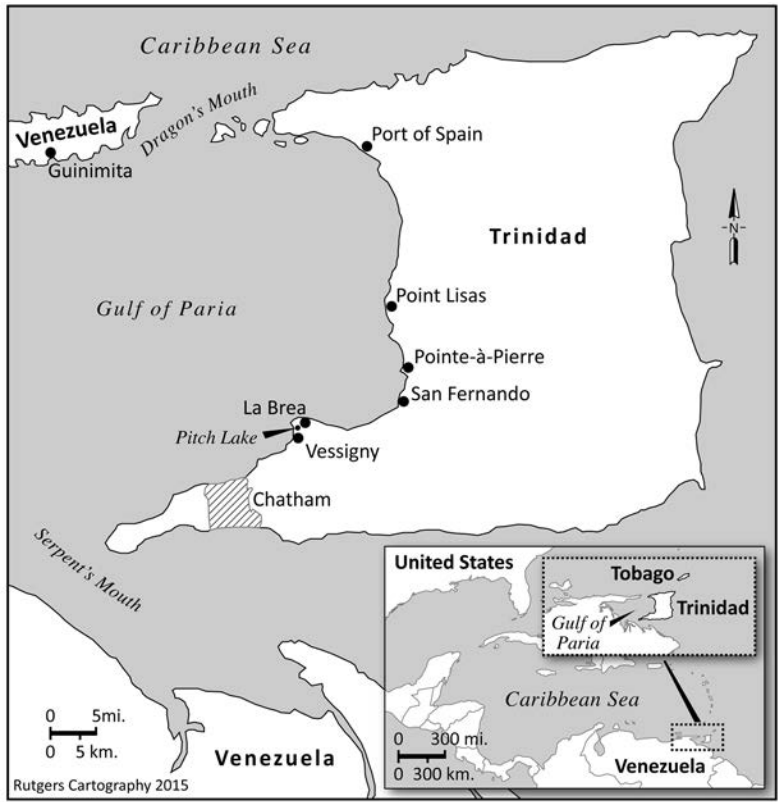
INTRODUCTION

How does it feel to change the climate? This question seems more absurd than impolite. It implies a chain of causation and responsibility that still remains invisible and mostly unacknowledged. In fact, some people—a billion high emitters—burn oil and otherwise pump carbon dioxide (CO_2) into the atmosphere at a rate dangerous to societies and ecosystems everywhere (Chakravarty et al. 2010). A slice of this population—overrepresented in the United States—disputes the science and scenarios of climate change. But explicit denial is less widespread than silence and disregard. The bulk of informed consumers simply don't care a great deal about carbon emissions and their consequences. Tobacco provokes stronger reactions, indeed sometimes a disgust verging on revulsion. Where is the revulsion over flood, drought, and myriad other catastrophic shifts in the conditions for life and society on planet Earth? Menacing as it increasingly is, climate change has yet to become a moral issue for most people.

Energy without Conscience seeks to explain this persistent banality. I am not trying to expose—as others have done—the greed of individuals, firms, or governments. Capitalism and convenience certainly underwrite the status quo. Yet means-to-ends reasoning does not account fully for the abundance of support for fossil fuels. Cultural meanings also sustain hydrocarbons. In the oil profession itself, people drill for noneconomic, as well as economic, motives. "The romance [among oil geologists] was not really based on money, which was only a way of keeping score," reminisces the Texan John Graves (1995, xi–xii) in an essay on prospecting. His nostalgia exceeds his greed. I am interested in such cultural dispositions and discourses. As I argue, they obscure responsibility for carbon emissions among those most responsible and those most susceptible—technicians in and local bystanders to the fossil fuel business (who are often the same people). Certain modes of thought inside and outside the industry push a

more critical consideration of oil to the margin. Hydrocarbons—as I refer to oil, natural gas, coal, and bitumen—seem both invisible and inevitable. One notices them only when something goes wrong—when, for instance, massive volumes gush into the Gulf of Mexico. Water-borne pollution of this sort triggers professional concern as well as public outrage. This book, on the other hand, describes the everyday, intended functions of our energy system. When platforms, pipelines, and pumps work properly, oil arrives safely at the gas tank of a motor vehicle. Then, combusted in the engine, the hydrocarbon spews carbon dioxide into the air unnoticed and without protest. One might refer to this form of pollution as "the spill everywhere." It far outweighs local contamination, both in volume and in planetary effects. Oil, in other words, is most dangerous when it behaves ordinarily and when people treat it as ordinary—that is, as neither moral nor immoral, but amoral.

Investigating such a nonevent—really the partial absence of meaning—requires an indirect approach. One has to detect the meaning and sentiment that prevent an accumulation of feeling around oil or carbon emissions. Why do hydrocarbons not inspire disgust—or romance for that matter—among more people more often? To answer this question, one has to measure the subtle effort expended as informed people avoid reflecting ethically or emotionally upon oil. The right circumstances will throw this making of ordinariness into the sharpest relief. I found those conditions at the birthplace of petroleum: Trinidad in the southern Caribbean (map 1.1). Here, Walter Darwent drilled the world's first continually productive oil well in 1866.[1] This larger island of Trinidad and Tobago shares deposits with nearby Venezuela. Until recently, it contributed the lion's share of gas imported to the United States. But it does not rank among the traditional petrostates, either in production or in reputation. I lived in Port of Spain, the capital of Trinidad and Tobago, for the 2009–10 academic year and conducted ethnographic research among energy experts, anti-industrial activists, and policy makers preparing for climate change. At that point, Trinidad (as I abbreviate the nation-state) had never suffered a major spill. In terms of environmental harm, the industry was primarily committing climate change through CO_2 emissions. But Trinidadians—whose per capita carbon emissions ranked fourth among nations—did not appreciate this responsibility. My informants considered themselves to be victims—and only victims—of rising seas. In these ways, groups of



MAP I.1 Trinidad. Prepared by Mike Siegel of Rutgers Cartography Lab.

Trinis edged so close to the moral problem of hydrocarbons that they had to avert their gaze. Looking historically at Trinidad's energy systems, as I do in part I, I found moments when energy both did and did not prick the conscience. Plantation slavery—reliant upon embodied, somatic power—never achieved stability. Bonded people constantly reminded masters and governors of the bondsmen's individuality, of their will for freedom. Conscience dogged the energy that harvested sugar. Hydrocarbons arrived with no such baggage. Petroleum raised no moral outrage or endorsement, and contemporary beliefs, institutions, and forms of expertise helped to keep it that way. (Coal, a notable absence, has never been produced in Trinidad.) That process of overlooking consequences continues today. *Energy without Conscience* illuminates the people close to and conducting this

work—subjects both intimate with and untroubled by the carbon bomb ticking around them.

I did not approach these women and men dispassionately, and I have not written about them with the usual ethnographic sympathy. Frankly, I oppose their interests. Partiality is not new to my field: anthropologists often take sides, engaging with popular movements and local projects (Goldstein 2012, 35ff.). Nancy Scheper-Hughes advocates a "militant anthropology," eschewing "false neutrality . . . in the face of the broad political dramas of life and death, good and evil" (1995, 411). In solidarity, she joined desperately poor mothers of a Brazilian shantytown as a *companheira*. Stop merely spectating, she demands of anthropologists. Practice instead an "ethic of care and responsibility" toward your informants (419). I have answered that call only halfway. From the beginning, I encountered oil as immoral—and as an industry that should go extinct. I hope for a rapid and complete conversion to wind and solar power, a change both necessary and, experts increasingly suggest, feasible as well (Jacobson and Delucchi 2009). We may still need oil for plastics and for some kinds of high-reliability energy uses, in hospitals, for example. Undeniably, however, I wish an end to the current livelihoods of most of the people—even of my friends—described in this book. Therefore, I do not express care toward petroleum geologists. I write about them with understanding and with ethnographic nuance, but I shall not present myself as a companheiro in relation to this social group. Besides, my subjects never asked for care, comradeship, or solidarity. Wealthy and powerful, they need no help from scholars. Hence, a militant anthropology of elites can afford a certain tension, emphasizing responsibility more than care. There is a difference between these two attitudes. The responsible writer looks over an informant's shoulder, prepared to reveal and criticize the wider harm that person may cause. Perhaps this is where the social science of climate change needs to go: resisting fossil fuels by documenting how their promoters think, act, and feel. Complicity, in a word, is the chief concern of this book.

The Ethical Deficit

I arrived in Trinidad expecting abundant art and literature about oil and gas. Those two commodities, after all, drove the leading industry in this acknowledged petrostate. I thought I knew how to trace the links between

energy systems and cultural expression. At that very moment, I was in the process of publishing my second book on Zimbabwe (Hughes 2010). The ethnography concerned white Zimbabweans, including their representations of Lake Kariba. Once the largest reservoir in the world, Lake Kariba spawned a literary and artistic soul-searching among the colonial population, as it grappled with the contradictions of artificial nature. A white population of 100,000 produced more than thirty books—as well as countless films and works of art—about this single landscape feature. Arriving in Trinidad, then, I expected images and texts on oil everywhere. Surely, a nation of 1.3 million would represent its landscape of rigs, seascape of offshore platforms, and ubiquitous burning of oil and gas in cars and factories. Initially I found nothing. Art and music—which abound in Port of Spain—often depicted nature, more often showed the human body, and focused in particular on the annual Carnival celebration. I found mere mentions of oil and gas in a handful of calypsos. Scrunter's ballad "Oil in the Coil" (1985) associates petroleum with virility and, indeed, with an aphrodisiac quality of men from the petroleum region.[2] More chastely, Earl Lovelace, Trinidad's national writer, penned one line in a play: "With gladness beating in your heart, like them Texaco machines pumping oil out of the earth chest" (1984, 3). I followed up this metaphor of petroleum and vitality, but the trail ended there. I met many musicians, writers, and artists who all agreed on this petro-silence. Some mentioned Trinidad's national instrument: in the 1930s, oil workers fashioned barrels into the steel pan. Again, though, the beneficiaries of this upcycling focused on the container more than on the contents (Campbell 2014, 53). Oil itself fertilized a garden of symbols where almost nothing grew.

This strange sterility has more to do with oil than with Trinidad. Across the world, a century and a half of petroleum production and consumption have imprinted the arts and literature relatively little. In absolute terms, of course, there are many films and texts about oil. Analysts of the humanities mostly prefer to see this glass as half full. Hannah Appel, Arthur Mason, and Michael Watts refer to a "rich loam" for literature. However, they privilege moments "where the normal and calculated course of energy events is interrupted" (Appel, Mason, and Watts 2015a, 10, 14). Introducing another important collection, Ross Barrett and Daniel Worden forgo their own nuanced understanding of "oil's signature cultural ubiquity and absence." They turn quickly to "spectacle" as a central theory (Barrett and Worden

2014, xvii, xxiv). Other observers—with whom I agree more—find hydrocarbons to be blatantly missing in action. It is "startling," writes critic Rob Nixon, "that not since [Upton] Sinclair's California saga *Oil!* [1926] . . . has any author hazarded writing the great American oil novel" (Nixon 2011, 73). Nixon cites a "dramatic deficit": oil appears less frequently in culture than one would expect given its economic importance. The Indian novelist Amitav Ghosh diagnoses a dearth of "petro-fiction" and "the muteness of the Oil Encounter," as he terms the social shifts accompanying petroleum (Ghosh 1992, 30). Likewise, Gustavo Luis Carrera begins *La Novela del Petróleo en Venezuela* somewhat deflatingly with, "This book relates to a novel that does not exist. And in that there is no exaggeration. One does not find in Venezuela a fiction of petroleum as, for example there is, in the Hispano-American context, a fiction of the Mexican revolution."[3] A petrostate, Carrera argues, scares writers into self-censorship. Ghosh might agree, but he diagnoses another lacuna in the social relations of oil production. The oil town—in the Persian Gulf or elsewhere—draws workers from myriad countries. The resulting amalgam congeals too little to form a community that might be narrated. As a final explanation for the scarcity of oil novels, Peter Hitchcock advances omnipresence itself. "Oil's saturation of the infrastructure of modernity," he argues, "[obstructs] its cultural representation" (Hitchcock 2010, 81). Oil flows like the unremarked air that industry and consumer classes breathe every moment (Huber 2013, 26). Here is a theory of absence rather than ubiquity: state power, social chaos, and sheer familiarity all suppress oil fiction.

To these three explanations I would add a fourth, more technical consideration. Petroleum inhabits geological rather than human or medical spaces. Some bitumen, the heaviest hydrocarbon, has seeped into public sight at Los Angeles's La Brea tar pits (LeMenager 2012). Much more oil circulates through middle-class life encased in plastics and vehicles. But the raw, undisguised substance almost invariably passes unseen from subterranean strata to enclosed pipes and tanks. One can easily confuse the contents and the container. The photographer Edward Burtynsky, for instance, titles his 2009 collection *Oil*, although the images show very little oil (Burtynsky 2009; Szeman and Whiteman 2012). Except for views of the tar sands in Alberta, the photos frame derivatives: pumps, pipes, refineries, roads, cars, tires, planes, and ships. Crude itself does not appear. A consumer injects gasoline blindly, without even glimpsing the liquid.

1.1 Sebastião Salgado, "Greater Burhan Oil Field, Kuwait," 1991. © Sebastião Salgado. From Contact Press Images.

Only the abnormal event—the spill—brings a black goo into view and into contact with human flesh, usually the worker's flesh. The most famous photographs of oil itself—taken by Sebastião Salgado (1993, 338–43) in his *Workers* collection—show men plugging wells and fighting fires set by Saddam Hussein's government upon leaving Kuwait (figure 1.1). Oil coats their clothes and their bodies.[4] Still, it doesn't become part of them; petroleum washes off.

Coal, on the other hand, operates surgically on the human body. The greatest novel of coal—Emile Zola's ([1885] 1968) *Germinal*—refers continually to the physiology of the French miner. The old man Bonnemort "spit black," explaining, "It's coal. . . . I have enough of it in the carcass to warm myself until the end of my days."[5] He and his coworkers refer proudly to the cuts on their backs—made by low roofs in tunnels—as "grafts."[6] Finally, as a sabotaged mine collapses upon the workers, Zola describes it as "an evil animal . . . that had swallowed so much human flesh!"[7] People enter the earth and the earth reciprocates by giving them silicosis. Diesel fumes can also trigger childhood asthma, but many other contaminants cause that pathology. Black lung is coal's signature. That hydrocarbon, in

other words, conducts a "social life," made possible by the "intercalibration of the biographies of persons and things" (Appadurai 1986, 22). Oil lives alone in a studio apartment.

This contrast between the world's two major fossil fuels runs right down the middle of Upton Sinclair's oeuvre. The famous American anti-industrial muckraker penned *King Coal: A Novel* in 1917 and *Oil!* in 1926. Both stories proceed in the manner of a bildungsroman: the young, naive, male protagonist gains knowledge and maturity, specifically discovering and then attempting to ameliorate the lot of the working class. A trio of characters surrounds this hero: his father, a captain of the given industry; a lovely, flighty girlfriend belonging to the same upper class; and a decidedly poorer female with a heart of gold. The hero jilts the princess for a life of activism with the proletarian woman. So closely aligned in cast and plot, the novels differ mostly in their descriptions of the commodity and the labor it entails. Sinclair's petroleum novel introduces readers to the oil field by narrating a gusher: "The inside of the earth seemed to burst out through that hole: a roaring and rushing, as Niagara [Falls], and a black column shot up into the air . . . and came thundering down to earth as a mass of thick, black, slimy slippery fluid . . . so that men had to run for their lives" (Sinclair 1926, 25). In *King Coal*, the equivalent passage—positioned almost exactly at the same point in the novel—describes a more prosaic, but deeper engagement with geology: "The vein varied from four to five feet in thickness; a cruelty of nature which made it necessary that the men . . . should learn to shorten their stature. . . . They walked with head and shoulders bent over and arms hanging down, so that, seeing them coming out of the shaft in the gloaming, one thought of a file of baboons" (Sinclair 1917, 22). Oil provokes flight while coal calls the very species into question. Later in the same passage on mining, Sinclair refers to the colliers as "a separate race of creatures, subterranean gnomes" (1917, 22). Men adapted to the shafts and tunnels. Writing slightly earlier—and in the wake of Charles Darwin—H. G. Wells imagined colliers evolving into a separate population. In *The Time Machine* (Wells 1895), Morlocks—a pun on "mullocks," a contemporary term for miners (Stover 1996, 9)—hunt down the insipid descendants of the rich. In other words, this habitat—which one historian denotes the "mine workscape"—exerts powerful, mostly negative effects on *Homo sapiens* (Andrews 2008, 123–25). Where coal acts continually and viscerally, oil only bursts forth in rare frenzies.

There is one exception, however. In Nigeria, oil has provoked a moral response in literature and more widely as well. Into the delta of the Niger River, petroleum has spewed and spilled prolifically for the last half century. Nine to thirteen million barrels enter marshes and mangrove swamps every year—an annual spill equivalent to the 1987 Exxon Valdez disaster (Baird 2010). There, hydrocarbons break into view, as the sheen on water and as flames flicking from a ruptured pipeline. A photographer like Ed Kashi can capture women baking tapioca by the heat of horrifically toxic gas flares (figure 1.2; Kashi and Watts 2008, 20–23). The dystopia deepens: delta residents attack oil installations, sabotage pipelines, steal oil, and resell it in an extensive network of traders, insurgents, and extortionists (Gelber 2015; Timsar 2015). Oil, in short, busts out of its containers, triggering what geographer Michael Watts (2001) terms "petro-violence," intense struggles over the myth and reality of unearned wealth. Nigerian writers—mostly unknown outside their country—have fashioned these conditions into a genre of "petro-magic realism," laced with themes of indigenous animism, "monstrous-but-mundane violence," and oil pollution (Wenzel 2006, 456). Wealth erupts in spectacle (Apter 2005). At the same time, a palpable "oil doom" prevails in representations of that region (LeMenager 2014, 135). In short, this oil does not behave in anything approaching the conventional fashion. In Nigeria, the economy and infrastructure of oil malfunctions and even collapses. Meanwhile, crude generates all the morally rich meanings so absent in other oil regions. Nigeria is the exception—the anomalous element—that proves the rule of oil's overwhelmingly banal, amoral interpretation.

Elsewhere, hydrocarbons slip into popular discourse almost as unremarked as a cliché. The phrase "black gold," for instance, exerts little critical leverage anymore, if it ever did. That metaphor for money runs through the brief canon of fiction and critical nonfiction on oil in the second half of the twentieth century.[8] Iran's petroleum, writes the journalist Ryszard Kapuściński, "squirts obligingly into the air and falls back to earth as a rustling shower of money" (1986, 347). In Edna Ferber's *Giant*—the only U.S. novel to rival *Oil!*—Texas crude simultaneously enriches and debases the cowhand Jett Rink. He is "touched by the magic wand of the good fairy, Oil" (Ferber 1952, 412). With similar irony, Abdelrahman Munif's *Cities of Salt* (1994) focuses on the overwhelming aesthetic of unearned wealth. The American oil company throws a party on the beach that stuns the

1.2 Ed Kashi, woman baking tapioca by gas flare, Nigeria, 2008. Courtesy of Ed Kashi via VII Photo Agency.

locals: "Sorrow, desires, fears, and phantoms reigned that night. Every man's head was a hurricane of images, for each knew that a new era had begun" (Munif 1994, 221). Finally, in Venezuela, petroleum symbolizes "uncontrollable powers . . . seen primarily as a form of money" (Coronil 1997, 353). Beyond the orbit of these well-known literary and academic texts, financial meanings operate as dead metaphors. Dead metaphors—which might be thought of as merely sleeping—do connect ideas but not in a way that provokes outrage (Kövecses 2002, ix). Oil stimulates the stunted emotion Stephanie LeMenager calls "petromelancholia." Authors of this genre express "the feeling of losing cheap energy" (LeMenager 2014, 102). What about the feeling of, by contrast, using lots of energy of the most ecologically expensive sort? Recall the unprecedented clarity and power of Al Gore's film, *An Inconvenient Truth*, released in 2006. "The moral imperative to make big changes is inescapable," he intones at the beginning. Then, having elevated himself to the top of the hockey-puck curve of CO_2 concentrations, he concludes, "If we allow that to happen, it is *deeply* unethical" (Gore 2006, emphasis in original). Gore then spoke of obligation and a need for restraint. His film reached millions of Americans, but it was not enough to attach conscience lastingly to oil.

Paths Not Taken

Conscience centers on alternatives—on options rejected in the past, options available to us now, and the overlap between these categories. Regarding energy—defined broadly as the capacity to do work—Trinidad presents such a field of actual and possible plans and fantasies. The earliest and most potent alternatives do not involve oil at all. In 1498, during his third voyage, Christopher Columbus sailed through the Gulf of Paria and the 11 kilometer strait between the island of Trinidad and what is now Venezuela. From Orinoco River sediment—visibly discoloring the gulf—he inferred a continental land mass. And land meant an energy platform. To his mind, terrain in the tropics functioned as a kind of solar collector. Rays hit the ground vertically—and not always beneficially. Renaissance geography classified latitudes south of the Tropic of Cancer as a "torrid zone," dangerously hot and sun scorched. That heat created potential too: Leonardo da Vinci classed the sun as a "generating power" (quoted in Mollat 1965, 93). Columbus seems to have agreed with the Italian. After his fourth and final voyage, he averred, "Gold is generated in sterile lands and wherever the sun is strong."[9] Intermittently over the next two centuries, Europeans returned to the region looking for the city of that gold, El Dorado (Naipaul 1969). Not until the 1730s and 1740s did a Spaniard—or one who left a considerable enough written record—detect a different potential in the Orinoco sun. The Jesuit Joseph Gumilla proposed developing a solar colony: a tropical settlement that would thrive on Spanish-planted cacao pulled upward by abundant rays from the nearest star (Gumilla [1745] 1945, 43–47; Ramos Pérez 1958). Today, we refer to this light, heat, and photosynthesis as merely "passive solar energy," incapable of doing work in the mechanical sense. Eighteenth-century theory treated energy more broadly, as a life force, that could inhere in matter both organic and nonorganic (Illich [1983] 2009, 13). Trinidad's sunlight, then, constituted an energy system both local and divine.

And almost immediately forgotten: a half-century later another Spaniard imagined energy and the capacity to do work in very different terms. Josef Chacón took up Trinidad's governorship in 1784 and was the first to succeed in that position—until the English conquest of 1797. Like Gumilla, he sought colonists to grow an export crop, sugar in this case. Mathematically minded, Chacón calculated the inputs necessary for agri-

cultural productivity. His figures omitted sunlight entirely while enumerating slaves in great detail. How many bondsmen were needed per unit of land, Chacón constantly asked, while seeking to import this labor from elsewhere in the Caribbean. He recruited settlers—largely French planters disaffected with the governance of their islands—as a means to acquiring their human property. What he could not obtain regionally, he tried in vain to import directly from the African coast. Chacón did not employ the term *energy*. Yet plantation slavery and the Middle Passage propagated a new understanding of that category: no longer as a diffuse life force and not even as human labor but now as an expendable, consumable fuel. "Arms," as the men and women were called, crossed the ocean in the hold of ships. Buyers and sellers measured them in units, stored, used, and—as they died from overwork in Trinidad—replaced them. Their agriculture depended on the sun, of course, but planters devoted little attention to it. In this shift of values, energy lost both its anchor to certain tropical landscapes and its divine quality. Chacón, having never read Gumilla, did not appreciate his own turn from the sacred. He did, however, wrestle with the practical and moral difficulties of objectifying women and men. At times—as when slaves fled from their plantations—he had to acknowledge the free will and all-too-human qualities of "arms." Chacón, then, did not quite achieve what he, gropingly, set out to do: to establish a pipeline of interchangeable, impersonal energy units. Chapter 1 considers Chacón's successes and his ethical challenges, scruples that, of course, culminated eventually in Emancipation.

After Chacón and after Emancipation, another European converted hydrocarbons into an energy form truly without conscience. Trinidad contains the most prolific seep of petroleum in the world. Heavy asphalt literally bubbles to the surface. Indigenous people and Spaniards had used the black goo for caulking ships and similar tasks. Could one burn this substance? By the early 1860s, Conrad Stollmeyer—a German immigrant to Trinidad—had distilled the material into kerosene and was selling it as an illuminant. In 1866, Walter Darwent drilled the world's first productive oil well in the south of the island. But Stollmeyer—unlike any other figure in this drama—knew indirectly of Gumilla and his ideas of solar energy. Indeed, the German had proposed and planned a utopian colony to be powered by sun, wind, and other tropical forces. God-given powers, he hoped, would replace not only plantation arms but all forms of

hard, manual labor. This utopia failed immediately and abjectly. Then the German discovered combustible petroleum. In this interval, Stollmeyer juggled all the major energy options—solar, wind, somatic, and petrolic—in his eager hands. He had an ethical choice to make, but—by that point disillusioned with utopianism—he appreciated only its business aspects. Through actions more than words, he married oil with human labor in a fashion that emancipated no one. As chapter 2 narrates, Stollmeyer's loss of conscience helped craft an energy without conscience. Retrospective observers refer to this sort of conjuncture as an "energy transition," a slow but definitive flip from one source to another (Smil 2010, vii–viii). Reading history forward and in its context, however, one cannot pinpoint a flip in Trinidad. Stollmeyer and his contemporaries hesitated as they sorted through immeasurable opportunities and risks.

I want to reconsider that moment of doubt from an ethical perspective. The Caribbean had already witnessed reprehensible acts of breathtaking proportions (Khan 2001). Europeans had virtually wiped out the islands' indigenous people, only to replace them with enslaved Africans and indentured Asians. Capitalism, racism, and Christianity all contributed to extraordinary violence. But—alongside and partly independent of these forces—a new idea of fuel took hold. In Trinidad, producers and consumers of energy came to see it as a transportable, interchangeable commodity. This ideological and moral shift has never figured among the famous transformations of the Caribbean—or of anywhere really. Trinidad's historiography tends to treat oil and gas merely as substances and as unalloyed goods for the island and beyond (Mulchansingh 1971; Ministry of Energy and Energy Industries 2009). In both world wars, Trinidad's oil propelled British and Allied forces. After Independence in 1962, the country developed its gas sector, becoming a major exporter of downstream products such as methanol and plastics. Oil has given the country economic stability and political sovereignty. Thus, thanks to relatively open governance and technical competence, Trinidad has largely skirted oil's frequent "resource curse." The specters of underdevelopment, corruption, violence, and pollution do haunt the island. But the Orinoco delta is no Niger delta of oil theft and paramilitary politics. Trinidad's hydrocarbons appear to have solved many problems without creating substantial new ones. *Energy without Conscience* seeks to overturn that comforting account. Trinidad—like any state producing or consuming hydrocarbons—must reckon with the

contemporary great evil of dumping carbon dioxide in the skies. True, the effects of burning oil have taken longer to accrue than did the earlier body counts of Atlantic conquest or capture. But damage now becomes more evident each year. The historical part of this book (part I) returns to the 1780s and 1850s, when solar, human, and fossil energy sources seemed simultaneously promising and problematic. Revisiting the paths not taken, we might discern a better choice.

Complicity

I have struggled to find a language with which to describe the varied conditions of my informants in Trinidad. Like many of us, they burn hydrocarbons at rates higher than the global per capita average. The women and men of this first group of Trinis drive cars, live in air-conditioned houses, and use energy in all the ways characteristic of the world's billion high emitters. Many of my informants go further than that: they control private firms and government agencies that exploit hydrocarbons systematically. This second group comprises "captains of industry"—in the quaint phrase used without irony in Trinidad's convention halls and luxury hotels. A third set of informants captains nothing, not even motor vehicles. The residents of South Trinidad's oil belt consume little oil. They become relevant to this story because of their choice not to protest the oil and gas industry. The practices I describe then range from promoting oil, to reaping its benefits, to remaining silent about its costs. Environmentalists might describe the first party as responsible for climate change and the last one as ignorant of it. Perhaps the consumers in the middle—for whom we still lack an adequate descriptor—act negligently toward the atmosphere and everything dependent on it. If climate change were solely an environmental problem, then this lexicon would do the job: I would present the ethnography of people variously enabling one form of pollution. But I don't consider climate change to be merely an environmental problem. It is that and much, much more. The commodity chain from hydrocarbons to hurricanes—which I treat as one unit—has occupied the land like a far-reaching system of power. Combustion, as Rob Nixon (2011) writes, wreaks a "slow violence" as devastating as it is pervasive. Occasionally, a fast Pakistani flood or Louisiana hurricane causes death tolls too high to measure with accuracy. Some authors describe

this uneven lethality as "petro-dictatorship" or "fossil capitalism." Climate change thus exceeds other ecological crises in both its scale and its delivery of force. I am less concerned with labeling this system than with understanding those operating within it. They are, I argue, "complicit" with oil.

In this sense of widespread but traceable, anthropogenic harm, colonialism may provide the best analogue.[10] Almost as total as climate change, the system of rule prevailing over the Americas, Africa, Oceania, and much of Asia for as many as five centuries contained fast and slow violence. Around 1800, outright enslavement and genocide gave way to Christian and other "civilizing missions." European scientists began an "anticonquest" of discovery and description. The geographer and explorer Alexander von Humboldt contributed more than anyone to this movement. His and contemporary texts, though, could not avoid complicity. So writes Mary Louise Pratt, charging various narrators with constructing "cultureless" brown and black bodies available for European domination (Pratt 1992, 53). Pratt may have indicted von Humboldt unfairly (Marcone 2013), but she indicates the difficulty any intellectual faces in thinking outside the dominant ideology of his or her time. In the twentieth century, though, the colonial paradigm began to crack. In 1937, George Orwell denounced both imperial working conditions and left-wing intellectuals' tolerance of the same: "In order that England may live in comparative comfort, a hundred million Indians must live on the verge of starvation—an evil state of affairs, but you acquiesce in it every time you step into a taxi or eat a plate of strawberries and cream" (1937, 159). This charge—holding a large but defined group responsible for vast harm—could just as well apply to users of fossil fuels today. One can no longer plead ignorance. The information that, say, carbon emissions are pushing millions of Indians into starvation and displacement is widely available and credible. To choose the car over the bicycle, one has to repudiate science. Few people reject climatology explicitly. Far more high emitters deliberately discount or refuse altogether to imagine current and future victims of climate change. That decision takes place almost, perhaps entirely, automatically, but it constitutes a discrete action: "acquiescence," in Orwell's turn of phrase. Small, prosaic actions are beginning to accrete to the level of mass death.

At that larger scale, with whom does the accomplice conspire? *Complicity*, which shares a root with *accomplice*, implies a partner in crime.

Perhaps oil serves as the trigger man. Bruno Latour (2005) might put the argument in these terms: networks of human and petrolic "actants" collaborate on the basis of complementary properties. The harried commuter, in other words, wants to reach her destination, the motor vehicle carries her, and the petrol pushes the piston. More recent scholarship focuses on the vibrant quality of materials, as if gasoline willed people from suburb to suburb and jet fuel flew them personally from continent to continent. Certainly, energy behaves in ways that suggest volition (Bennett 2010, 54). It moves at the speed of electrons or explodes into atoll-destroying mushroom clouds. Many of my informants in Trinidad credited oil and gas with an understated animacy. Deposits were constantly welling up, and, as chapter 3 explains, petroleum experts portrayed themselves as hardly more than helpmates to the nearest gusher. Such modesty actually shifts responsibility to the hydrocarbons themselves, as if humans only lately joined a geological plot hatched elsewhere. Ethnographically, I treat such theories as a folk belief—or folk science—that obscures political and economic relations. On the ground, *people* populate the network that wills carbon emissions—and, therefore, climate change—to happen. Producers collaborate with consumers to move oil from underground reservoir to refinery, to engine, to atmosphere. Almost all the time, that process unfolds exactly as the sentient actors intended, anticipated, or could have anticipated it to do. Hydrocarbons are an instrument, like the hammer that one uses to pound a nail into a piece of wood. Until something goes wrong: oil does—let's say—conspire against people when its volatility causes a refinery to explode and contaminate the local environment. The CO_2 spill everywhere, on the other hand, figures only as the last link in a well-functioning commodity chain designed and operated entirely by men and women. At opposite ends of a long pipe, consumers act as the party complicit to producers of oil, and vice versa.

That multiplex human partnership encompasses only some people, some societies, and some states. The bulk of our species—minus the one billion high emitters—participates in oil mostly as victims of it. I do not share the mounting concern that humanity has become a geological agent, ushering us into the so-called Anthropocene era. The chemist Paul Crutzen popularized that neologism in 2002 to indicate "mankind's growing influence on the environment."[11] By now, a wide range of scholars, journalists, and activists defines the Anthropocene as "the first geological era shaped

by one species, humans." That charge assumes an onset of the Anthropocene from the domestication of plants or from the Pleistocene extinctions caused by the first Native Americans, as if maize cobs led inevitably to megatrucks (Ruddiman 2013). A minority of *Homo sapiens*—"industrial humans" perhaps—developed hydrocarbons and everything they power. Today a minority dumps gigatons of carbon into the atmosphere (Malm and Hornborg 2014). True, almost everyone buys plastic and other products containing oil and transported by burning oil. Yet the Zimbabwean peasant who lights her mud-and-pole dwelling with one petroleum-based candle hardly counts. She practices what Anna Tsing (2012, 95) calls "slow disturbance," artisanal lifeways that mostly recraft biodiversity. The prefix *anthro* spreads blame too widely (Chakrabarty 2009, 216). A small guild, so to speak, manufactures lethal climates for mass distribution.

In focusing on that guild, I have written a customary sort of ethnography. Part II of *Energy without Conscience* examines the current life of tribe-sized, faraway social groups so as to illuminate problems in North America and Europe. The bulk of my readers, I suspect, live—as I do—in the Global North and consume hydrocarbons at a fast clip. My informants live in Trinidad and Tobago and engage with hydrocarbons in additional ways. But the cultural distance is not so great that I need to familiarize you long-windedly with my subjects. The particular hurdle for this book lies in describing some of my informants as unusual at all. Crude oil, as the term even suggests, is ordinary, pedestrian. To disrupt that normalcy, the activist Bill McKibben labels oil, gas, and coal firms as "radicals. They are willing to alter the chemical composition of the atmosphere in order to get money. That's as radical an act as any person who ever lived has undertaken" (Climate One 2011). Trinidad and Tobago's energy experts find petroleum and gas where no one else does, and some of them export their knowledge to Africa and elsewhere.

Despite this trail of damage, I do not consider such people monsters, motivated by hate or beyond the arc of reason. My informants practice their professions in a fashion that both benefits society in the short term and uses a natural resource that would otherwise be neglected. They contribute only complicitly to a project larger than themselves. To that project, additional clusters of Trinidadians contribute less directly. Chapter 4 concerns environmentally minded activists, some of them poor and undoubtedly low emitters. These men and women became complicit by

omission: they refused to protest the global oil spill, as well as local ones, and in so doing crafted a narrow, indeed obsolete, politics of pollution. Finally, chapter 5 discusses what I call the climate intelligentsia of Trinidad, a loose group of scientists, activists, and policy makers who portrayed Trinidad as an innocent victim of climate change. Astonishingly, their rhetoric of small, vulnerable islands exonerated the country's oil and gas sector. These individuals all held erroneous assumptions, a fact that most—and mostly with humor—acknowledged to me. Some are now trying to move Trinidad's own energy grid from gas to renewables. Most, though, want simply to produce another barrel of oil.

The Feeling of Energy

How does it feel to change the climate in sensory, rather than moral, terms? Feeling connotes tactile experiences as well as ethical dilemmas. The former do not immediately lead to the latter. To take things in proper order then—as an ethnographic subject lives her life—let me ask, "How does it feel, in sensations, to consume energy?" Matthew Huber has already probed this issue in relation to U.S. suburbs. They present "an appearance of atomized command over the spaces of mobility, home, and even the body itself" (Huber 2013, 23). People feel free, as they flit in cars between detached houses and points of consumption. Residents of Port of Spain, or at least of its wealthier parts, also know this behavior and its sense of liberation. Many wake in the middle- and upper-class fringes of the city and travel into or through the urban core daily by car. I followed this pattern, sometimes alone and more often sharing transportation. The daily journey covered what one might call three energy zones related to different objects: automobiles, bodies, and buildings. Port of Spain is what Carola Hein (2009) calls an "oil capital." But it also seems to pulse with something more elemental—a kind of mania and revelry in the consumption of energy per se. Cars, exercising men and women, and air-conditioned edifices huffed and puffed visibly, even promiscuously.

The first sensation comes with combustion, the thrum of engines, and the pull of g-forces. With my family, I lived in Cascade, on the fringe of Port of Spain. We rented the house of Eden Shand, a retired politician described at length in chapter 5. As the name suggests, Cascade slides down the foothills of Northern Range, off dramatic ridges and into steep ravines.

1.3 Port of Spain viewed from St. Ann's. Photograph by the author.

The vistas are beautiful—and mostly accessed by car (figure 1.3). In recent years, developers have built roads and houses at the very limits of the automobile. Vehicles will not ascend slopes steeper than those in Cascade and its adjoining settlement, St. Ann's. The landscape then turns commuting into something more intrepid and exciting. I rode sometimes with Che Lovelace, as he descended Cascade with my son, with other children, and with eight long boards for a Saturday surf lesson. We whizzed through sinuous, riparian curves, the sea peeping through dense foliage, as Che drank a shandy or talked on his cell phone. Elsewhere we might get stuck in a traffic jam. But in Cascade driving was fun, and people reveled in it. Cheap gasoline—subsidized by the petrostate—underwrote this automobility. But a feeling enlivened it. Perhaps it was the thrill of driving in an urban geography not quite meant for the car, as shown in the foreground of figure 1.3. To me the lanes always seemed too narrow, the curves too blind, and the gradients way too up and down. In this sense, Cascade differed from a safe, sedately mobile American suburb. The car in Cascade—as it burned petroleum—pulled one up, down, and sideways.

At its southern apron, Cascade and St. Ann's spill into what I would call a zone of body energy. The Queen's Park Savannah, the greensward in the middle of figure 1.3, separates downtown from the northern outskirts. On that very grass in 2007, Eden Shand deployed his body against the car, protesting the paving of a southern section of the Savannah. A truck dumped gravel on him, damaging his spine permanently. Around the Savannah runs a 4-kilometer sidewalk, which is Trinidad's closest approximation to a pedestrian mall. People don't merely idle and stroll. Fit women and men come to see and be seen as they expend energy. Most go clockwise, with the car traffic, and no one crosses the Savannah. Running shoes on, I sometimes took part in this crowded rush hour of muscle and movement. It peaks in January, as people methodically tone their bodies for Carnival. They are enacting a cosmology—with a more positive outcome than in Shand's case. In Trinidad, writes anthropologist Daniel Miller, "the truth of a person exists in this labour they perform to create themselves" (2011, 50). Those exertions bear fruit as near-naked bodies cross through the south stands—along the same Savannah edge—to be judged on Carnival Tuesday. I "played mas," as they say, dressed as a bare-chested pirate. With my wife and two friends, we "chipped" down the road from sunup to sundown for two days. I believe there is no outdoor recreational event where so many people work so hard under such equatorial heat for so long. Rio's Carnival takes place mostly at night. The Boston Marathon finishes in a few hours. In Port of Spain, masqueraders sweat like slaves, practicing an art form derived from slavery. But even as they expend somatic power, they do not feel anything like slaves. At the edge of the Savannah, where a parking sign instructs, "four taxis facing north," I ran into the author of a short story by that name (Walcott-Hackshaw 2007). She was dancing with herself, with her body, blissed out and oblivious to the world.

That taxi rank marks the boundary of Port of Spain's third energy zone. Elites have built an archipelago of air-conditioning. From the point where I saw the writer in rapture, one crosses Queens Park West Road into the neighborhood of Newtown. Once a frontier of urban expansion, these dense blocks contain headquarters of foreign-owned oil companies: BP, Repsol, EOG, and British Gas. I did not go into these edifices very often. My research centered on Trinidadian firms and organizations. But I wandered those streets, sometimes meeting informants in the Rituals Café on Marli Street. Even outside one feels the energy of cooling. Frigid air pours out,

unimpeded by double doors or any of the other energy-saving methods employed elsewhere. Businesspeople emerge from buildings overdressed, scurrying from the tropical heat into climate-controlled cars. The Guyanese novelist Oonya Kempadoo (2001, 17) describes a look of "air condition skin," conveying wealth and the habit of self-protection from the elements. Perhaps a whole neighborhood can wear this aesthetic. Trinis themselves remark more frequently on the air-conditioning of another locale, about a mile south of Newtown. On the Gulf of Paria, the government had recently established an International Waterfront Centre. Its Hyatt Hotel and two glass spires—in the right background of figure 1.3—deliberately evoked Dubai. The Ministry of Energy and Energy Industries occupied some office space, but most of the square footage stood empty. Trinis joked about governmental hubris and speculated on air-conditioning. Dry season temperatures exceeded 90°F every day for months. Was the state burning its natural gas reserves to cool vacant acres? Or was it letting them bake, and risking equally expensive damage to the buildings? Workers at the ministry understood more than the average person about heat and energy. One usually burns fuel to *raise* temperatures. There is something miraculous—always seemingly futuristic—about combustion for cooling. It involves more artifice and people know it. Certainly, energy executives—with their "air condition skin"—knew it as they hurried from one vessel of privilege to another.

I conducted most of my ethnography along this energy-intensive transect of motors, muscles, and manipulated air. In Cascade, I lived near some of my informants, but not with the close immediacy of the classic peasant or tribal study. "Studying up"—as we call the ethnography of elites—requires surmounting barriers against access (Nader 1974). Petroleum geologists live behind walls, in gated communities. I had to meet them over lunch, over drinks, or in their offices. Conferences allowed me to carry out true participant observation. There—often in the resplendent Hyatt Hotel—I joined discussions and receptions with the most accomplished and powerful energy experts. To be objects of anthropological study alternately flattered and amused them. As I pushed this indulgence, attitude became my method. Promoters of oil and gas are wrecking the world. This conviction—my feeling about energy—has driven this study from the beginning. Initially coy, I gradually deployed this sentiment. If you really care about sea level rise, I would say over rum, why don't you

just leave the hydrocarbons in the ground? It was a provocation reminiscent of the filmmaker Michael Moore (2004)—who, in one memorable scene, asks congressmen to enlist their children for military service in Iraq.[12] Moore did not amuse his interlocutors. Perhaps because Trinidad has a tradition of teasing—called *picong*—energy experts took my jibes in stride. They laughed and then responded revealingly. Still, I wanted more. I wanted to find someone who agreed with me. So I left my customary corridor in Port of Spain and explored the oil fields and industrial sites of South Trinidad. I found people opposed to pollution in their communities, and asked, "Would you really be satisfied if this industry left here merely to export harm elsewhere, possibly to the whole planet?" Most would have been. Again, I learned a great deal while gaining little peace. I found data but not truth as moral clarity.

At least, I found complex individuals: the planner-cum-slaver Josef Chacón, the utopian-turned-oilman Conrad Stollmeyer, the eco-driller Krishna Persad, the selective environmentalist Wayne Kublalsingh, and the lady-doth-protest-too-much prime minister Patrick Manning. Throughout the book, I attend to the consciousness of key figures in the energy trade. Many of these men—men have consistently dominated the energy sector—failed in their own terms. They imagined more than they invented. Conditions frustrated their ambitions, or they themselves sold out their loftiest ideals. Why should any living or long-dead leader with few followers then attract followers now? The question or criticism would seem all the more pertinent in Trinidad, which has developed a tradition of cynical, distrusting appraisal. Eric Williams, the country's historian turned independence leader and first president, rose to prominence by debunking the pious sentiments of British abolitionists. Bondage was unprofitable before it became unpopular, he wrote in *Capitalism and Slavery* (Williams 1944), rather than the reverse. In the same spirit, Trinidad's talented calypsonians revel in unearthing corruption. Ridicule eventually touches every politician. Trinis understand complicity all too well. Meanwhile, anthropology has never privileged the individual over the collective, or the singular insight over the idea widely shared. In writing something like biographies, then, I am cutting against a grain of local discourse as well as the disciplinary sensibilities of my own social science. It is necessary to do so. Or, rather, my political agenda—to challenge people's complicity with climate change—compels the most thorough search for precedents and examples

of life without fossil fuels. In this sense, I resist the label "utopian." Everything that I and others seek in energy has already happened to someone or to someplace.

In *Energy without Conscience*, I am trying simultaneously to amplify and dampen public concern about climate change and fossil fuels. As a cause for alarm, this commodity chain threatens the conditions for life on planet Earth. Bill McKibben (2010) designates the carbon-enriched environment "Eaarth," a new spelling for a new, profoundly dangerous age. By 2100—if business continues as usual—grain belts will collapse and ecosystems will have already hemorrhaged species. Ecologically speaking, nothing this bad has occurred since the last mass extinction event, the dinosaur-destroying meteor strike of 65 million years ago. This time, as many observers now quip, "We are the asteroid" (e.g., McKibben 2003, 11). Here I would qualify the alarm and its misguided universalism. The "we" of seven billion *Homo sapiens* has not acted in concert. As a set of deeds, climate change is spreading in a patchy, discontinuous fashion. Environmentalists see this pattern every day. It is a planetary version of the toxic risks and exposures concentrated in poor communities of the Global North and South. Burning oil constitutes a form of environmental injustice and human-on-human structural violence. This interpretation—suggestive of war—indicates helpful, sober precedents. The United States devotes a fifth of its government budget to defense. More than a million men and women relinquish their liberty to serve as soldiers, sailors, and airmen. Imagine shifting all those resources and goodwill to defending ourselves from oil and climate change. If motivated by a national emergency, high emitters would replace oil and gas with wind and solar, conserve energy, and live differently. Perhaps considering oil as a merely military threat will help us phase it out (Garrard 2004, 107).

Thus, I would like to decelerate and redirect the rhetoric of apocalypse. Apocalypse, by definition, arrives without precedent and requires unprecedented defenses and adaptations. To relinquish fossil fuels, for instance, might require a dictatorship or "climate Leviathan" capable of repressing consumer choice in high-emitting democracies (Wainwright and Mann 2013). That speculation exceeds the bounds of this history and ethnography. *Energy without Conscience* contributes to the debate, nonetheless,

by suggesting that people have already envisioned the abandonment of oil. I do not share Slavoj Žižek's (2010, 334) despair in writing that publics imagine the end of nature more easily than the end of fossil capitalism. For that latter event, many societies have already trained and know—if only through their historical archives—more or less what to do. Trinidad once planned development without oil. There, in the eighteenth century, a Jesuit designed an agriculture powered only by equatorial sunlight. The governor of Trinidad harnessed the power of African bodies. Both schemes imagined what we now call alternative energy. A historian—or one narrowly tethered to chronology—might consign these failed plans to an ash heap of impractical or immoral attempts. As an anthropologist, I have (or have taken) the liberty of running history backward, excavating the solutions that predate problems, and indulging in counterfactual speculation: what if people had not banished God from the landscape, or what if, from the wreckage of Caribbean slavery, survivors had salvaged the value of walking, pedaling legs as useful energy? From off the favored Euro-American stage, this study engages in what Svetlana Boym (2008, 4) calls "off modern" thinking—"an exploration of the side alleys and lateral potentialities" of where we are.

There may be no better way to approach the question posed at the outset of this introduction: How does it feel to change the climate? How, furthermore, does it feel not to care? Where, I might add, is conscience, or guilt? Where—and this is what I also mean by *conscience*—is a sense of responsibility or reverence for energy and the world around it? McKibben wrote in 1989 about living morally with "the end of nature." He awakes into an "alertness," akin to the tensing of a swimmer hearing a distant motorboat (McKibben 1989, 49). McKibben's unease mounted so high that he founded the first climate change movement in the United States. I would like us all to acquire the same fear and to respond with a measure of McKibben's desperation and generosity. My informants stand at quite some distance from this position. From petroleum geologists to antitoxic activists, they mostly don't care deeply about climate change. They care now and then, but they don't care about global warming in that way that one worries over a sick, elderly relative, growing feeble, losing capacity, heading for a different state. Perhaps no one cares about climate change in the way that that senescent person herself faces mortality and the uncertainty of what lies beyond. The absence of those feelings presents a shape. It has contours

and boundaries. The ethnographer, in conversation with someone vaguely concerned about climate change, brushes against the skin of that silence, provoking defensiveness, a glance of recognition, or a joke that both parties know is not funny (cf. Kidron 2009). As much as nonfiction can do, *Energy without Conscience* attempts to illuminate that negative space. Let us see not-feeling-climate-change as a concrete thing. It sits among us like an antiquated superstition, too customary to discard but too backward to celebrate. I wish to expose that belief as retrograde and wrong. With this historical and ethnographic story, I hope to crack the chalice of disregard still cradling oil, its producers, and its consumers.