Notes

PROLOGUE. LIVES WORTH SUPPORTING

Portions of this prologue were published in Nading, "The Plantation as Hotspot."

1. Whitmee et al., "Safeguarding Human Health," 1997. "Anthropocene" is the name that scientists have given to the geological epoch brought on by irreversible, human-induced change to the Earth's geological and atmospheric systems. See Crutzen, "Effects of Industrial and Agricultural Practices"; Steffen et al., "Anthropocene." The Rockefeller-*Lancet* report is implicitly critical of the twentieth-century development ethos that saw the improvement of human health as naturally compatible with the steady growth of economies, measured through gross domestic product (GDP) indicators. See Murphy, *Economization of Life*; Farman and Rottenburg, "Measures of Future Health"; and Livingston, *Self-Devouring Growth*.

2. Whitmee et al., "Safeguarding Human Health," 2008. The rise of planetary health follows on from the roughly twenty-year period in which states, universities, and supranational organizations organized around the notion of "global health." In some ways, planetary health represents a pivot to a more explicitly environmental posture, and in its emphasis on measuring and mitigating the effects of climate change, it is also distinct from the One Health and Eco Health movements, which have tended to focus on the pathways of zoonotic disease transmission and, to a lesser extent, overlaps between the health of key ecosystems like forests and farms and the health of humans. See Dunk and Anderson, "Assembling Planetary Health"; Brown and Nading, "Human Animal Health"; Brown, Cueto, and Fee, "World Health Organization"; Packard, *History of Global Health*; Craddock and Hinchliffe, "One World, One Health?"; Chabrol and Gaudillère, *Introduction à la santé globale*.

3. CAO, "Complaint of CFI Project 32253." The International Finance Corporation goes by the English abbreviation IFC. In Spanish, its name, Corporación Financiera Internacional, shortens to CFI.

4. CAO, "Complaint of CFI Project 32253," 1.

5. Nading, "Ethnography in a Grievance"; Johnson, "Nicaragua's Latest Revolution."

6. International Finance Corporation, "Disclosure—Ingenio Montelimar."

7. Patel, "Long Green Revolution." Hetherington, in *Government of Beans*, builds on this idea to suggest that the Long Green Revolution ushered in an age of "agribiopolitics," in which the regulation of human life, through the idiom of health, became entangled with the regulation of the lives of commodity crops.

8. Laveaga, "Beyond Borlaug's Shadow."

9. Zubrin, "In Defense of Biofuels."

10. Faber, "Sea of Poison"; Faber, "Imperialism, Revolution, and the Ecological Crisis."

11. Butler, "Nicaragua Forest Information"; Mayer, "Conceptualizing Settler Colonialism in Nicaragua."

12. Thompson et al., "Most At-Risk Regions."

13. As the medical anthropologists Hannah Brown and Ann Kelly have argued, "Disease risk is not . . . 'located,' in the sense of being a feature of a particular kind of place. . . . Rather, it is locational . . . arising from particular configurations of social, biotic, and material conditions" (Brown and Kelly, "Material Proximities and Hotspots," 287).

14. Sorensen and Garcia-Trabanino, "New Era of Climate Medicine," 694.

15. Solomon, "Life Support"; Kaufman, *Ordinary Medicine*; Biehl and Adams, *Arc of Interference*.

16. Whitmee et al., "Safeguarding Human Health," 1973. For an alternative reading of this point, see Hinchliffe, Manderson, and Moore, "Planetary Health Publics."

17. As critical global health scholars (and maybe my students!) will recognize, panel 14 vastly oversimplifies the AIDS story. Despite widespread availability of HIV drugs, it is not clear that the movement for treatment access has fundamentally addressed political or racial inequality, partly because the provision of therapy is so narrowly implemented, and partly because other basic aspects of public health still receive too little attention (see Kalofonos, *All I Eat Is Medicine*; Yi Dionne, *Doomed Interventions*; Biehl, *Will to Live*).

18. Adams, *Metrics*.

19. Carse, "Ecobiopolitics of Environmental Mitigation."

INTRODUCTION

1. The disease that forms the backdrop to this book has been known by several names over the past twenty years, including Mesoamerican nephropathy (MeN) and, more commonly, chronic kidney disease of unknown causes (CKDu). Using the term *chronic kidney disease of nontraditional causes*, I join other researchers and advocates who hold that emphasizing the "unknown" in discussions of the epidemic risks deferring investigation and critique of the likely sources of harm to workers and communities, namely, the drastic ecological transformations that have come along with the making of monocrop landscapes in Nicaragua and elsewhere.

2. Anderson and Dunk, "Planetary Health Histories," 769.

3. Whitmee et al., "Safeguarding Human Health."

4. Horton, *They Leave Their Kidneys in the Fields*; Holmes, *Fresh Fruit, Broken Bodies*; Besky, "Exhaustion and Endurance."

5. DeLoughrey, *Allegories of the Anthropocene*, 7.

6. Hecht, *Residual Governance*.

7. Agard-Jones, "Bodies in the System"; Trouillot, "Making Sense"; Scheper-Hughes, *Death without Weeping*.

8. Besky and Blanchette, *How Nature Works*; Farmer, *AIDS and Accusation*; Farman and Rottenburg, "Measures of Future Health"; Livingston, *Self-Devouring Growth*. White reminds us that "labor rather than 'conquering' nature involves human beings with the world so thoroughly that they can never be disentangled" (*Organic Machine*, 7).

9. Fortun, "Poststructuralism, Technoscience," 314.

10. Moore, *Anthropocene or Capitalocene?*; Mintz, *Sweetness and Power*; Mintz, *Worker in the Cane*; Moran-Thomas, *Traveling with Sugar*.

11. Guthman, *Wilted*, 10.

12. Besky, *Darjeeling Distinction*; Hetherington, "Beans before the Law."

13. Blanchette, *Porkopolis*.

14. Guthman, *Wilted*; Hetherington, *Government of Beans*.

15. Grover, "Too Hot to Handle."

16. Whitington, "Fingerprint, Bellwether, Model Event."

17. Mitman, *Breathing Space*; Lorimer, *Probiotic Planet*; Lamoreaux, *Infertile Environments*; Murphy, *Sick Building Syndrome*; Kenner, *Breathtaking*.

18. Lock, "Recovering the Body."

19. Here, I am paraphrasing an observation made by the anthropologist and writer Amitav Ghosh, who has argued that mass migration out of vulnerable areas such as the Sundarbans of the Bengal Delta should not be viewed as consequences of climate change but as a manifestation of climate change itself (Ghosh, "Embattled Earth").

20. Smith, *From Fish to Philosopher*, 3.

21. Smith, *From Fish to Philosopher*, 10.

22. Smith, *From Fish to Philosopher*, 3.

23. Baker, "Chronic Kidney Disease."

24. Like other medical anthropologists who have studied chronic kidney disease (e.g., Hamdy, *Our Bodies Belong to God*; Crowley-Matoka, *Domesticating Organ Transplant*; Kierans, *Chronic Failures*), I aim to use ethnographic storytelling to highlight a "conviction on the part of people who face some of the worst health conditions on the planet," namely, as Charles Briggs and Clara Mantini-Briggs write, "that their ideas could play a crucial role in making a healthier and more just world" (Briggs and Mantini-Briggs, *Tell Me Why My Children Died*, 1). Briggs and Mantini-Briggs wrote these words in the context of another medical mystery—a rabies epidemic that devastated an Indigenous Warao community in Venezuela. As in the stories I will tell in this book about the Nicaraguan sugarcane workers and others affected by CKDnt, the search by the Warao for answers was at the same time a quest to be seen and heard not merely as "victims" but as active producers of knowledge. Elizabeth Povinelli, following William James, puts it another way: "The poor 'who live and feel' the regions of existence sucked dry of value 'know truth' as an actuality. They are always, even if immanently, opposing the dominant (if ultimately sterile) ideas of bourgeois philosophers and statesmen" (Povinelli, *Between Gaia and Ground*, 5).

25. Horton, *They Leave Their Kidneys in the Fields*; de Silva, "Drinking Water"; Senanayake, "Towards a Feminist Political Ecology"; Kierans, *Chronic Failures*.

26. Yusoff, "Indeterminate Subjects," 92.

27. Hetherington, "Concentration of Killing."

28. Gunatilake, Seneff, and Orlando, "Glyphosate's Synergistic Toxicity"; Seneff and Orlando, "Is Glyphosate a Key Factor?"

29. Haunting in this (metaphoric) sense is the feeling of being repeatedly visited by a troubling presence, of both a troubling past and an uncertain future. Such a presence may provide openings for imagining and enacting justice. See Good, Chiovenda, and Rahimi, "Anthropology of Being Haunted"; Derrida, *Specters of Marx*.

30. Guthman, *Wilted*.

31. McKittrick, "Plantation Futures," 10; Li and Semedi, *Plantation Life*.

32. Walker and Wade, *Nicaragua*; Quesada, "Brief History of Violence"; Gobat, *Confronting the American Dream*. This formulation emerges from Black feminist frameworks, as well as from the work of anthropologists of the plantation who attend to the specific ways in which racial and gendered violence manifests itself across different monocultured spaces (Besky, *Darjeeling Distinction*; Jegathesan, "Black Feminist Plots"; Wynter, "Novel and History"; Davis et al., "Anthropocene, Capitalocene").

33. Trouillot, "North Atlantic Universals."

34. Tsing, "On Nonscalability"; Mintz, *Sweetness and Power*.

35. Tsing, "On Nonscalability," 512; Spillers, "Mama's Baby, Papa's Maybe"; Marshall, "Political Life of Fungibility."

36. Medical anthropology and critical food studies have gained a notable amount of traction in global health—at least at the level of college curricula—in part because of the allure of the "suffering stranger" (Butt, "Suffering Stranger"; Biruk, "Ebola and Emergency Anthropology"). Elsewhere, Anna Tsing writes of the need in global capitalist supply chains for suitable, transposable "figures." Figures like the injured male farmworker are as essential for food justice and labor advocacy as they are for fair trade certifiers and corporate social responsibility consultants (see, e.g., Holmes, *Fresh Fruit, Broken Bodies*). These human figures form a fractal dyad with recognizable commodity crops like cane, packaging a story about runaway capitalist growth, its consequences, and its solutions. As Tsing puts it, "Businessmen, policy makers, voters, trade unions, and activists . . . use concrete figurations to imagine which projects might succeed" (Tsing, "Supply Chains," 152).

37. Wolf, "Specific Aspects of Plantation Systems"; Mintz, *Worker in the Cane*.

38. Gould, *To Lead as Equals*.

39. As Elizabeth Ferry defines it, a "'moral economy' entails a parallel, often unwritten set of moral prescriptions over economic activities and their proceeds that contrast with official often elite or managerial prescriptions" (Ferry, "Geologies of Power," 424; see also Scott, *Moral Economy of the Peasant*; Thompson, "Moral Economy of the English Crowd"; Rueda Estrada, "Campesinado Migrante").

40. Gould, *To Lead as Equals*, 29.

41. Gould, *To Lead as Equals*, 30.

42. Nash, "Devil in Bolivia's Nationalized Tin Mines"; Taussig, *Devil and Commodity Fetishism*.

43. This narrative arc tracks with the ones in perhaps the two most famous anthropological accounts of sugarcane in Latin America, Sidney Mintz's *Worker in the Cane*

and Nancy Scheper-Hughes's *Death without Weeping*. In those books, the authors recount how by the 1960s, mechanization and industrialization in Puerto Rico and Brazil led to a loss of jobs and an onset of a sense of abandonment, not to mention a renewed contemplation among workers about the role of God in their lives. Nicaraguan workers' descriptions of exertion followed by abandonment reflected what Maya Mayblin, writing about Northeast Brazil's sugarcane zone, calls "the drama of work . . . as a form of sacrifice, a veritable spillage of bodily service to others" (Mayblin, "The Way Blood Flows," S47).

44. Cooper Owens, *Medical Bondage*.

45. I was able to piece together this genealogical relationship with a few clicks of a mouse, while thirteen of the sixteen women who suffered under Sims remain unnamed. No one needs to fight to build public statues of my ancestors, as many are doing now to celebrate those women's memory, because my ancestors' names and faces are preserved on the internet. I can think of few better examples of the banality of white supremacy.

46. I wish to express my gratitude to the historian Rachel Dudley for (albeit unwittingly) provoking me to do some genealogical digging. I imagine that many of us in academia who descend from white plantation slaveholders know intuitively that we are still reaping the benefits of that institution, but at the risk of distraction, I feel compelled to state what I know in concrete terms.

47. Fortun, in *Advocacy after Bhopal*, calls this kind of meeting-in-process an "enunciatory community."

48. Li, *Will to Improve*, 12.

49. Tironi, "Hypo-interventions," 443.

50. Graeter, "Infrastructural Incorporations"; Auyero and Swistun, *Flammable*; Lora-Wainwright, *Resigned Activism*. Other plantation scholars have pointed to the ethical, economic, and political compromises that are emblematic of plantation life. "Weapons of the weak" tend to be wielded alongside a host of creative strategies for ensuring social reproduction, accessing resources, and otherwise sustaining everyday existence. For contemporary workers, tactics can entail sabotage not just of industrial farm machinery or plants, as in classic renderings of weapons of the weak, but of fellow plantation workers and satellite residents (Scott, *Weapons of the Weak*; Li and Semedi, *Plantation Life*; Scheper-Hughes, *Death without Weeping*). The work of enduring and reproducing life, then, becomes integrated into the work of reproducing the plantation itself (Besky, "Exhaustion and Endurance"; Jegathesan, *Tea and Solidarity*).

51. Fortun, *Advocacy after Bhopal*, 16.

52. Actors' roles in open systems are "continually being reconstituted through the interaction of many scales, variables, and forces" (Fortun, "Poststructuralism, Technoscience," 296). Ethnography in the mode of "open system analysis conjures and temporalizes its 'object,' both synchronically and diachronically, recognizing diverse forces of change and diverse ways change happens" (Fortun, "Figuring Out Ethnography," 169–70).

53. Hecht, *Residual Governance*, 8; Livingston, *Self-Devouring Growth*; Marya and Patel, *Inflamed*.

54. Clare, *Brilliant Imperfection*, 15 (emphasis in original). See also Shotwell, *Against Purity*; Wool, "in-Durable Sociality."

55. In their critique of the concept of planetary health, Farman and Rottenburg make clear that unlike global health, planetary health cannot be one single thing—though the name implies a deep interconnection and a singular planet (Farman and Rottenburg, "Measures of Future Health," 3).

56. Jackson, *Thin Description*, 94.

57. "Identity," as Wendy Brown notes, is created on edges, where borders and oppositions are established (Brown, *Edgework*, 60).

CHAPTER 1. GRIEVANCE, GROUND, AND GRACE

Portions of this chapter were published in Nading, "Ethnography in a Grievance."

1. CAO, "Agreement," 2.

2. Neely and Ponshunmugam, "Qualitative Approach to Examining Health Care."

3. Guevara, *Guerrilla Warfare*, 56.

4. Gobat, *Confronting the American Dream*; Quesada, "Brief History of Violence"; Walker and Wade, *Nicaragua*; Grossman, "The Nation Is Our Mother."

5. As Allewaert writes, "The entanglements that proliferated in the plantation zone disabled taxonomies distinguishing the human from the animal from the vegetable from the atmospheric, revealing an assemblage of interpenetrating forces . . . an ecology. This ecological orientation departs from an eighteenth-century political and aesthetic tradition distinguishing persons, in particular, white colonial subjects from the objects and terrains they surveyed" (Allewaert, "Swamp Sublime," 341). Her observation is resonant with Sylvia Wynter's much earlier argument that the life lived by Afro-Caribbeans, enslaved and free, on the "plot" was a political and conceptual foil to the stories told about them from the linear perspective of the plantation (Wynter, "Novel and History"; see also chapter 4).

6. Allewaert, "Swamp Sublime," 343.

7. Spillers, "Mama's Baby, Papa's Maybe"; King, "Labor of (Re)reading Plantation Landscapes"; Povinelli, *Economies of Abandonment*, 108.

8. I did not explicitly set out to do an engaged anthropological project, but collaboration, which included the sharing not only of data but also of the costs of food and fuel, became the defining feature of my research with AMBED. While the Montelimar Corporation was always aware of my presence, and I never felt threatened, there is certainly a degree of risk in this methodological choice. As Scott Knowles has pointed out, whether they are acute or slow, disasters tend to summon calls for documentary investigation, usually by various kinds of elite scientific experts. Precisely what such investigations will yield is always uncertain. They might be politically co-opted by corporations or states, they might "pave the way for legal proceedings," or they might simply "channel the anger of interest groups" (Knowles, "Learning from Disaster?," 78). The ethnographic challenge is in part to resist the urge to turn complex associations like AMBED into ciphers for fixed categories of political or social action. AMBED's willingness to independently navigate the zona was part of a set of pragmatic and ethical commitments to place. This work was also a form of what Wendy Brown, drawing on Michel Foucault, calls "local criticism," which "articulates potency and humility vis-à-vis both the complex powers producing the present and the difficult task of apprehending this present" (Brown, *Edgework*, viii).

9. Lancaster, *Thanks to God*.

10. This outcome is similar to the emergence of a "biological citizenship" in Ukraine, as described by Adriana Petryna, but in this case, what was being reasserted was an assertion of rights and visibility tuned to a corporation, rather than to a nation-state (Petryna, *Life Exposed*).

11. See McKay, *Medicine in the Meantime*; Biruk, *Cooking Data*. As Annelise Riles notes, "documents provide a ready-made ground for experimentation with how to apprehend modernity ethnographically" (Riles, *Documents*, 2). Documentation can also, as M. Murphy argues, "arrange and gather data about interventions in the world toward the possibility of making something different happen" (Murphy, *Economization of Life*, 80).

12. I draw on Elizabeth Povinelli's argument about ground, that "ancestral catastrophes are past and present; they keep arriving out of the ground of colonialism and racism rather than emerging over the horizon of liberal progress. Ancestral catastrophes ground environmental damage in the colonial sphere rather than in the biosphere; in the not-conquered earth rather than in the whole earth; in errancies rather than in ends; in waywardness rather than in war; in maneuvers, endurance, and stubbornness rather than in domination or resistance, despair, or hope" (Povinelli, *Between Gaia and Ground*, 3). I also draw on two excellent works of political anthropology, Kregg Hetherington's *Guerrilla Auditors*, which examines campesino claims on land and citizenship in a Paraguayan state that never fully considered them to be eligible for it; and Nikhil Anand's *Hydraulic City*, which shows how urban claims to a "right to the city" are always temporary, and frequently dependent on the illiberal economy of patronage and mutual aid.

13. Hetherington, *Guerrilla Auditors*; Little, *Toxic Town*; Anand, *Hydraulic City*.

14. The Sutiaba (or Sutiava) community has received too little attention in English-medium scholarship on Nicaragua (but see Gould, *To Lead as Equals*; Gould, "¡Vana Ilusión!"). The Goyena group managed to retain traditional land tenure rights in an area of western Nicaragua that is heavily dominated by mestizo landowners (Torres, "Mujeres que no se dejan"; Musset, "León/Sutiaba [Nicaragua]").

15. Gould, *To Lead as Equals*; McMichael, "Land Grab and Corporate Food"; Li, "Centering Labor in the Land Grab Debate"; Hollander, "Power Is Sweet."

16. Woods and Narlikar, "Governance and the Limits of Accountability," 576.

17. CAO, "Guide to Designing and Implementing Grievance Mechanisms" (emphasis added).

18. For more on how such evidence falters in legal and regulatory contexts, see Fortun, *Advocacy after Bhopal*; Little, *Toxic Town*; Wylie, *Fractivism*. The CAO's description of itself reflects an "instrumentalism" that dominates in international law, where the law is sometimes seen as a neutral tool for solving problems, irrespective of context (Riles, "Anthropology, Human Rights, and Legal Knowledge," 54).

19. Hedström and Ylikoski, "Causal Mechanisms in the Social Sciences"; Krieger, "Proximal, Distal, and the Politics of Causation"; Yates-Doerr, "Reworking the Social Determinants of Health"; Hansson et al., "Pathophysiological Mechanisms."

20. See, for example, Fiske, *Reckoning with Harm*; Little, "Corporate Mortality Files"; Ottinger, *Refining Expertise*; Sawyer, *Crude Chronicles*.

21. Hetherington, *Guerrilla Auditors*; Povinelli, *Economies of Abandonment*.

22. Dolan and Rajak, *Anthropology of Corporate Social Responsibility*.

23. Center for International Environmental Law, "People of León and Chinandega's Complaint," 2.

24. Center for International Environmental Law, "People of León and Chinandega's Complaint," 2.

25. Hetherington, *Guerrilla Auditors*; Kearney, *Reconceptualizing the Peasantry*; Perry, *Black Women against the Land Grab*.

26. Brooks and McClean, "Summary Report."

27. Proparco, "Loan to Support Responsible Sugar Production in Nicaragua," accessed January 13, 2024, https://www.proparco.fr/en/carte-des-projets/suganc.

28. Carruthers, "Flor de Caña Gains Fairtrade Certification." Sarah Besky, in "Agricultural Justice, Abnormal Justice," notes that by comparison to other ethical trade certifiers such as Equal Exchange, the certifier of the rum, Fair Trade USA, has taken a broader view of what kinds of economic justice projects qualify for fair trade status, permitting corporate plantations to gain the value-added label in addition to the small farmer cooperatives that had been fair trade's historic subjects, including in Nicaragua, where the fair trade movement arguably began.

29. Chavkin, "World Bank Approves Loan."

30. International Finance Corporation, "Disclosure—Ingenio Montelimar."

31. CAO, "Complaint of CFI Project 32253," 6. The complaint, originally written in Spanish, was translated into English for the CAO, but the name Asociación Montelimar Bendición de Dios was not.

32. This tendency to partition religion from science and politics runs across both activism and anthropology, perhaps particularly medical anthropology. See Boon, "Accenting Hybridity"; Whitmarsh and Roberts, "Nonsecular Medical Anthropology."

33. O'Connor, *Mystery and Manners*, 44–45.

34. O'Connor, *Mystery and Manners*, 44–45.

35. These categories, as Jackson points out, are the result of what anthropologists see as our unique ability to deconstruct the actions of those we "anthropologize." Too narrowly conceptualizing our interlocutors as "political" or "religious" actors is what Jackson calls a "quietist act." What would it mean, Jackson asks, to dwell on the question of "sincerity," to ask "how decidedly deconstructed identities continue to structure people's lives and life chances"? (Jackson, *Thin Description*, 275–77).

36. Within anthropology, much ink has been spilled in the effort to integrate what Anna Tsing, Andrew Mathews, and Nils Bubandt call "nonsecular cosmologies" into analyses of the causes and consequences of climate crisis: to refuse to reduce the lived experience of irreversible ecological and biological change to the universalizing terms already familiar to global, Western science. The challenge in doing this is that planetary change is still planetary, so any attempt to "provincialize" the Anthropocene must, as Tsing, Mathews, and Bubandt put it, "[attend] to specificity without being parochial" (Tsing, Mathews, and Bubandt, "Patchy Anthropocene," S191). Elsewhere, the medical anthropologists Ian Whitmarsh and Elizabeth Roberts have advocated a "nonsecular" approach that acknowledges the ways in which spirits, gods, demons, and other "irrational" entities persistently creep into purportedly secular and universal biomedical models

of the body and the psyche. Concepts like Marisol de la Cadena's ethnographically informed reformulation of Isabelle Stengers's "cosmopolitics," Alyssa Paredes's "in vivo experiments," Bruno Latour's inquiries into the modes of existence, and Kim Fortun and others' notion of the "quotidian Anthropocene" all point to these nontotalizing, nonsecular forms of acting in and on the environment (Whitmarsh and Roberts, "Nonsecular Medical Anthropology"; Cadena, *Earth Beings*; Stengers, "Cosmopolitical Proposal"; Paredes, "Experimental Science for the 'Bananapocalypse'"; Latour, *Inquiry into Modes of Existence*; Fortun et al., "Knowledge Infrastructure and Research Agendas").

37. Kockelman, "Grading, Gradients, Degradation, Grace," 356.

38. Haynes, "Benefit of the Doubt"; Reichman, *Broken Village*; O'Neill, *City of God*; Zigon, *"HIV Is God's Blessing."*

39. CAO, "Dispute Resolution Conclusion Report."

40. Petryna, *Life Exposed*; Nguyen, *Republic of Therapy*.

41. Wool and Livingston, "Collateral Afterworlds," 2.

42. CAO, "Agreement," 6.

43. CAO, "Agreement," 5.

44. Kirsch, *Mining Capitalism*; Welker, *Enacting the Corporation*.

45. CAO, "Agreement," 12.

46. CAO, "Agreement," 13.

47. Hetherington, *Guerrilla Auditors*, 9.

48. Shapiro, Zakariya, and Roberts, "Wary Alliance," 586.

49. Fortun, "Poststructuralism, Technoscience."

50. Fortun, "Ethnography in Late Industrialism."

51. Yusoff, "Indeterminate Subjects," 91.

52. Kockelman, *Anthropology of Intensity*.

53. Cross, "Coming of the Corporate Gift."

54. Povinelli, *Between Gaia and Ground*.

55. None of this seems particularly unusual when one looks at the dynamics of community organization in rural Latin America, where Gabriela Vargas-Centina has argued that temporary, contingent "ephemeral associations" have become much more common than the ideal-typical cooperative, political party, or stakeholder group (Vargas-Centina, "Anthropology and Cooperatives").

CHAPTER 2. ATMOSPHERIC FIXES

Portions of this chapter were published in Nading, "The Plantation as Hotspot."

1. Johnson et al., "Climate Change and the Kidney."

2. Hulme, "Better Weather?," 239; see also Choy and Zee, "Condition—Suspension"; Choy, *Ecologies of Comparison*; Ahmann and Kenner, "Breathing Late Industrialism."

3. Blanchette, *Porkopolis*; Harrison, *Pesticide Drift*; Hetherington, *Government of Beans*.

4. Masco, "End of Ends," 1108; see also Daggett, *Birth of Energy*.

5. These fixes tend to treat both workers and those who support them by doing the reproductive labor of cleaning, cooking, and maintaining homes not as people but as "bodies" (Guthman, *Wilted*, 147).

6. World Bank, "Nicaragua—Climatology."

7. Here I draw on Donna Haraway's rereading of Richard Gordon's idea of the "home-work economy," the late capitalist formation in which all labor has become feminized. As Haraway puts it, "To be feminized means to be made extremely vulnerable; able to be disassembled, reassembled, exploited as a reserve labor force; seen less as workers than as servers; subjected to time arrangements on and off the paid job that make a mockery of a limited workday; leading an existence that always borders on being obscene, out of place" (Haraway, "Cyborg Manifesto," 38). In his research on how people in the town of Puchuncaví, Chile, endure amid ongoing toxic harm, Manuel Tironi suggests that attention to how reproductive work produces solidarities can widen the scope of what scholars typically understand as political (Tironi, "Hypo-interventions," 443).

8. The anthropologist Eli Elinoff and the sociologist Tyson Vaughan have called attention to the diverse ways in which planetary change is experienced and understood in situated locales, how "microscale quotidian practices and macroscale environmental changes mutually produce and influence each other" (Elinoff and Vaughan, *Disastrous Times*, 3). I first became aware of Elinoff and Vaughan's idea through its application in the Anthropocene Field Campus Project (see Fortun et al., "Knowledge Infrastructure and Research Agendas").

9. Cardenal, *Zero Hour*; Faber, "Sea of Poison"; Francis, "'Point Four Does Not Exist.'"

10. Striffler and Moberg, *Banana Wars*; Gobat, *Confronting the American Dream*.

11. Pérez-Baltodano, *Entre el Estado Conquistador*; Gould, *To Lead as Equals*.

12. Francis, "'Point Four Does Not Exist,'" 132.

13. Francis, "'Point Four Does Not Exist,'" 130.

14. Francis, "'Point Four Does Not Exist,'" 130, 132.

15. Gobat, *Confronting the American Dream*; Quesada, "Brief History of Violence."

16. Faber, "Sea of Poison."

17. Citing the key role played by militaries in the Kennedy-era development strategy, the historian Greg Grandin has called the Alliance for Progress "nation building by death squad." See Grandin, "Beyond the Four Freedoms."

18. Faber, "Sea of Poison," 32.

19. Faber, "Imperialism, Revolution, and the Ecological Crisis," 19.

20. Walker and Wade, *Nicaragua*; Gould, *To Lead as Equals*.

21. Gould, *To Lead as Equals*, 15.

22. Recounting the anticipatory climate of the 1950s, Francis quotes a headline in the Nicaraguan newspaper *La Prensa*, a fount of anti-Somoza sentiment, which mockingly celebrated the arrival of the first crop-dusting aircraft in Central America. "Not here," the headline clarified, "in Guatemala." Before pesticides became affectively associated with "the smell of Nicaragua," they were invoked as the missing piece of Somoza's promised agricultural boom (Francis, "'Point Four Does Not Exist,'" 132).

23. Faber, "Sea of Poison," 33.

24. The sociologist Douglas Murray can be credited with popularizing the treadmill concept, in part through his study of the impact of Somoza-era agricultural industrialism and his subsequent work with the revolutionary regime in the 1980s to roll back its worst environmental excesses. See Murray, *Cultivating Crisis*.

25. Faber, "Sea of Poison," 36.

26. Faber, "La Liberación del Medio Ambiente."

27. Murray, *Cultivating Crisis*.

28. Wilson, "Breaking the Chains."

29. Envío Team, "Environment."

30. Bohme, *Toxic Injustice*.

31. Boix and Bohme, "Secrecy and Justice," 155; INCAE, "INCAE nombró a Enrique Bolaños"; Machuca, "Empresa de Bolaños acusada." President Bolaños's son, Enrique Bolaños Abaunza, was the head of Monsanto Latin America from 1991 to 1995, and during the period of the Nemagon case, the elder Bolaños was in the process of bringing charges of corruption against his predecessor as president (and fellow Liberal Party member), Arnoldo Alemán. In retaliation, Alemán's backers accused the Bolaños family of profiting from the harm done to workers by the pesticide industry (Sandoval, "Politizan caso Nemagón").

32. Decreto no. 42-2006, *La Gaceta*, October 7, 2006, 133.

33. Tittor, "Changing Drivers of Oil Palm Cultivation"; Decreto no. 42-2006, *La Gaceta*, October 7, 2006, 133.

34. Deininger et al., *Rising Global Interest in Farmland*; Li, "Centering Labor in the Land Grab Debate."

35. McMichael, "Land Grab and Corporate Food," 687; Hollander, "Power Is Sweet."

36. Wesseling, "Is an Environmental Nephrotoxin the Primary Cause of CKDu," 599.

37. Daggett, *Birth of Energy*, 136–37.

38. Mintz, *Sweetness and Power*.

39. Rabinbach, *Human Motor*, 7.

40. Rabinbach, *Human Motor*, 63.

41. Here, I draw on Nicole Starosielski's argument that "[crop] growth is not simply a gift or effect of the sun, but is also mediated labor" (Starosielski, "Beyond the Sun," 15).

42. Johnson et al., "Climate Change and the Kidney."

43. Wei, "Silent Epidemic"; Hoebink, "Sugar from Nicaragua."

44. Wei, "Climate Change Is Already Killing Farm Workers"; Nading and Lowe, "Social Justice as Epidemic Control."

45. Kjellstrom et al., "Heat, Human Performance, and Occupational Health," 98.

46. Verisk Maplecroft, "Heat Stress Threatens to Cut Labor Productivity."

47. Horton, *They Leave Their Kidneys in the Fields*, 2–4.

48. Glaser et al., "Preventing Kidney Injury among Sugarcane Workers"; Hansson et al., "Pathophysiological Mechanisms."

49. Prince, "Measure of the Return on Ingenio San Antonio's Investment."

50. Sullivan, "Adelante Initiative Receives Major Funding"; Glaser et al., "Preventing Kidney Injury among Sugarcane Workers."

51. Glaser et al., "Preventing Kidney Injury among Sugarcane Workers," 3.

52. The subject of the Adelante experiments is not just the body of the worker, then, but the water-rest-shade apparatus itself. In this sense, they are excellent examples of

what Hans-Jorg Reinberger calls "experimental systems" (Reinberger, "Experimental Systems"). Reinberger's work in laboratory contexts can be extrapolated to the context of agricultural systems more broadly. For example, thermal and atmospheric experimentation formed the bedrock of modern medicine's understandings of race. The historian Lundy Braun quotes Thomas Jefferson's claim in *Notes on the State of Virginia* that one of the key differences between Black and white bodies was in "the pulmonary apparatus . . . the principal regulator of animal heat" (Braun, *Breathing Race into the Machine*, 28). A few decades later, the physician Samuel Cartwright used the spirometer to "prove" that Blacks had inferior lung capacity and to justify forced labor as the only means of "vitalizing" or oxygenating their blood (Braun, *Breathing Race into the Machine*, 28).

53. Rottenburg, "Social and Public Experiments," 425–26; Adams, *Metrics*. Adelante's work in isolated sectors of large plantations will be familiar to those who have followed global health interventions elsewhere: what Richard Rottenburg, in his work on AIDS research in sub-Saharan Africa, calls an "archipelago" of experimental sites that are territorially diffuse rather than corresponding to national or even regional borders.

54. CAO, "Dispute Resolution Conclusion Report."

55. Olson, "Ecobiopolitics of Space Biomedicine," 172.

56. Olson, "Ecobiopolitics of Space Biomedicine," 172.

57. Günel, *Spaceship in the Desert*, 10.

58. WE-Adelante Research Team, "Adelante Initiative," 3.

59. Hecht, "Interscalar Vehicles," 130–31.

60. Hecht, "Interscalar Vehicles," 131.

61. Pacheco-Zenteno et al., "Prevention of Occupational Heat Stress," 7.

62. Prince, "Measure of the Return on Ingenio San Antonio's Investment," 2.

63. Scott-Smith, "Beyond the Boxes"; Collier et al., "Preface"; Redfield, "Bioexpectations."

64. Pacheco-Zenteno et al., "Prevention of Occupational Heat Stress," 7. As one manager told the researchers in this study, "We say here that the guys are like kids that you have to be telling every day: 'Hey, put the clothes in the laundry basket!' 'Hey, brush your teeth!' 'Hey, put your shoes on!'"

65. Murphy, *Economization of Life*, 53.

66. Wynter, "Unsettling the Coloniality of Being," 329. Daggett draws on Wynter's work to show how notions of Western (white) racial superiority were validated energetically, through the cultivation of "a superior work ethic, imbued with an energetic disposition that sought efficiency and productivity above all other measures of value" (Daggett, *Birth of Energy*, 135).

67. King, "Labor of (Re)reading Plantation Landscapes."

68. Appel, "Walls and White Elephants," 442.

69. Again, see Wesseling, "Is an Environmental Nephrotoxin the Primary Cause of CKDu."

70. Campese, "Con: Mesoamerican Nephropathy," 605.

71. Guevara Jerez, "Thirsty Country with Lots of Water."

72. Herrera, "How Much Longer."

73. Elinoff and Vaughan, *Disastrous Times*.

74. This is a point reflected in Nari Senanayake's research on CKDnt in Sri Lanka, where "diagnosis and dialysis divert household labour from activities that secure livelihoods to unpaid care work" (Senanayake, "'We Are the Living Dead,'" 1976).

75. Adams, *Glyphosate and the Swirl*.

76. Keck, *Avian Reservoirs*; Murphy, "Chemical Infrastructures"; Spackman, "In Smell's Shadow."

77. Nading, "Local Biologies, Leaky Things."

78. The application of bleach was less a technical fix than what Tironi calls a "hypo-intervention," a small, individually inconsequential action that "grants an ecological emplacement crucial for those who have to persevere in toxic environments" (Tironi, "Hypo-interventions," 450). See also Kenner, *Breathtaking*; Shapiro, "Attuning to the Chemosphere."

79. Tironi, "Hypo-interventions," 450.

80. Duclos and Criado, "Care in Trouble"; Murphy, "Unsettling Care."

CHAPTER 3. RENAL ENVIRONMENTS

1. Mishra, "Gender and Sanitation"; Wells and Whiteford, "Medical Anthropology of Water and Sanitation"; Morales, Harris, and Oberg, "Citizenshit."

2. Lamoreaux, "What If the Environment Is a Person?" A reassessment of human wastes as relational and lively has been ongoing for some time in discussions of the fecal microbiome. The ideal stool is a more-than-human community. To think of it as just waste would be both incorrect and dangerous, or so a veritable cascade of recent scientific and social research has claimed. Healthy stools are teeming with microbial life, and the presence of a healthy community of microbiota in the digestive tract has become a proxy for a healthy human body and a healthy environment (see Lorimer, *Probiotic Planet*; Benezra, *Gut Anthro*; Benezra, DeStefano, and Gordon, "Anthropology of Microbes").

3. Wesseling et al., "Chronic Kidney Disease"; Zelaya, "Causas de la Enfermedad Renal Crónica."

4. Brooks, "Final Scoping Study Report," 144; Haber, "Pisse Prophecy." When you think about it, it shouldn't be too surprising to hear that urination was such a key element in sugarcane labor relations. Urinalysis is fully baked into human resource management, especially in heavy industry. In the United States, if you have ever worked in a factory, driven a truck, or operated machinery, you have likely been asked to submit a urine sample before starting your job, and probably again periodically or randomly thereafter. That sample would have been scanned for the residues of certain kinds of substances (cocaine, cannabis, opiates). Even if you had been doing a good job, your employer might use the presence of these "toxins" in your urine as a justification for termination. This kind of analysis turns urine into a material proxy for legal risk, industrial efficiency, and a racial and class hierarchy masked as a uniform and neutral code of moral behavior. White-collar workers (stockbrokers, accountants, college professors) are not usually asked to have their urine sampled. They are free to snort, smoke, slam, and flush.

5. Little, "Corporate Mortality Files"; see also Ottinger, "Refining Expertise"; Balshem, *Cancer in the Community*.

6. CAO, "Complaint of CFI Project 32253," 1.

7. Jamie Cross's examination of how dust became an object of concern for management, occupational physicians, and workers illustrates the complex networks of knowledge that must be aligned in order for occupational exposure to be actionable. Cross ("Occupational Health, Risk and Science"), Linda Nash (*Inescapable Ecologies*), Lochlann Jain (*Injury*), and Dvera Saxton (*Devil's Fruit*) have each examined how industrial farmworkers in the United States succeeded in making exposure a legally actionable category. And Marx, in his analysis of the working day in *Capital*, noted that both early factory workers and capitalists realized the limits of both human endurance and machinery. Marx famously called factory machinery "dead labor, that, vampire-like, only lives by sucking living labour, and lives the more, the more labour it sucks" (Marx, *Capital*, 342). If you're the manager of a factory or a plantation, you end up being very concerned with the sleep habits, sexual appetites, and, of course, food intake of your workers (see Besky, "Fixity"; Daggett, *Birth of Energy*). In the colonial plantation economy of Latin America and the Caribbean, sugar—what Sidney Mintz (*Sweetness and Power*) called a "proletarian hunger-killer"—became a mechanism for doing this. Sugar carried cheap calories, but it also carried a latent contradiction. The acceleration of capitalist accumulation (and sugar consumption) over the decades of the nineteenth and the twentieth century fueled the slow-moving metabolic epidemics of diabetes and obesity (Moran-Thomas, *Traveling with Sugar*).

8. Povinelli, *Between Gaia and Ground*, 127.

9. Povinelli, *Between Gaia and Ground*, 127.

10. By making the fragility of watercourses a matter of concern, and by insisting that the Montelimar Corporation should also think of them that way, AMBED enacted a form of politics in which relations would be premised on a meeting between different forms of weakness, rather than strength versus weakness (see Livingston, *Debility*.)

11. Scaramelli, in work on wetlands in Turkey, outlines a "moral ecology of infrastructure," in which infrastructure and ecology become inseparable, and in which the "moral" points to "people's notions of just relations between people, land, water, nonhuman animals, plants, buildings, technologies, and infrastructures" (Scaramelli, "Delta Is Dead," 389). As Julie Livingston has suggested, even heavily engineered landscapes like that of Montelimar might be usefully understood as "animated ecologies," infrastructures that are also environments. "In an animated ecology," Livingston writes, "water has value in how it condenses (literally) the success or failure of moral relationships, of political vision, of collective self-agreement, however hierarchical the collective" (Livingston, *Self-Devouring Growth*, 33).

12. The issue at the heart of this grievance was laundry, but it was also one of what Murphy calls "distributed reproduction," "the extensive sense of existing over time that stretches beyond bodies to include the uneven relations and infrastructures that shape what forms of life are supported to persist, thrive, and alter, and what forms of life are destroyed, injured, and constrained" (Murphy, *Economization of Life*, 141–42). For an example of how plantations might be reframed as tools for the management of reproduction in this way, see Besky, "Plantation's Outsides."

13. Nading, *Mosquito Trails*; Nading, "Local Biologies, Leaky Things."

14. Laundry was an act of reproduction not in a minimalist sense but in a fully humanizing one. This kind of reproductive labor and the capacity for it have been extracted from Black women in particular since the dawn of the transatlantic slave-plantation system. Women's capacity for both biological and social care became, as Hortense Spillers and others have noted, a fungible resource in itself (Spillers, "Mama's Baby, Papa's Maybe"; Hartman, *Scenes of Subjection*; McKittrick, *Demonic Grounds*).

15. Livingston, *Self-Devouring Growth*; Povinelli, *Between Gaia and Ground*.

16. For a keen analysis of the shortcomings of this logic of equivalences, see Fabiana Li's work on corporate responsibility in Andean mining contexts (Li, *Unearthing Conflict*) or Ashley Carse's study of the biopolitics of environmental mitigation in infrastructure development projects in the United States (Carse, "Ecobiopolitics of Environmental Mitigation"). And again, one thinks in this case of Yusoff's identification of the failures of the "recuperative logic" of late capitalism (Yusoff, "Indeterminate Subjects").

17. As Fortun argues, double binds are not deterministic. Rather, "they set up search spaces that people must wander within. Ethnographic observation of these wanderings (and processes of figuring out workable even if imperfect solutions) often yields material that can operate as cultural critique" (Fortun, "Figuring Out Ethnography," 178).

18. Tironi, "Hypo-interventions."

19. Li, *Unearthing Conflict*, 21–22.

20. Li, *Unearthing Conflict*, 171.

21. Water politics are a lively element of Nicaraguan public intellectual life. See, for example, Herrera, "How Much Longer"; Elizondo, "State Is Mainly Responsible."

22. Livingston, *Self-Devouring Growth*, 21.

23. Scaramelli, "Delta Is Dead."

24. Here, it helps to think of the CDKnt epidemic, then, not as a crisis of work but as what Cynthia Morinville and Nicole Van Lier call "a crisis of life-making" (Morinville and Van Lier, "On Nature, Degradation, and Life-Making").

25. Povinelli, *Between Gaia and Ground*.

26. To give two classic examples, it is one that Don Taso, the protagonist of Sidney Mintz's *Worker in the Cane*, experienced almost verbatim, and one that formed the backstory of Nancy Scheper-Hughes's *Death without Weeping*.

27. Vaughn, "Political Economy of Regions," 108.

28. White, *Organic Machine*, 58.

29. Morgan, *American Beaver and His Works*; Feeley-Harnik ("Ethnography of Creation") notes how Lewis Henry Morgan's beaver work directly informed his understandings of kinship.

30. This is a mantra of the beaver conservation world. See, for example, Beaver Solutions, "Beaver Facts." Thanks to Jamie Lorimer for bringing this to my attention.

31. Weston, *Animate Planet*, 33. Struggles over water—both its availability and its contents—in Nicaragua's sugarcane zone reflect the ways in which, as Veena Das and Clara Han put it, the fragility of the natural and the fragility of the social are absorbed into one another (Das and Han, "Introduction," 4).

32. Solomon, *Metabolic Living*.

33. Povinelli, *Between Gaia and Ground*, 51.

34. Tironi, "Hypo-interventions."

CHAPTER 4. TOXIC MEDIATION

1. Griffin, "Protest Practice"; Hetherington, *Government of Beans*; Guthman, *Wilted*. For more on the ways that plants underwrite territorial claims, see Besky and Padwe, "Placing Plants in Territory."

2. Hetherington, *Government of Beans*, 61.

3. Theorists of language and politics have argued the discourse of crisis—whether applied to the prevalence of obesity in low-income children, to the warming of the planet, or to financial markets—tends to make chronic conditions appear as if they are sudden, singular events. In the near term, talk of crisis can help marshal resources and attention, but in the long term, talk of crisis can occlude our appreciation of slower forms of violence. Prominent critics of crisis talk Lauren Berlant ("Cruel Optimism") and Joe Masco ("Crisis in Crisis") engage the blended questions of health, embodiment, and the environment. Though they each heavily focus on the discourse of crisis in North America, and mostly the United States, both authors seem to share with scholars more focused on the Global South (e.g., Nixon, *Slow Violence*; Barrios, "What Does Catastrophe Reveal") a concern that the constant refrain of crisis precludes attention to ordinary, quotidian forms of violence.

4. The key contribution here has been to rethink exposure as more than just a technically measurable event and to see it as something ongoing. The essays in Mitman et al.'s *Landscapes of Exposure* illustrate this approach quite well, as do key works on pesticide and petrochemical harm by Liboiron (*Pollution Is Colonialism*); Murphy ("Chemical Infrastructures"; *Sick Building Syndrome*); Nash (*Inescapable Ecologies*); Sawyer (*Small Matter of Suing Chevron*); Langston (*Toxic Bodies*); and Harrison (*Pesticide Drift*).

5. Masco, "Optics of Exposure"; see also Alaimo, *Exposed*.

6. Kohn, *How Forests Think*; Goldstein and Hall, "Mass Hysteria in Le Roy, New York"; Silver, "Tear Gas in Orbit."

7. As Hanks explains, drawing on the work of Charles Sanders Peirce, "an indexical sign stands in a relation of 'dynamical coexistence' with its object. In other words, the indexical and what it stands for are in a sense copresent in the context of utterance" (Hanks, "Indexicality," 124).

8. Kohn, "Runa Realism," 187.

9. Alaimo, *Bodily Natures*, 115.

10. Here, I am adapting linguistic anthropologist Constantine Nakassis's observation that indexical signs are ambivalent: they offer both direct experience of the world and a mediated representation of the world. See Nakassis, "Indexicality's Ambivalent Ground."

11. Tousignant, *Edges of Exposure*.

12. Forensic Architecture, "Herbicidal Warfare in Gaza."

13. I would call toxic mediation a subgenre of what Mel Chen (*Animacies*, 196) calls "toxic worlding." Toxicity is one of those concepts that, following Povinelli, "aren't merely situated in the social world. They are the social world" (Povinelli, *Between Gaia*

and Ground, 129). For more on worlding toxic landscapes, see Nading, "Living in a Toxic World."

14. Chen, *Animacies*, 196.

15. Tousignant, *Edges of Exposure*, 4.

16. Moyer and Nguyen, "Edgework in Medical Anthropology." Thanks to Kregg Hetherington for pointing this out.

17. Wesseling, Corriols, and Bravo, "Acute Pesticide Poisoning"; Corriols, "Pesticide Poisoning in Nicaragua"; Wesseling et al., "Hazardous Pesticides in Central America". The problem is, of course, not unique to Nicaragua's sugarcane zone (see Lyons, *Vital Decomposition*; Hetherington, "Beans before the Law").

18. Glaser and Lopez, *Banana Land;* Gardner, "The Filmmaker Who Became a Legal Spy." Nicaraguan banana workers were exposed to the nematicide Nemagon, or dibromochloropropane (DBCP); see chapter 2.

19. La Isla Network, "About Us," accessed January 7, 2022, https://laislanetwork.org/about-us/.

20. Hodal, "Mystery Epidemic."

21. La Isla Network, "About CKDu," accessed January 17, 2022, https://laislanetwork.org/about-ckdu/.

22. Benton, "Risky Business"; see also Prince, "Diseased Body and the Global Subject."

23. My use of the term *genre* is quite deliberate. A genre is a classificatory type, akin to a biological taxon or a chemical signature. If you are studying an animal or a plant, you are interested not in one particular individual (though its movements and behavior may be illuminating) but in the type. As the historian Luise White explains, "It is the pattern of the tale, not the circumstances of the telling, that makes a story recognizable as belonging to a genre" (White, *Speaking with Vampires*, 6).

24. Benjamin, *Race after Technology*, 2.

25. Canon Europe, "'They Die within Six to 24 Months.'"

26. Kashi, *Curse of the Black Gold*. For examples, see work by Gabrielle Hecht (*Residual Governance*), Jason de León (*Land of Open Graves*), Philippe Bourgois and Jeff Schoenberg (*Righteous Dopefiend*), and Danny Hoffman (*Monrovia Modern*).

27. De León, "The Indecisive Moment"; Moyer and Nguyen, "(Re)framing and the (Medical) Anthropological Lens."

28. Fortun and Fortun, "Scientific Imaginaries and Ethical Plateaus."

29. Hanks, "Indexicality"; Kohn, *How Forests Think*.

30. In its many forms, imaginative testimony has the capacity to make visible what Nixon (*Slow Violence*, 13–14) calls "slow violence," the accretive harm done by extractive industry, militarism, colonialism, and agriculture. In her writing on nuclear toxicity in North America, the geographer Shiloh Krupar calls this invitation to apprehension "hotspotting," by which she means "identifying, making visible, and keeping open the possibility that more can be identified" (Krupar, *Hot Spotter's Report,* 281; see also Shapiro, Zakariya, and Roberts, "Wary Alliance").

31. Murphy, "Chemical Infrastructures"; Lyons, *Vital Decomposition*.

32. This is despite the known risks chemicals like glyphosate pose to renal health (Seneff and Orlando, "Is Glyphosate a Key Factor"; see also Guthman, *Wilted*, 91; Romero et al., "Chemical Geographies").

33. As I have discussed elsewhere (Nading, "Ethnography in a Grievance"), what transpired in my collaboration with AMBED was a deliberate and self-aware construction of a "context" for the epidemic. Context is not something that ethnography reveals but that it helps to create. This is an insight that Jackson (*Thin Description*; "Ethnographic Filmflam") has also unpacked in his visual documentary work both in Harlem and with the African Hebrew Israelites of Jerusalem. Jackson draws on Faye Ginsburg's ("Culture/Media") observation that the democratization of digital film and photo technology has created a "parallax effect," whereby the visual productions of anthropologists and others spark collaborative conversation. The methodological difference in my case is that I am not a filmmaker and never set out to do anything other than supplement field notes with photos and videos.

34. Chemicals, as many critical scholars have noted, have become useful devices for marking time, but since their effects can often be slow, they invite apprehension of time in unexpected ways (Boudia and Jas, *Powerless Science?*; Murphy, "Chemical Infrastructures").

35. Peters, *Marvelous Clouds*, 2.

36. Peters, *Marvelous Clouds*, 11.

37. Plantation agriculture can, in this sense, be considered a form of aerial occupation (Li and Semedi, *Plantation Life*). Again, Weizman's work on the role of aircraft and chemicals in the Israeli occupation of Palestinian territory is pertinent. In *Hollow Land*, he has shown how contemporary military and economic power operates in a three-dimensional, volumetric manner, and sugarcane production operates in a similar fashion (see Nading, "Filtration").

38. Rosenberg, "What Is an Epidemic?," 3.

39. As Bishnupriya Ghosh has written, "The epidemic episteme reconfigures life as form, process, and relation, and, perhaps most crucially, as mediation. . . . To analyze epidemic media is to grapple with how we capture, manipulate, and sometimes fabricate life at its most exigent" (Ghosh, *Virus Touch*, 8).

40. Steingraber, *Living Downstream*.

41. Wylie, *Fractivism*; Pulido, "Flint, Environmental Racism"; Brown, Morello-Frosch, and Zavestoski, *Contested Illnesses*.

42. Rosenberg, "What Is an Epidemic?" A classic example is Phil Brown's account of a cancer cluster in Woburn, Massachusetts (Brown, "Popular Epidemiology and Toxic Waste").

43. Moments in toxic narratives like the dog's death are what Elizabeth Povinelli (*Economies of Abandonment*) might call "quasi-events," or what Sylvia Wynter ("Novel and History") might call "adjuncts" to epidemic narratives (see also Shapiro, "Attuning to the Chemosphere").

44. Jackson, *Thin Description*. Importantly, they are also not what Murphy ("Alterlife and Decolonial Chemical Relations," 496) calls "body centric damage narratives," in that they are less apt to invite sympathy or pity on the part of outside observers (see Tuck, "Suspending Damage"). Thinness of description, like the kind found in fragmentary stories and pixelated images, as Benjamin explains, does not speak to "an analytic *failure*, but an acceptance of *fragility*" (Benjamin, *Race after Technology*, 46).

45. The notion that "science" (seen here as the search for causal drivers) operates in a frame called "context" is worth contesting. For example, ecosocial epidemiologists have long argued that context is far from an external frame. As Nancy Krieger and George Davey Smith put it, "People literally embody, biologically, their societal and ecological context" (Krieger and Davey Smith, "Tale Wagged by the DAG," 1802).

46. I take this rendering of the relationship between figure and ground from Fortun ("Figuring Out Ethnography"), who suggests that anthropology is partly distinguished by its acknowledgment that people do not just work within context but actively construct it.

47. The hype around this has been critiqued by medical anthropologists, including me (Nading, *Mosquito Trails*). As Susan Erikson ("Cell Phones ≠ Self") has noted, much of the promise of digital media has been located in its potential as a source of "big data" about individual users. The problem with the expectation that cell phone data, for example, might say something about the spread of an epidemic is that it overestimates the extent to which individual people are attached, figuratively and materially, to individual phones. Erikson found that cell phone use in Sierra Leone was much more embedded in extraindividual networks of social and economic exchange than models produced by computational epidemiologists predicted. This limited the predictive value of cell phone data for tracking the epidemic's trajectory.

48. White, *Speaking with Vampires*, 8.

49. Here, I draw on the work of Yarimar Bonilla and Jonathan Rosa, who suggest that statements made on social media possess an "interdiscursive capacity to lasso accompanying texts and their indexical meanings as part of a frame" (Bonilla and Rosa, "#Ferguson," 6).

50. Bonilla and Rosa, "#Ferguson," 7.

51. Thomas, "Time and the Otherwise."

52. White, "'They Could Make Their Victims Dull.'"

53. Thomas, "Time and the Otherwise."

54. Wolf, "Specific Aspects of Plantation Systems."

55. Wynter, "Novel and History."

56. Wynter, "Novel and History." For Wynter, what is problematic about these dominant narratives is that enslaved persons may not be portrayed as "characters" at all. Such narratives call their humanity into question.

57. Thomas, "Time and the Otherwise," 188.

58. Stacey Langwick has found a similar role for toxicity in contemporary Tanzania, where toxicity is both "a condition of modern life and the substance of ethical engagement" (Langwick, "Politics of Habitability," 420).

59. See, for example, Shapiro, "Attuning to the Chemosphere."

60. Shapiro, Zakariya, and Roberts, "Wary Alliance," 587–88.

61. To me, at least, they seemed like perfect examples of "little development devices" or "humanitarian goods" (see Collier et al., "Preface").

Portions of this chapter were published in Nading, "Disposability, Social Security, and the Facts of Work in Nicaragua's Sugarcane Zone."

1. Fisher and Nading, "End of the Cooperative Model."

2. As Gould explains, Nicaraguans in the sugarcane zone sometimes identify as Indigenous, or as day laborers, or as farmers, but they use the term *campesino* "to describe their common condition of residence in small, poverty-stricken villages" (Gould, *To Lead as Equals*, 7).

3. Wells, *Strawberry Fields*; Holmes, *Fresh Fruit, Broken Bodies*; Horton, *They Leave Their Kidneys in the Fields*.

4. Guthman, *Wilted*, 147.

5. Horton, *They Leave Their Kidneys in the Fields*; Mulligan and Castañeda, *Unequal Coverage*.

6. Ruiz Arias quotes Bolívar as saying, "The most perfect system of government is that which produces the greatest amount of happiness possible, the greatest amount of political stability and the greatest amount of social security" (Ruiz Arias, "On Social Security").

7. Mauss, *The Gift*, 86; Douglas, "Foreword," xiii. The capacity of social insurance to create solidarity is weak, according to Douglas, and this observation is borne out in more recent anthropological studies of health insurance (see, e.g., Mulligan, *Unmanageable Care*; Mulligan and Castañeda, *Unequal Coverage*).

8. Graeber, "Dead Zones of the Imagination"; Gupta, *Red Tape*; Biehl, "Judicialization of Biopolitics"; Abadía-Barrero, "Neoliberal Justice."

9. Scott, *Moral Economy of the Peasant*; Edelman, "Bringing the Moral Economy Back In"; Wolford, *This Land Is Ours Now*; Winchell, *After Servitude*.

10. Welker, *Enacting the Corporation*.

11. Queiroz and Vanderstraeten, "Unintended Consequences," 129.

12. Francis, "'Point Four Does Not Exist'"; Gould, *To Lead as Equals*; Faber, "La Liberación del Medio Ambiente."

13. The Nicaraguan historian Andrés Pérez-Baltodano (*Entre el Estado Conquistador*) identifies the push to turn campesinos into workers as rooted in creole elites' long-standing anxieties about the country's failure to emulate a European model of liberal development. See also Silva, "History of the Nicaraguan Social Security Institute."

14. Gould, *To Lead as Equals*, 15.

15. Ripoll, "Moral Economy of Labour and Resistance"; Walker and Wade, *Nicaragua*. As Ruiz Arias explains, "Between 1957 and 1979, social security was geographically very restricted and functionally limited, based essentially on labor relations. It existed in Managua; San Rafael del Sur and Tipitapa [all areas where Somoza's sugar operations were located]; in León, only in the city; and in Chinandega only in the urban area, the municipalities of Chichigalpa, around the San Antonio sugar refinery, and Puerto Corinto. It also existed in the mining triangle municipalities of Siuna, Bonanza and Rosita. Nowhere else. Due to its limited form, barely 120,000 people were covered (only 10% of them women) and the insurance only covered 9,000 pensions" (Ruiz Arias, "On Social Security").

16. Those who started their careers in the cane as cabras recognized work in the cane as an activity that was entangled in what the feminist geographer J. K. Gibson-Graham calls a "diverse economy" (Gibson-Graham, *End of Capitalism*). Gibson-Graham's notion of the diverse economy adds complexity to the familiar anthropological dyad of "embedded" reciprocity and "disembedded" capital accumulation (see Polanyi, *Great Transformation*).

17. This framing of entanglement and autonomy comes in part from Povinelli's work on liberalism, and in part from the debates in peasant studies about commoditization and resistance to it (Povinelli, *Economies of Abandonment*; Edelman, "Bringing the Moral Economy Back In"; Scott, *Moral Economy of the Peasant*). In the early in the days of the CKDnt epidemic, there was a lot of attention to the problem of "child labor" and what it might have to do with early-onset kidney disease, but such discussion has since receded. The cabra system is less evident today but has not gone away, but the linkage between children working in fields and CKDnt has not been established, partly because the question of child labor itself occludes the broader health concern at hand.

18. Walker and Wade, *Nicaragua*; Pérez-Baltodano, *Entre el Estado Conquistador*.

19. Swezey and Faber, "Disarticulated Accumulation."

20. Ruiz Arias, "On Social Security."

21. Ripoll, "Moral Economy of Labour and Resistance," 1558; Wheelock, *Imperialismo y dictadura*; Deere, Marchetti, and Reinhardt, "Peasantry and the Development of Sandinista Agrarian Policy."

22. Ruiz Arias, "On Social Security."

23. Ripoll, "Moral Economy of Labour and Resistance," 1559.

24. Faber, "La Liberación del Medio Ambiente."

25. Houtart, "Los Trabajadores de la Caña Piensan Así."

26. *La Prensa*, "Indemnizan a excañeros."

27. Ruiz Arias, "On Social Security."

28. Queiroz and Vanderstraeten, "Unintended Consequences."

29. Ballestero, *Future History of Water*; Strathern, *Property, Substance, and Effect*.

30. As Anna Tsing has argued, plantation economies also depend on the condensation and simplification of life, including exchange relationships (Tsing, *Mushroom at the End of the World*).

31. Gupta, *Red Tape*; Graeber, "Dead Zones of the Imagination."

32. Jain, *Injury*.

33. Ballestero, *Future History of Water*. I thank James Slotta for pushing me to consider this point.

34. Jain, *Injury*; Cross, "Occupational Health, Risk and Science"; Nash, *Inescapable Ecologies*.

35. Ruiz Arias, "On Social Security."

36. International Monetary Fund, "Nicaragua."

37. Envío Team, "Three Economic Storm Clouds"; Envío Team, "April 2018."

38. Klein, Cuesta, and Chagalj, "Nicaragua Protest Crisis"; Cruz-Feliciano, "Whither Nicaragua"; Martí i Puig and Serra, "Nicaragua"; Bran Aragón and Goett, "¡Matria Libre y Vivir!"; Goett, "Beyond Left and Right"; Chamorro and Yang, "Movilización social y tácticas de control"; Buben et al., "Nicaragua en 2020."

39. Gobierno de Nicaragua, ley no. 815; INSS, "Seguro de Riesgos Profesionales," accessed January 13, 2024, https://inss-princ.inss.gob.ni/index.php/sergurosinss-2/8-seguro-de-riesgos-profesionales-rp.

40. Ruiz Arias, "On Social Security."

41. Biehl, "Juridical Hospital."

42. Strathern, *Property, Substance, and Effect*.

43. Alaimo, *Bodily Natures*, 31; Horton, *They Leave Their Kidneys in the Fields*.

44. Crowley-Matoka and Hamdy, "Gendering the Gift of Life."

45. International Monetary Fund, "Nicaragua."

46. Graeber, "Dead Zones of the Imagination," 111; see also Gupta, *Red Tape*; Mathews, *Instituting Nature*.

47. Graeber, "Dead Zones of the Imagination," 115.

48. McKittrick, "Plantation Futures"; King, "The Labor of (Re)reading Plantation Landscapes"; Li and Semedi, *Plantation Life*. This core insight from plantation studies is worth placing alongside Graeber's ideas about violence. Consider the status of diagnostic figures like eGFR and creatinine counts. What people like Doña Cynthia seemed to be saying is that these numbers were as much a product of plantation production as was sugarcane itself. The Hungarian philosopher Georg Luckacs used the term *reification* to describe the process whereby the world under commodity capitalism appears to look like a collection of discrete bounded things. He understood commodity capitalism to be the achievement of a certain state of affairs, in which "a relation between people takes on the character of a thing and thus acquires a 'phantom objectivity,' an autonomy that seems so strictly rational and all-embracing as to conceal every trace of its fundamental nature: the relation between people" (quoted in Taussig, "Reification and the Consciousness of the Patient"). Michael Taussig extends Lukacs's thesis to argue that medical diagnoses, too, were possessed of this phantom objectivity. The diagnosis of a disease, or the reduction of bodily conditions to diagnostic numbers, says nothing about the (violent) social relations that caused those conditions.

49. Jain, "Injury Fields," 154.

50. Widger, "Anti-hesitation."

51. This makes CKDnt similar to other ontologically indeterminate occupational conditions, particularly sick building syndrome (see Murphy, *Sick Building Syndrome*).

52. Graeber, "Dead Zones of the Imagination." In her reading of Sarah Besky's Indian tea plantation research, Guthman (*Wilted*, 210n22) uses the term "social security" to describe workers' sense of attachment to plantations, and she argues that California farmworkers, like Indian tea workers, are existentially invested in the well-being of the monocultures they help produce.

53. Tsing, *Mushroom at the End of the World*.

54. Li and Semedi, *Plantation Life*.

55. Guthman, *Wilted*; Horton, *They Leave Their Kidneys in the Fields*; Mitchell, *They Saved the Crops*; Wells, *Strawberry Fields*.

56. Fortun, "Ethnography in Late Industrialism."

57. Whitmarsh and Roberts, "Nonsecular Medical Anthropology"; Roberts, "What Gets Inside."

CHAPTER 6. PLANTATION PATIENTHOOD

1. Hamdy, "When the State and Your Kidneys Fail"; Moran-Thomas, *Traveling with Sugar*; Crowley-Matoka, *Domesticating Organ Transplant*; Solomon, *Metabolic Living*.

2. Rabinow, *Essays*. For a discussion of biosociality and treatment regimes in the context of HIV/AIDS, see Nguyen, *Republic of Therapy*; Marsland, "(Bio)sociality and HIV in Tanzania."

3. Kline, "Life, Death, and Dialysis"; Melo, "Stratified Access"; Moran-Thomas, *Traveling with Sugar*.

4. To tell the story of plantation patienthood is to explore how plantations and the people whose labor they extract work through what Michelle Murphy calls "an entrapment in and a response to each other's life supports and conditions" (Murphy, "Alterlife," 498).

5. Kaufman, *Ordinary Medicine*.

6. Hunt et al., "Corporate Logic in Clinical Care"; Little, "Corporate Mortality Files."

7. Here, again, Guthman's thoughts on the propensity of monocultures for "iatrogenic harm" are salient (Guthman, *Wilted*).

8. For a similar case of patient-driven etiological theories around kidney disease, see Hamdy, "When the State and Your Kidneys Fail."

9. Hetherington, *Government of Beans*.

10. Mbembe, "Necropolitics," 39.

11. Tsing, "On Nonscalability"; Spillers, "Mama's Baby, Papa's Maybe"; Scheper-Hughes, *Death without Weeping*.

12. King, "The Labor of (Re)reading Plantation Landscapes."

13. Marshall, "Political Life of Fungibility"; Hartman, *Scenes of Subjection*.

14. Mbembe, "Necropolitics," 21. In *Death without Weeping*, Nancy Scheper-Hughes portrayed the environs of industrial sugar plantations, long after the formal end of slavery, as a place where life was so exhausting that grief met its limits. In some cases, for a mother to mourn the loss of her baby became illogical. Life on plantations, in Scheper-Hughes's telling, was too cheap to lament.

15. Whyte et al., "Therapeutic Clientship."

16. Scott, *Moral Economy of the Peasant*, 174; Thompson, "Moral Economy of the English Crowd"; Winchell, "Economies of Obligation."

17. As Tania Li argues based on her observations of changing plantation labor patterns in Indonesia, appeals to "freedom" by workers can be understandable attempts to get out from under the yoke of hierarchical systems of patronage, yet "ineffective labor laws and weak worker mobilization enable employers to avoid the costs of sustaining and reproducing workers daily or intergenerationally. Employers can buy labor power at will, treating it as a commodity like any other. Employers, in short, are too free" (Li, "Price of Un/Freedom," 246).

18. Solomon, "Living on Borrowed Breath," 116.

19. Solomon, "Living on Borrowed Breath," 116.

20. Jain, "Living in Prognosis," 90.

21. As Amy Moran-Thomas advises, adapting the work of Georges Canguilhem, a disease is nothing more than the material limit of one's tolerance for "the inconsistencies of the environment" (Moran-Thomas, *Traveling with Sugar*, 91).

22. For an analysis of how "patience" is leveraged politically in Latin America, see Auyero, *Patients of the State*.

23. Biehl, "Juridical Hospital," 265–66.

24. Li and Semedi, *Plantation Life*, 4.

25. This phrase comes from a lyric by the songwriter Townes Van Zandt. His song "Waitin' Around to Die" tells the story of a character who spends a lifetime running from abuse, the law, and bad relationships because, as the refrain goes, "it's easier than just waitin' around to die." The song ends on what looks like a resigned note:

> I got me a friend at last.
> He don't drink or steal or cheat or lie.
> His name's Codeine.
> He's the nicest thing I've seen.
> Together we're gonna wait around and die.

The song is about addiction, maybe, but I think it's also about a kind of chosen endurance. Codeine is a palliative not just for bodily aches but for emotional weariness. I hear the song as an autobiographical eulogy, an expression of grief rather than of nihilism.

26. Russ, Shim, and Kaufman, "Is There Life on Dialysis?," 299 (emphasis in original).

27. For more on patient movements for dialysis access, see Moran-Thomas, *Traveling with Sugar*.

28. Biehl, *Will to Live*; Nguyen, *Republic of Therapy*.

29. Jain, "Living in Prognosis."

30. Allewaert, "Swamp Sublime," 343.

31. Sharpe, *In the Wake*; Hartman, *Scenes of Subjection*; Lennon, "Postcarbon Amnesia."

32. Povinelli, *Economies of Abandonment*, 125–29. For Povinelli, endurance should not be interpreted as the opposite of exhaustion. Endurance is neither "a means of avoiding the nature of the given world," nor a striving to overcome its generalized decay, nor, still, a means of returning that world to some state of normalcy. See also Besky, "Exhaustion and Endurance."

33. Winchell, "Economies of Obligation," 163.

34. Rajak, *In Good Company*; Cross, *Dream Zones*; Welker, *Enacting the Corporation*; Li, *Unearthing Conflict*.

35. Russ, Shim, and Kaufman, "The Value of 'Life at Any Cost'"; Kaufman, *Ordinary Medicine*.

36. Nguyen, *Republic of Therapy*; Whitmarsh, "Medical Schismogenics"; Farmer, "Consumption of the Poor"; see also Berlant, "Cruel Optimism."

37. Hartman, *Scenes of Subjection*.

38. Senanayake, "'We Are the Living Dead.'"

39. In this way, they wrestled with what Wool and Livingston call "the uncertain temporalities and patterns . . . created by liberal yearning toward the good life" (Wool and Livingston, "Collateral Afterworlds," 7).

40. Lancaster, *Life Is Hard*.

41. Nixon, *Slow Violence*.

42. Mbembe, "Necropolitics," 22. See also Wynter, "Novel and History"; Hartman, *Scenes of Subjection*.

43. Wynter, "Unsettling the Coloniality of Being."

CONCLUSION

1. Sorensen and Garcia-Trabanino, "New Era of Climate Medicine."

2. Guthman, *Wilted*, 210n22; Faber, "Sea of Poison"; Corriols, "Pesticide Poisoning in Nicaragua"; Dore, *Myths of Modernity*; Gould, *To Lead as Equals*.

3. Guevara Jerez, "Thirsty Country with Lots of Water."

4. For a moving discussion of Pasos's life and work, see Shook, "Chasing Pasos."

5. Livingston, *Self-Devouring Growth*.

6. Dunk and Anderson, "Assembling Planetary Health," 31.

7. Dunk and Anderson, "Assembling Planetary Health," 31.

8. Blanchette, "Living Waste," 96.

9. Canguilhem, *Writings on Medicine*, 70.

10. Dunk and Anderson, "Assembling Planetary Health."

11. Raffles, *Book of Unconformities*.

12. Besky and Blanchette, "Introduction," 6–7. As they add, "While there are copious critiques of conditions of work in journalism and scholarship, and many efforts to realize a world where work is justly remunerated and carried on with dignity, few question the institution of work itself, or the logic of a society where work disproportionately shapes everyday hierarchies and environments" (7). Too few, for example, question the deep historical linkages between the rights that accrue to workers and the right to health.

13. Puar, *Right to Maim*, xviii.

14. Nash, *Inescapable Ecologies*, 210.

15. Murphy, "Toward Non-innocent Reassemblies"; Sedgwick, "Paranoid Reading and Reparative Reading."

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