA) received word of Fatima's case indirectly. Her family's neighbors informed a team of community health workers, who were carrying out a house-to-house antidengue campaign in the area. As part of the response, I accompanied a MINSA nurse to Fatima's home, where we asked her mother and grandmother to help speculate on how she might have contracted dengue.

Fatima's house was typical of Ciudad Sandino. Almost all the homes in the city occupy ten- by thirty-meter lots. Ciudad Sandino is located just north of Managua, Nicaragua's capital, on the flat plain between Lake Managua and the ridge that divides the rest of the country from the Pacific Ocean. It is home to more than 100,000 people, but, to the untrained eye looking down from the ridge, it does not look particularly "urban." There are no large buildings. Automobile and bus traffic is steady but not overwhelming. Trees are everywhere. They look green and healthy, especially at this time of year, December, when moisture from the rainy season remains heavy in the soil and air. December is a time of relative comfort. Temperatures remain low—peaking above eighty degrees Fahrenheit—until the end of January. Then the winds die and the sun heats up, leading to the *temporada polvada,*

the hot, dusty dry season in February, March, and April, when thermometers routinely break 100.

At the bottom of the ridge in Fatima's neighborhood, many of the trees bear fruits, including mangoes, avocadoes, oranges, and limes. Cattle and horses walk up and down the streets, sometimes tethered to human minders, sometimes alone. Amid the swirls of dust that rise from the alleys, dogs hungry for scraps of food forage in gutters and tear open forgotten garbage bags. The claws of cats tingle over the galvanized roofs, which, even in the cooler months, visibly radiate heat conducted by the persistent sunlight. Snakes, mice, rats, and insects—including several species of mosquito—are all in abundance. As a thickly inhabited space, Ciudad Sandino is far from unique. Like all urban spaces, this one is thoroughly natural.

It is also thoroughly social.[1] City planners have parceled Ciudad Sandino's uniform, three-hundred-square-meter house lots into fourteen neighborhoods, known as *zonas.* The zonas all have names, usually those of heroes from Nicaraguan history or the 1979 Sandinista Revolution, in which a coalition of leftist groups toppled a dictatorship that had ruled the country for half a century. Officially, Fatima's zona was called Maura Clarke, after a Catholic nun of the Maryknoll order who came to the city in the 1970s to work as a teacher and community organizer in solidarity with the Sandinistas. In 1980, Clarke was brutally murdered along with three other missionaries with whom she had traveled to provide aid to victims of violence stemming from the civil war in neighboring El Salvador. Many knew the stories of Maura Clarke and other Sandinista "martyrs," but the MINSA nurse, Fatima's family, and nearly everyone else avoided using honorific titles for Ciudad Sandino's zonas. For them, Fatima's house was simply in *zona cinco* (zone 5).

A concrete wall, about eight feet high, surrounded the house. On the street side, Fatima's grandfather had installed a metal gate, painted in a fading green and wide enough to accommodate a car or light truck. The house, too, was constructed of concrete and was painted yellow. It sat back twenty or thirty feet from the gate. Between the house and gate was a patio, paved or tiled in most places, where Fatima's mother and grandmother potted tropical plants and flowers, and where a few faded pink and blue plastic toys lay strewn around. From this patio, I could see through the dimly lit, one-story house, and I could make out the family washbasin and toilet in the smaller open patio to the rear. The doors, ajar, were of heavy wood. The house's only two windows, glassless and screenless, were covered by thick steel bars, painted black.

So who might have brought dengue into Fatima's home? Her father worked as a laborer in a hospital in Managua that had also handled several dengue cases, but he had never had dengue. The adults of the house claimed that no one else in the family had either. As the MINSA nurse, doña Feliciana, discussed the case with the family, she raised the issue of mosquitoes, reminding Fatima's mother and grandmother that they must keep their patio free of standing water. *Aedes aegypti,* the mosquito that transmits the dengue virus to humans, lays its eggs in pools of stagnant water. The potted plants, the washbasin, the toilet, and the garbage were all places where a female mosquito might nest. After all, no matter which *human* had carried the virus into the house, a *mosquito* had delivered it into Fatima's body. The question of *who* brought the disease into the house was tangled up, ecologically speaking, with the question of *what* brought it there.

When the subject of the offending mosquito came up, the family pointed over the fading green wall to a neighbor's house, making clear that the most likely home of the offending insect was in *that* house. *That* house, they said, was minded by less conscientious people: drinkers, players of loud music, and, most offensive of all, people who hoarded and sold recyclable plastic, metal, paper, and other items. Fatima's mother described her neighbors as lacking *educación* and *cultura,* terms best translated as "courtesy" or "manners." If doña Feliciana wanted to admonish someone about cleanliness and insect control, it should be the garbage scavengers next door.

After finishing up with Fatima's family, doña Feliciana and I visited these neighbors. Their house was built mostly of wood, surrounded by a ramshackle fence of barbed wire and sheet metal. Splatters of white paint dotted its gray, cracking walls. An old man sat out front repairing a wicker rocking chair. I recognized the owner of the house—a younger man with long hair braided into a ponytail—not as a garbage scavenger but as a cheesemonger from the local market. He was tall, with a pronounced underbite that turned his face into a permanent grimace. His countenance and his decision to block the front door with his lanky body signaled clear hostility to doña Feliciana's request that she be allowed to inspect his patio. But doña Feliciana, like most MINSA nurses, was used to such initial resistance. She introduced herself curtly but politely, flashing her MINSA credentials. She glanced at me with a knowing and slightly impatient smirk as the man retreated into the house, returning with a bottle containing an oily white substance he said would kill all mosquitoes. He explained that he sprayed the house daily. He was "responsible." Doña Feliciana was prepared for this. She knew how to talk her way inside.

"If there are no mosquitoes, there is no problem, right?" she asked with a smile. She was less than five feet tall and spoke with a plaintive lilt. "Just let me take a quick look, *amor,* then I'll be able to complete my report." She waved her clipboard underneath his chin, choosing to adopt the persona of an overworked bureaucrat rather than that of a hygienic scold.

In the back of the three-room structure, we found an all-dirt patio. A latrine, located on the side of the patio closest to Fatima's house, was its most prominent feature. Water from a washbasin was overflowing onto the ground, under the sheet-metal fence, and out to the sidewalk. Next to the latrine was a rather large pile of plastic soda bottles, which would sell for about ten cents per pound at the local scrap dealer. Doña Feliciana, now confident that she could dismiss the white spray bottle still dangling from the man's hand, lectured the owner about mosquitoes and their breeding habits.

When she informed the man of Fatima's dengue case, his reaction was not sympathetic: "So they found out their kid has dengue and they complain about *us?*" There wasn't any way doña Feliciana could be sure, he protested, that his house or "his" mosquitoes had anything to do with it. "What about all the puddles in the streets?" the man asked. "There are clouds—*clouds* of mosquitoes that come from out there!"

The neighbor was hostile, but he was correct—at least in part. He pointed out a problem that confronted many health workers in Nicaragua who attempted to trace the origins of dengue cases. Thanks to the dedication of a few well-connected Nicaraguan doctors and a handful of scientists working with funding from a global dengue vaccine-development consortium, it was possible at that time—late 2007—to perform immunoglobulin assays—tests that detected dengue antibodies—on Fatima's blood. These assays would indicate whether or not dengue was indeed what had made her sick. But the results of such tests could take weeks to come back from Managua, even though MINSA's national diagnostic laboratory was less than an hour's drive away. Moreover, finding out how that particular dengue virus made it into Fatima's body, of all bodies, was almost impossible. If Fatima's brothers, sisters, or any of the other human inhabitants of her house had been known carriers of dengue, the case would have been simpler to solve. But they weren't. Or at least they said they weren't. And, as the neighbor said, it seemed like mosquitoes were everywhere. Pinning the case on an individual insect was futile, but finding an individual human carrier was also difficult.

In the majority of dengue cases, as I later learned, the human carriers present no symptoms. Given that Fatima and her family moved around the

zona and across the city from home to school to work to church to market, singling out the neighbors made little sense either. The linked questions of *who* and *what* caused Fatima's illness produced a third question: *Where* did Fatima become ill? This book is an examination of the entangled whos, whats, and wheres of dengue. It is a story about people, insects, viruses, and the trails—the lines of bodily, ecological, and epistemological connection—that constitute their world.

DENGUE IN PLACE

Ciudad Sandino, like other dengue-endemic communities, is home to plenty of mosquitoes, and it contains plenty of places for them to hide and breed. Estimates of formal unemployment in the city range from 50 to 75 percent, and scavenging and selling recyclable materials is a common livelihood strategy. The houses of Fatima and her neighbors were typical. While Fatima's family home had walls of concrete, and its patio had a few more adornments, their house, like that of their next-door neighbors, was an open-air structure. Neither family had screens to protect the indoors from mosquitoes, and each ten- by thirty-meter lot directly abutted the next. *Ae. aegypti* mosquitoes prefer such close-knit spaces. Houses in urban Nicaragua contain a reliably high number of small, relatively clean water containers, like the pots for Fatima's mother's and grandmother's plants and the washbasin of her neighbors. Female *Ae. aegypti* tend to lay their eggs in such containers, and they feed almost exclusively on human blood. Blood is essential to the mosquito's reproductive process. The metamorphic cycle of the mosquito, from egg to larva to pupa to adult, can be as short as eight to ten days. Newborn mosquitoes can take refuge in garbage piles or weed patches while they dry their wings and mature into adults. The adult female of the species is capable of carrying the dengue virus, which has become a growing public health threat across urban Latin America. Indeed, dengue is so common in urban Nicaragua that most adults—whether or not they know it—have likely been exposed to the virus by the time they reach twenty years of age.[2]

As soon as doña Feliciana raised the issue of insect habits, Fatima's family inserted them into their complaints about human ones. The neighbors countered with the insight that, given the sheer number of mosquitoes and their unpredictability, none of us really knew, *for certain,* how housekeeping habits played into Fatima's illness. The neighbors also knew that not everyone looked

at the garbage scavenging business as negative. Some in Ciudad Sandino told me that garbage traders' willingness to cart away unwanted material was helping keep their patios and houses clean and safe.

In his refusal to take responsibility for "his" mosquitoes, Fatima's maligned neighbor questioned MINSA's focus on household hygiene. After all, as he and other neighborhood residents—and even MINSA workers—pointed out, there was a constant glut of garbage in the streets and open sewers of the barrio. Didn't mosquitoes breed there? Who was responsible for them if they did? If someone wanted to clean up that garbage and sell it, wouldn't the city be healthier and more prosperous? People frequently described the street as a gathering point *(foco)* not only for undesirable people given to antisocial behavior but also for undesirable creatures. A woman on Fatima's block told me that she was fed up with people using the street and the sewer as dumps. Garbage harbored *animales* (insects) and *microbios* (a general term for *germ*). The sad state of the sewer also made it attractive for small-time gang *(pandilla)* youth, who lacked *educación* and *cultura*.[3] To add to the apprehension of people like Fatima's neighbor, the identities of these antagonists were constantly shifting. Should she worry about *Ae. aegypti,* the dengue vector? An *Anopheles* mosquito, the malaria vector? Influenza? Rabies? Or potential robbery or gun violence? As another woman told me, referring to a dump near her home, "You can find all the sicknesses there."

These women's complaints were about the seeming failure of some neighbors to live responsibly in a thickly settled urban environment. They were also about a sense of simultaneous loss: of safe public space, on the one hand, and of genuinely private space, on the other. Dengue epidemics have made it commonplace for operatives of the Nicaraguan state (at the height of the 2007 dengue epidemic, these included not only MINSA nurses but also army officers and the national police) to enter homes, document the presence of potential mosquito habitats, and report their findings to medical authorities. In Ciudad Sandino, the presence of a virus transmitted by a pesky insect that lived in piles of refuse stoked intraneighborhood suspicion. MINSA had no institutional mechanism for monitoring food quality, waste disposal, or hygiene. Instead, the vast majority of environmental and health problems came to the ministry's attention through citizen reports.

It was such a report that brought us to Fatima's house on that December day. To manifest the public health system in their lives, people like Fatima's neighbors felt they had to report one another to the authorities. A report about the goings-on in Fatima's house, however, ended up drawing attention

to the goings-on next door. The seeming ubiquity of street waste and mosquitoes made it easy to presume that neighbors had either chosen to dwell with them in their midst (the lack of *cultura* explanation common on the streets and in neighborhood homes) or failed to control them due to ignorance (MINSA's explanation).

Either way, the onus for engaging either the government or one's neighbors in solving health problems had fallen almost completely onto individual residents. The problem was that engaging the former could make it difficult or impossible to engage the latter. From the point of view of people like Fatima's neighbors, garbage and insects—resilient, persistent, and prolific—were exacerbating the worst aspects of living in a place where labor migration, divergent social histories, and abiding fears of violence meant that people just didn't know each other very well. Many thought of Ciudad Sandino as a *dormitorio público,* a "bedroom community" where most people lived and slept, only to rise each morning and head for work in the markets of nearby Managua or the apparel factories, also called *zonas francas* or *maquiladoras,* that dotted the outskirts of the city. Lives in Ciudad Sandino seemed physically and biologically connected but, at the same time, socially and economically fractured.

DENGUE AS ENTANGLEMENT

Dengue has been known to medicine for some time. It was first described over two hundred years ago, but it has become recognized as a grave health problem in Latin America only in the past twenty-five years.[4] Dengue is a flavivirus with four known subtypes, or serotypes.[5] The four serotypes share about 65 percent of the same genetic material, which means they are about as closely related to one another as the West Nile virus is to the Japanese encephalitis virus. Unlike West Nile and Japanese encephalitis, however, the four dengue serotypes lead to remarkably similar symptoms, the most common of which are fever and joint and muscle pain. All four serotypes are spread by *Ae. aegypti*.[6] First exposure to any one of the serotypes usually results in a mild to severe fever, while later exposures can lead to dengue hemorrhagic fever (DHF), the more severe form of dengue, marked by internal and sometimes external bleeding. The name "hemorrhagic fever" is a bit misleading. Fatima had nosebleeds, but these may have been epiphenomenal. Insidiously, the symptoms of dengue-related hemorrhage often do not present themselves

until *after* high fevers subside. Unchecked, internal plasma leakage can lead to death. Fatima was recovering, then, but her fever was recent enough that the most dangerous stages of the disease might still lie ahead.[7] As it happened, her recovery was smooth, and the disease that struck her did not fit the clinical definition of DHF.

From 2006 to 2011, years in which I made four separate field visits to Nicaragua, the dengue caseload, both in Ciudad Sandino and across Nicaragua, continued to rise. In 2006, Ciudad Sandino's health center reported 124 suspected cases of dengue, with 3 confirmed, and one case of DHF. The next year, the number of suspected cases rose to 212, with 20 confirmed, and four DHF cases. In 2008, the numbers went up again: 239 suspected cases, 29 confirmed, four DHF cases, and one fatality. This amounts to a 93 percent increase in suspected cases over two years. Counting suspected cases in Nicaragua was important. Because of constraints in time and materials, most cases would not undergo full laboratory testing. If the number of cases still seems low, it is important to remember that most dengue fever still goes both unsuspected and undiagnosed. A long-term study published in 2010 estimated that Nicaragua's health system may have underestimated the national caseload by as much as twenty times, due to failure to report mild or latent cases and a lack of capacity for thorough testing.[8] Even according to MINSA's official numbers for 2007–2009, the confirmed case rate in 2008 was 3.25 per 10,000 residents. Dengue became even more serious in 2009, when a dengue epidemic coincided with the outbreak of H1N1, or "swine flu," stressing the fragile Nicaraguan health system even further. What is clear is that in Nicaragua, as in most every other part of the tropical world, dengue fever is becoming more common and more deadly with each passing year.

This book uses stories from a series of dengue fever epidemics in Ciudad Sandino to track the changing relationship between health and the urban environment. In Ciudad Sandino, the search for health entailed political struggles over how to confront the connections not only between citizens and institutions but also among people, mosquitoes, viruses, and their shared habitats. Much of this book is based on fieldwork I conducted with a group of twenty-four low-level community health workers, known as *brigadistas*. The brigadistas, all poor and predominantly female, carried out house-to-house dengue prevention campaigns for MINSA. Modeled on best practices for dengue prevention promoted by the World Health Organization (WHO) and Pan American Health Organization (PAHO), these campaigns sought to use a combination of technology and community edu-

cation to suppress the population of *Ae. aegypti* and thus limit the spread of the virus. Importantly, these campaigns put the onus for mosquito control onto householders. In practice, if not by design, women in Nicaragua and elsewhere ended up being the primary deliverers and targets of dengue control strategy. The strategy was designed not only to discipline the population by instilling hygienic habits but also to protect it from what most experts agree is among the fastest-growing disease pandemics on Earth. For the predominantly female brigadistas, however, dengue control was not always a matter of disciplining or protecting bodies. Instead, their experiences led them to conceive of disease control as a search for ways to *open* bodies to new forms of attachment.

This search for openness runs counter to standard public health narratives about infectious disease in general and animal-borne disease in particular. Recent accounts, including several from anthropology, have analyzed how governments and communities react to the emergence of epidemics like dengue, malaria, and avian influenza. These diseases all have something in common; namely, they involve the transmission of a pathogen through the bodies of both animals and people. Critical analyses show how national health policies, underwritten by global health organizations, work to *insulate* people from viruses and parasites, the animal vectors that transmit them, and even one another.[9] It is certainly true that disease control protocols conceived by global health institutions, including the Bill and Melinda Gates Foundation, WHO, and PAHO, have resonance in Ciudad Sandino. But the city's physical landscape and Nicaragua's volatile political and environmental history continue to color local people's conceptions of what health should mean and how they should participate in it. Thus, it is too simple to say that people in Ciudad Sandino are simply responding to dengue control programs devised in distant centers of national or global policy. Instead, they have become engaged as medical and environmental subjects, taking it upon themselves to put disease governance into action, even if that means adjusting policies to the contingencies of local life.[10] While global "best practices" for dengue control imagine discrete spaces, institutions, and spheres of ecological and social action, the reality in contemporary Nicaragua is more fluid than policy makers seem willing to imagine. Brigadistas are also householders. Epidemiologists are also political actors. Garbage scavengers are sometimes brigadistas. And their lives are all entangled with those of viruses and mosquitoes.

This book brings theories from the interdisciplinary field of political ecology into dialogue with those of critical medical anthropology. One

important strain of critical medical anthropology focuses on what Margaret Lock calls "local biologies," the ways in which material and social conditions are dialectically reproduced in the space of the body. Political ecology is about how the material and the social, mediated by political economic structures, are dialectically produced in something we call nature.[11] Sicknesses like Fatima's thus seem to be explainable in two ways: as a result of shortcomings in intimate, *local* forms of attachment, such as urban planning or neighborhood social cohesion, and as the outcome of painful partialities in people's ability to participate in seemingly more *global* forms of attachment. These global forms include those of the market: the trade in garbage and used car tires that transmits dengue mosquitoes, and the mix of industrial agriculture, tourism, and labor migration that contribute to the spread of viruses. The scientific techniques of global health, namely, pandemic planning and viral tracking, also work to form local and global attachments. Combining ideas about local biologies with political ecology helps reveal how bodies and environments are not just *related,* such that environmental conditions affect health or that human actions affect landscapes, but *entangled,* such that changes in bodies reverberate through landscapes, and vice versa.

My argument is that dengue renders the scalar distinction between local and global infrastructures, bodies, and forms of knowledge increasingly difficult to maintain. Dengue makes the ostensibly intimate operations of home life a public concern, and it drives public concerns into the center of intimate life.[12] Places like Ciudad Sandino and bodies like Fatima's are not simply sites where dengue epidemics occur. They are themselves entanglements of relationships.[13] Thus, I argue that dengue is best understood not as the outcome of a pathological clash between independent antagonists (mosquitoes, viruses, and people) but as a set of *attachments*—some positive, some negative, and some ambiguous—among them.[14] In philosopher and historian of science Donna Haraway's understanding, a focus on presumably stable objects or entities can produce a misleading picture of how the world works. Instead, she encourages scholars to think of "relationships" as "the smallest patterns for analysis."[15] Too often, dengue and other emerging infectious diseases (EIDs) are studied in a bifurcated manner. Certain scholars focus on their human dimensions, and others interrogate their ecological dimensions. While research agendas and public health interventions have long attempted to bridge the two by emphasizing the social aspects of ecology and the ecological aspects of sociality, I choose the analytical framework of entanglement to disrupt this tendency.[16] A disease like dengue constitutes not simply a socioecologi-

cal system, in which human activity has bearing on nonhuman behavior and vice versa, but a heterogeneous knot of connections that undermines simple spatial, social, and species barriers. Dengue provides a lens for rethinking health as the set of practices by which bodies and environments become attached to one another. In the context of dengue, questions about mosquito habitats are bound up with the regulation of human well-being. People negotiate and redefine health as they—in cooperation with or resistance to various kinds of authorities—develop and deploy knowledge about what kind of life (mosquito, viral, human) is worth monitoring, preserving, and reproducing.[17]

I define entanglement as the unfolding, often incidental attachments and affinities, antagonisms and animosities that bring people, nonhuman animals, and things into each other's worlds.[18] Entanglement is at once a material, temporal, and spatial condition. The material connotation of entanglement comes from quantum physics. Physicists use the term to explain how, in the words of anthropologist Kath Weston, "a change in one particle is accompanied by a parallel change in the state of the other, even when the two particles are nowhere near each other in any sense that could be explained by the principles of classical mechanics."[19] I find this understanding useful for understanding dengue at an ontological level—as a phenomenon of study and of experience. In dengue, human and mosquito bodies, like mosquito and viral bodies, are both two and one at the same time.

Entanglement also has a temporal dimension. Dengue epidemics in the present are the results of contemporary material attachments, but people caught up in dengue epidemics inevitably understand those contemporary attachments by recalling past ones.[20] Nicaragua's revolutionary and postrevolutionary periods directly parallel the history of Ciudad Sandino, and people's senses of the meanings of health continue to be driven by engagements with the country's volatile past. Indeed, that past is written into the landscape that people and mosquitoes inhabit. As a disease, however, dengue is dangerous to people and confounding to scientists because of another, more direct temporal feature. People who have been exposed to one of the four serotypes of the disease have long been thought to run a high risk for severe infection on exposure to a second.[21] In a phenomenon called "antibody-dependent enhancement," the immune system fails to recognize the new serotype as distinct, and its response facilitates, rather than mitigates, the propagation of the virus in human cells. Thus, even years after recovery, the immunological memory of past infections shapes future ones. In Nicaragua,

brigadistas and doctors drew on this understanding of dengue's trajectory, and they often told their neighbors, "Dengue makes you sick the first time, but it kills you the second."

At a spatial level, dengue epidemics, to paraphrase geographer Paul Robbins, seem to strike everywhere and nowhere at once.[22] They are "rhizomatic" phenomena—without clear beginnings, middles, and ends. Fatima's case, then, offers as convenient a trailhead as any for an ethnographic exploration of dengue. The story of Ciudad Sandino is both the story of a community's struggle with a "global" pandemic and that of a highly local set of problems, from earthquakes and floods to gang violence and municipal politics. The story of Fatima's case leads us in multiple directions, and into the stories not only of other humans but also of swarms of mosquitoes, viral assemblages, piles of garbage, and networks of power.[23]

A POLITICS OF ENTANGLEMENT: INFRASTRUCTURES, BODIES, AND KNOWLEDGE

Transmitted by house-dwelling mosquitoes, the dengue virus infects over 250 million people per year, from Singapore to South Florida. As with other EIDs, funding for research on new ways to insulate people from dengue viruses and *Ae. aegypti* has soared over the past two decades, particularly in the areas of vaccine and rapid diagnostic technology. Much of this research, in one way or another, has involved Nicaraguans like Fatima and her neighbors. Since the 1990s, Nicaragua has been a site of field and laboratory research on the virus, on people's immunological reactions to it and their hygienic responses to mosquitoes, and on new forms of epidemic management. A variety of prevention strategies, from the pesticide DDT to participatory mosquito control to vaccines, have all either been tested or implemented there. The latest efforts have tended to be labeled as "global health" projects.

The ascendance of the contemporary global health complex, a humanitarian, intergovernmental effort to eradicate dengue and other EIDs, has been well documented. In brief, it involves attempts by academic and state scientists to bring the biomedical technology normally directed toward diseases of wealthy countries to bear on diseases such as HIV/AIDS, malaria, tuberculosis, and influenza: diseases associated with the Global South but whose continued spread makes them of worldwide concern.[24] Global health

hinges on the formation of "partnerships" between local communities and research groups, among governments, and between northern and southern academic institutions. These partnerships are intended to go beyond conventional donor-recipient relationships.[25] The partnership between MINSA and a series of nongovernmental and corporate organizations that produced the possibility of a dengue diagnosis for Fatima is one such example. Making health "global" thus entails forging both an encompassing geographical reach for biomedical technology and a universal epistemology, a "global" way of understanding what health means. Even as global health complexes attempt to improve infrastructures and thereby insulate bodies from infectious diseases, diseases themselves create new entanglements.[26] Fatima's illness prompted her family to contemplate their relationships not just with their neighbors and with their government but also with mosquitoes, garbage, streets, viruses, and water.

Put another way, the processes by which bodies and environments come into being are always interconnected.[27] Such a perspective has important implications for critical medical anthropology, which has been particularly attentive to the ways in which biomedical and other forms of healing intersect. Much of the field uses ethnographic accounts of this intersection to push back against the kinds of universalizing conceptions of illness and wellness that drive global health.[28] Critical studies highlight the broader forces, notably colonialism and capitalism, that produce unequal relationships between different kinds of (gendered, raced, cultured) bodies. In a way, then, much critical medical anthropology is about a politics of entanglement—the persistent inequalities that attend attachments between people, places, and ways of knowing.[29] The field has been slow, however, to examine the more-than-human aspects of entanglement. The three parts of this book explore three important more-than-human elements: infrastructure, bodies, and knowledge.

Infrastructure

Water pipes, roads, sewers, and waste streams connect city dwellers with their human and nonhuman neighbors. In places like Ciudad Sandino, dengue thrives because of partialities in these infrastructures. There, as in other dengue-endemic places, water, garbage, and sewage routinely fail to circulate. The area now known as Ciudad Sandino was once a cotton and wheat plantation. It became an urban settlement when a 1972 earthquake destroyed

most of nearby Managua. Its population swelled after a series of environmental disasters in the 1980s and 1990s, most notably Hurricane Mitch in 1998. The story of its people's struggle with dengue is instructive for understanding other similar sites and sociopolitical responses to vector-borne diseases in general, but this particular landscape and its history also give dengue a place-specific significance that confounds globally standardized visions of disease control.

Part 1 of the book traces how the meanings of public health in Ciudad Sandino have changed, from the coming of the 1979 Sandinista Revolution, through the U.S.-backed counterrevolution of the 1980s (known as the *contra* war), and into the 1990s and early 2000s, a period of structural adjustment and state austerity. These changes created new material, social, and political economic attachments among the city's human and nonhuman residents. Since the 1990s, Ciudad Sandino has become a hub in the formal and informal circulation of goods and people in and out of Nicaragua. Today, zonas francas, or free trade zones, mostly occupied by international apparel factories, dot the city's outskirts. Ciudad Sandino is also the site of a sizable trade in recyclable garbage, and it is home to many migrant laborers. "People come here to *sleep,*" one woman explained to me in an interview. "They go to *work* in Managua, Costa Rica, Panama, North America." In Ciudad Sandino, dengue emerged thanks to migrations of several kinds into and out of the city, a place tenuously implicated in the process scholars often call globalization.

Dengue was a predictable part of life in Ciudad Sandino, even if no one could say who would become sick next. In many ways, the disease united the community. After all, the virus moved through blood and across property lines, borne by a mosquito that traveled along with people as they circulated. The things they bought and sold—including garbage—crossed not only municipal borders but also mountains and oceans on worldwide trade routes. Dengue's ecology, then, was the product of an age in which trade was rapid, urbanization was uneven, and social and economic inequality was on the rise. Dengue united patients, state authorities, formal and informal economic actors, medical entomologists, and urban planners, but as Fatima's story illustrates, it also raised ethical questions about the relationships among them. Ciudad Sandino was a low-income city, but it was not what most outside observers would call a slum. In fact, during the course of my fieldwork, the city's infrastructure was improving. Pipes, electrical wires, and the garbage system were producing new connections among households. These sup-

posedly modern trappings of urban infrastructure sparked new debates about the relationship between people and mosquitoes.

Bodies

The bodily element of entanglement involves less visible pathways. House-to-house mosquito control measures such as the ones taken in Fatima's case are humanitarian endeavors, but they also are political ones.[30] They seek to impose rationality on the landscape and, in so doing, to control cities and their inhabitants. Crucially, this controlling work is aimed not just at the bodies of human beings but at a "multispecies" environment.[31] The vitality of human beings is routed through the vitality of mosquitoes and microbes.[32]

The politics of bodily entanglement has a distinctly gendered dimension. In Fatima's case, as in many of those I describe in this book, women found themselves taking primary responsibility for controlling mosquitoes and for regulating urban space. Dengue was never explicitly couched in Nicaraguan or global health policy as a "women's issue," yet community health workers and citizens saw it through a gendered lens. Ninety percent of the brigadistas in Ciudad Sandino were female, and all lived in the marginalized barrios of Ciudad Sandino. Those most directly responsible for dengue prevention in the city were also very often single mothers and/or the de facto heads of their households. Their experience of urban space, like their work in dengue prevention, amounted to a series of house-to-house tasks: trading piece labor like washing and ironing for money, selling food or caring for children on behalf of neighbors, and distributing medical care and advice.

MINSA protocols for the control of *Ae. aegypti* hinged on an aesthetic ordering of the urban household: one in which mosquitoes, like garbage and dirt, did not belong. Management regimes such as this, which are common around the dengue-endemic world, seem to rely on an alienation of people—in the case of dengue, women in particular—from the urban natures in which they live. For brigadistas, however, mosquito abatement involved an opening up, rather than a closing, of the landscape. As I argue in part 2, female brigadistas took deep pleasure in learning about mosquito-human lifeworlds and in forming new relations through mosquito control work, a pleasure I call "ecological aesthetic." Ecological aesthetics—patterns of connection that are visible only through action—contrasted to the more rigid aesthetics identifiable in MINSA's ordering of the household. While the latter aesthetics has

human control *over* life at its core, the former emphasizes a relational knowledge *of* life.

Knowledge

Entanglement calls attention to competing ways of knowing about bodies and the environment, particularly ecological models of mosquito development, epidemiological models of risk, and political calculations about the value of prevention. It brings Nicaraguan ideas about *educación* and *cultura* together with epidemiological and biomedical ideas about prevention and infection. In part 3 of this book, I use accounts of a series of dengue epidemics and prevention projects in Ciudad Sandino to show how the techniques of epidemiology and public health were entangled with those of Nicaraguan street politics. I explore how brigadistas and others operationalized three technical/political concepts in the course of routine dengue control. First, I examine the preventive work of brigadistas in further detail, showing how the logics of public health "surveillance" dovetailed with those of political surveillance. I describe the ways in which brigadistas and other health workers deployed ideas about political identity in their day-to-day interactions with neighbors. Second, I trace the changing meaning of "participation" in the context of the return of the Sandinistas to political power in 2007, showing again how the seemingly neutral concept of community engagement, perennially popular in global dengue policy, took on particular political meanings in Ciudad Sandino. Finally, I show how people reacted to seasonal dengue epidemics. Dengue is a "seasonal emergency" in Nicaragua. Epidemics occur yearly, during the rainy season between September and December, a time when mosquito populations expand in predictable cycles. Amid seasonal emergencies, people in Ciudad Sandino found themselves confronting the uneven and often unequal roles of national health policy, global health technology, and economics, not just in responding to climatic and ecological cycles but in reproducing them.

FINDING TRAILS: ENTANGLEMENT, LANDSCAPE, AND METHOD

The gridded nature of Ciudad Sandino's streets, as shown in the map in the front of this book, make it stand out from other parts of Managua, where streets begin and end in a much more haphazard fashion. Still, like the

streets of Managua, the streets of Ciudad Sandino have no names. Residents navigate their daily comings and goings with a "popular geography," giving directions using highly specific landmarks and idiosyncratic cardinal points.[33] In central Managua, a set of alternative cardinal directions pertains, whereby north becomes *al lago,* or toward Lake Managua; east is *arriba,* or "up" in the direction of the central mountains; and west is *abajo,* "down" toward the Pacific. South normally remains *al sur.* Ciudad Sandino's residents continue to use these terms in alternation with the normal cardinal directions, even though, as I would point out to friends, "al lago" and "arriba" were actually in the same direction, given Ciudad Sandino's location on the western shore of Lake Managua. Most addresses in Managua include no official postal or bureaucratic references. In Ciudad Sandino, as the map shows, barrios are known by numbers (zona 1, zona 7, etc.).[34] A typical address in Ciudad Sandino was something like, "De donde fue el Mini Cine. Dos cuadras abajo. Una cuadra al sur. Tercera Casa. Mano derecha," or "From where the Mini Cinema was, two blocks down, one block south, third house on the right."

In Fatima's case, the complexity of local geography became a tool in a preexisting dispute between neighbors. Fatima's family's circumstances (i.e., father with a hospital job in Managua, paved patio) were slightly more comfortable than those of her neighbors, whom Fatima's mother and grandmother described as lacking *cultura.* It seems more than convenient or coincidental that the complaints about the bad neighbors flew at about the same range as *Ae. aegypti* (ten to thirty meters). In an urban area with a history of disease and insect problems, the mosquito had made itself a player in a human conflict. As soon as the issue of insect habits came up, members of Fatima's family inserted it into their complaints about human habits. The neighbors countered with the insight that, given the number of mosquitoes and their unpredictability, none of us really knew how they played into Fatima's illness. They both used talk about mosquitoes and viruses to call attention to the dilapidation of streets and the failure of the garbage service, making claims about the insufficiency of infrastructure. The conflict between the neighbors was certainly political, and in hundreds of subsequent home visits with MINSA officials, I saw similar scenarios repeated. Blame circulated along with illness, yet those circulations were never straightforward.

For this reason, I place a methodological emphasis on the trails—material as well as symbolic—by which dengue and knowledge about it flowed through Ciudad Sandino. My method of learning about garbage scavengers, brigadistas,

city garbage collectors, and MINSA doctors and hygienists was "house-to-house" ethnography, just as the work they undertook was of a "house-to-house" nature. (This methodological choice draws directly from the theoretical ideas about entanglement that I outline above, but readers looking for deeper theoretical insights should consult the endnotes to each chapter.) This does not mean that I carried out surveys or interviews in each house. Rather, it calls attention to the fact that houses were the dominant physical form of Ciudad Sandino. They were the site and direct object of antidengue and antigarbage campaigns. My work took place in houses, but it also took place on rides in garbage trucks, on walks through streets, and in examinations of epidemiological charts and maps. The story of dengue takes place not just at particular sites but along the well-worn paths that link them.[35] More than its health centers or its dump and junk brokerages, Ciudad Sandino's houses and the trails that connected them were, collectively, my field site.

I spent four months in the company of Ciudad Sandino's corps of approximately twenty-five garbage collectors, riding along on garbage collecting routes, attending union and planning meetings, and occasionally assisting in the collection and redistribution of waste. I dedicated another eight months of my study to dengue prevention campaigns, working mainly with the group of twenty-four brigadistas hired by the local MINSA health center. Like the garbage work, the dengue prevention work involved house-to-house visits throughout Ciudad Sandino's fourteen zonas. Finally, I worked over several months with garbage scavengers and brokers, on the streets of Ciudad Sandino, in household junk brokerages, and in the city's dump. The number of scavengers in the city fluctuated, since participants often drifted in and out of the economic sphere depending on personal circumstances. Normally, however, the city counted about seventy to eighty scavengers working in the main municipal dump, and another fifty to eighty plying the streets, parks, storm sewers, market, and informal dumps.

All of this work was circulatory. I moved in and out of neighborhoods, houses, junk brokerages, and public and private spaces with my interlocutors, carrying on conversations, sometimes taking photographs and making recordings, and maintaining notes of the activities. The notes were often of a highly descriptive nature, a kind of "nondirective" research, pursuing "questions about events and practices that people were already discussing or actively engaged in at the time."[36] This method allowed me not only to identify those with a willingness to talk but also to make the interviews rather unstructured and free-flowing. Some of the conversations in this book are re-

constructed from notes taken in situ, but many of the interviews represent seated reflection on what my interlocutors and I had done together. The work I observed and in which I sometimes participated was repetitive and cellular. The people I joined circulated objects, ideas, and values from point to point and from house to house.

With that circulation in mind, I want to use the trope of the trail—a mark on the landscape that may be anthropogenic but may also be created by a plant or animal—to call attention to the role of people and other living creatures as place makers. "Minimally," the philosopher Edward Casey argues, "places gather things in their midst—where 'things' connote various animate and inanimate entities. Places also gather experiences and history, even languages and thoughts."[37] In this sense, a place can be a political locality, like Ciudad Sandino, but it can also be a house within such a locality. My choice of methods allowed me to see how people, blood, resources, waste, money, and mosquitoes did more than simply appear in houses. These things all left important social and physical marks between houses. They thus actively entangled one another. But houses were the spaces in which a tension between individualistic self-preservation and collective cooperation became most apparent. As agents of MINSA, the brigadistas whose stories comprise much of this book had to hunt out mosquito colonies and document their presence in the intimate spaces of their neighbors' houses. They had to reconcile the systematic languages of epidemiology, public health, entomology, and urban planning with the gendered realities of everyday life in urban poverty. An anthropology of entanglement can help us understand the limits of this reconciliation.

The landscapes of disease are cocreated by active human and nonhuman elements. Analytically separating the human aspects of such landscapes from their nonhuman ones requires adopting rigid categorical views of the relations between humans, nonhumans, and the material world.[38] Inhabited landscapes do not fit these categories. Inhabited landscapes are fluid and "weedy," neither wholly natural nor wholly cultural, neither productive nor reproductive.[39] They are inherently unstable. A focus on entanglement calls attention to the "gaps" between the categories we traditionally use to think about landscapes, gaps between domestic and wild, nature and culture, *polis* and *oikos,* waste and resource. These are the gaps occupied by dengue mosquitoes, to be sure, but they are also occupied by people. These gaps, I suggest, are the norm. It might be easier to study inhabited landscapes if we focus on the marks—invisible and visible—left behind by the intertwined movements of

people, things, nonhuman animals like *Ae. aegypti,* and quasi life forms like viruses. My contention is that it is possible and worthwhile to attend to such marks—the "trails" I have in mind in this book's title—because they tell a story about disease that belies easy separations like local/global or body/environment. The marks on Fatima's body provide a perfect example. How could doña Feliciana begin to understand the rash on her skin without seeing it as connected to a mosquito's feeding and breeding habits, her father's job in a hospital, and the national and international dengue diagnostic network? That trace of skin inflammation contained, to use Tim Ingold's term, a "meshwork" of material, symbolic, and political threads.[40]

In Ciudad Sandino, the house itself—another key ecological gap filled by the dangerous mosquito vector—was also full of such traces. The visible traces of the circulation of garbage from dump to household to global marketplace were not included in the brigadistas' script for teaching people about dengue and mosquitoes. In that script, the house was a static site of leisure, rest, and reproduction. The house contained contradictory impulses, toward cleanliness, on one hand, and toward economic production, on the other. Through attention to the daily comings and goings of insects, people, and things, I began to see dwellings as "houses in motion."[41] In addition to houses, I worked to trace the roadways, garbage collection routes, and health care visits.[42]

Even when I made maps available to people in Ciudad Sandino, maps didn't seem to help them understand where they were. Rather, the brigadistas and scavengers understood the city through specific kinds of movement. Going house-to-house teaching about and looking for mosquitoes was a task that Morena Sanchez, one of the brigadistas with whom I interacted most closely, described as "negotiation." Knowing that her neighbors wouldn't always be happy to see her (Morena did represent the state, after all), she would walk through their houses, complimenting them on elements she liked: an adornment or a fruit tree. This paid off in cooperation, but also in material exchange. Morena and other brigadistas would frequently finish a day on the trail of Ciudad Sandino's mosquitoes with sacks of mangoes, limes, or even aluminum cans, in addition to a neat bureaucratic record of insect habitats and their locations. If some of the piles of garbage were left off the record, this only seemed fair. The ability to navigate neighborhood streets in multiple ways—the ability to make community health work productive both of knowledge and of economic value—was essential to being an effective brigadista. Knowledge of what was in the landscape was more than a matter of

fitting observations to categories. Deftness at walking the trails that connected the health center to the household, the household to the dump, the dump to the junk buyer, and so forth, was crucial for Morena to making a living, and for me as the anthropologist to understanding how health and environmental politics converged.

WAYFARING AND CONNECTING: LIFE IN THE FIELD AND ON THE TRAIL

Nicaragua has long been known as a welcoming place for *internacionalistas,* or foreign solidarity workers. Attempts to remake foreign aid as social work, from participatory action in public health to the formation of fair-trade coffee cooperatives, can be traced back to the earliest days of the Nicaraguan revolution.[13] In 1979, the Sandinistas succeeded in toppling the Somoza dynasty, which ruled Nicaragua from the 1930s to the 1970s. They did this despite the fact that the Somozas enjoyed the material and financial backing of the United States for most of that period. Still, leftist and centrist activists from poor and middle-class Nicaraguan families were united under the banner of the Frente Sandinista de Liberación Nacional (FSLN). After the successful overthrow, the Sandinistas became a cause célèbre of the American and European left, even winning the tacit support of the administration of U.S. president Jimmy Carter. But the administration of Ronald Reagan, who took office in 1981, openly supported (and covertly supplied) an army of counterrevolutionaries known as *contras.* During the 1980s, nearly fifty thousand people (including a handful of internacionalistas) died in the war between the revolutionary government and the CIA's proxy army of contras. The draining war, combined with crippling economic sanctions and political maneuvering on the part of the United States and paranoia and vanguardism among the FSLN political elite, led to an electoral defeat of the FSLN in 1990 and the end of the revolution.

As a foreign researcher, I benefited from the goodwill of the hundreds of internacionalistas who preceded me. Still, as I found out, global health projects in Nicaragua have had difficulty dealing with the politically and morally charged relationship between Nicaraguans and people from more powerful nation-states, particularly the United States. Both global health and *internacionalismo* have two sides. On one hand is *solidarity,* a humanitarian impulse to do good in partnership with those in need. On the other hand

lies a set of calculated efforts at *control.*[44] In the case of American relations with Nicaragua, the work of internacionalistas was tempered by covert and overt attempts to steer politics away from the socialist left through the contras. By contrast, global health tends to present itself as apolitical, or antipolitical.[45] In the case of global health, control means doing research in places like Nicaragua not only to cure diseases that affect poor Latin Americans and others in the Global South but also to manage the spread of emerging pathogens north to the United States. It does not mean getting involved in revolutionary politics (at least not directly).

Like many of my colleagues in medical anthropology, I have good reason to be suspicious of the facile use of "global health" and "emerging infectious disease" as pedagogical rubrics, as research programs, and as bases for new policy initiatives. After all, dengue epidemics are nothing new in places like Ciudad Sandino. As Paul Farmer has pointed out, the adjective *emergent,* when used to describe diseases, often masks the unsettling reality that people like Fatima and her family have been dealing for some time with diseases we couch as novel or "outbreaking."[46] The rise of market-driven globalization and uneven urban development has made them more common and more deadly in places like Nicaragua, but more importantly, this rise has forced the governments of wealthy northern countries (especially the United States) to reckon with the possibility that "tropical" diseases may threaten their residents, their economies, and their households. The unchecked spread of dengue, including recent outbreaks in middle-income and wealthier countries, has undeniably been a driver of the recent explosion in international research on it. The growing interest on the part of scientists, donors, and corporations in finding a cure thus seems to be at least partly self-serving.[47]

During my fieldwork, I spent hours among residents of Ciudad Sandino, doctors, nurses, epidemiologists, city planners, garbage scavengers, and, most of all, with a group of brigadistas. I lived in one of the zonas of Ciudad Sandino, renting rooms from a social activist and former brigadista, whom I call doña Eugenia. Doña Eugenia was a psychologist working within MINSA's local health center, but she was also deeply involved, through a few different nongovernmental organizations (NGOs), in the recruitment and organization of modern-day internacionalistas, mostly American missionaries and students. I first came to Nicaragua as such an internacionalista, wondering whether I was better suited to long-term anthropological fieldwork or to development work. I had heard stories from professors and activists just a few years older than myself of the heady days of the "solidarity movement," the

loose affiliation of left-leaning (and even radical) Americans and Europeans who came to Nicaragua to support the Sandinistas. As a child in the 1980s, I vaguely remember nightly news reports about the Sandinistas and the contras, but not surprisingly, internacionalistas were not regular features.

Doña Eugenia was a political agnostic. She was a devout evangelical Christian, weary and suspect of the "immorality" she saw in Nicaraguan politics. Politicians were conspicuous consumers and drinkers, and even in the days of the revolution, the relationship between *militantes* from the Sandinista party and internacionalistas was predicated on alcohol, womanizing, and carousing. In the 2000s, this romance had been repackaged by ex-revolutionaries like the folk singer Carlos Mejía Godoy, who ran a popular, *gringo*-friendly nightclub in Managua. Many students I met in the 2000s willingly partook in this partial legacy of internacionalista life, but talk of politics and social justice was largely absent from their discourse. Much like the missionaries I met, the modern-day internacionalistas wanted to "do some good," "fulfill a need," "teach," or "help a family," without thinking much about the social, political, or economic context of those actions, or of that need.

A sizable portion of this new generation of internacionalistas was composed of undergraduates or recent graduates with aspirations to attend medical schools. What they sometimes called the "primitivism" of Nicaragua's health system disturbed them, but it did not always shock them. As I found out, an appreciable number had been inspired to visit Nicaragua by medical anthropology classes in which they encountered writing by or about anthropologists like Paul Farmer and Jim Yong Kim. These young volunteers aspired to, as one student told me, "do a Partners in Health kind of thing." I wanted life for my acquaintances and friends in Ciudad Sandino to get better, too, but I became quickly disillusioned by the absence in my conversations with other internacionalistas of what I considered to be the most pressing issues: how harsh international debt restructuring terms had undermined the gains that the FSLN had made in health care by imposing privatization, fees, and wholesale cutbacks; or how the proliferation of zonas francas allowed international commercial concerns to poach (tax-free) a needy and oversized labor force of young people (mostly women); or how those same laborers were consistently punished for attempting to organize unions.

At the time of this writing, the places of these young internacionalistas in internships and service-learning organizations have now been taken by women and men like my own students. I find the new generation of internacionalistas instinctively generous and infectiously curious. Like me, they have little

to no firsthand memory of *La Revolución,* but sitting somewhat between them and the generation of internacionalistas that preceded me (the ones who worked on coffee harvests and Sandinista literacy campaigns), I hope that with this book I can alert my students and other potential internacionalistas to some of the deeper dynamics of urban life and health in Nicaragua. The internacionalistas I met during my fieldwork saw themselves as part of a network of potential professionals (mostly doctors, but also economists, teachers, and engineers) with sights set on making work not just *for* the poor but *with* the poor a central phase of their careers. I greatly admire this aspiration, even if I remain cynical about the possibility that short stints of service learning in places like Ciudad Sandino will lead to meaningful structural change of the kind that Farmer and others advocate.[18] I felt—and still feel—that understanding how health and illness are experienced within a supposedly needy population like that of Ciudad Sandino is of profound value, especially if those populations are to become something more than targets for North-to-South interventions.

On the other hand, I sympathized with doña Eugenia's feelings about Nicaraguan politics. Local narratives about life in Nicaragua remain colored by tension between nostalgia for a past marked by social solidarity—often framed in the religious idioms of liberation theology that drove much of the Sandinista rank and file—and laments for a present marked by selfishness and greed.[19] Politics was marked by entanglements between these memories and experiences. Nicaragua's political culture in the middle to late 2000s was shaped in large part by what Nicaraguans refer to as "the pact" *(el pacto)* between its two main political bosses *(caudillos).* In brief, Arnoldo Alemán, leader of the Constitutional Liberal Party and president of Nicaragua from 1996 to 2001, struck a fairly blatant political deal with Daniel Ortega, Sandinista president from 1984 to 1990. By the terms of the pact, Ortega promised not to use the considerable power of the Sandinistas in the National Assembly and judiciary to prosecute Alemán for a series of well-documented crimes, including embezzlement of state funds and criminal mismanagement of the bureaucracy. In exchange, Alemán assented to a constitutional change that would allow Nicaraguan presidents to be elected with a plurality of the popular vote, rather than a simple majority. Both sides wagered that, given their considerable party apparatuses, they could muster such a plurality. The pact thus ensured the dominance of the liberals and the FSLN over more progressive elements, particularly the sizable dissident center-left Sandinista movement known as the Movement for the Renovation of Sandinismo.

Ortega ended up getting the better of the deal, winning election to a second presidential term in 2006 (with just 38 percent of the popular vote) and manipulating the national constitution (again, with Alemán's cooperation) to permit his reelection in 2011. Ortega's return to the presidency after sixteen years of center-right rule provides the political backdrop for much of this book. I say more about it in subsequent chapters, but it is sufficient to note here that, as a researcher and as someone concerned with the conditions of life in urban Nicaragua, I was reluctant to throw my lot in with Ortega, as a previous generation of internacionalistas had done.

I was continually drawn out of my disillusion and cynicism by a peculiar Nicaraguan penchant for making personal, material, and emotional connections. Nicaraguans have a saying that goes, *Mejor solo que mal acompañado,* or, "It's better be alone than in bad company." When I first heard this expression, I dutifully jotted it down in my field notes and interpreted it as an argument for self-reliance—the kind of do-it-yourself attitude that would make one suspicious of politicians who promised, as Ortega did, solidarity with *los pobres* while they flaunted the material wealth that political power had brought them. Such individualism seemed like a rational reaction to the revival of patron-client politics that has defined postrevolutionary Nicaragua. My experiences in the field, however, militated against such an interpretation. If there was a good life to be lived in Ciudad Sandino, it came from being in good company. When I told people that I lived alone (as I did for most of my time in the field, sharing an apartment with an ill-tempered cat and a Nicaraguan roommate who was nearly always with family, a girlfriend, or his church group), they would show pity both verbally and visually. Kin and social attachments were essential not just to a satisfying social life but to survival. These attachments often spanned across geographical space. Thus, while houses on my street were almost always bolted shut, and my neighbors would constantly express fear of the "violence" and "danger" that lay outside, especially at night, they also pitied and suspected anyone (like myself) who lived alone.

A *lack* of entanglement, as I found out, was perhaps the most unhealthy thing that could befall an urban Nicaraguan. One of the two brigadistas I knew best explained it this way: "The thing that kills more people than anything here in Nicaragua is depression. Depression is what makes you sick; loneliness makes you sicker." In this book, I expand on this idea, though I depart from the psychological idiom that this brigadista invoked, to resolve the reservations my Nicaraguan friends and I have (and which other

anthropologists also have) about the state of international development work—and global health in particular. For people in Ciudad Sandino, the search for improvement in health, in education, and in environmental conditions was not always a matter of severing connections between human bodies, mosquitoes, and viruses. Rather, it was about building quality attachments.