

C O N T E N T S

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I N T R O D U C T I O N

Land of the Freehold

“If I ever had to leave this property, I’d suck on a gun barrel.”* George Hagemeyer was staring out the kitchen window of his modest farmhouse at the large swath of lawn once tended by his father. A fifty-eight-year-old retired school custodian and proud “country boy,” he has lived on the seventy-seven-acre plot, tucked away in a secluded mountain hollow twenty minutes north of Williamsport in Lycoming County, Pennsylvania, his whole life.¹

When George’s parents bought the farmstead, in 1947, the house was rudimentary; a tornado destroyed the barn the next year. As the years went by, George’s father patiently fixed the place up and rebuilt the barn. He finally got around to starting work on an indoor bathroom to replace the outhouse in the fall of 1957. But a few days before Christmas, just as the biting winter winds began to sweep across the Appalachian foothills, he fell off a ladder while hanging plastic over the kitchen windows. “Hit his head on a rock.” George’s glassy eyes meandered from a strip of peeling linoleum to the very window where his mother, cooking dinner at the time, watched his father die. “Mom had to put his body and the seven kids in the car and run him to the hospital.” George was just two

* Throughout this book, double quotation marks signify that the utterance was audio-recorded and transcribed verbatim. Single quotation marks represent my reconstruction of dialogue based on handwritten notes. I make this distinction to signal that utterances inside single quotation marks may be less reliable than those inside double quotation marks, as it seems almost impossible to capture speech verbatim with notes, even if they are written contemporaneously.

years old. A bachelor to this day, he stayed home after all his siblings moved out, to help his mother raise a baby girl that his sister had planned to put up for adoption (a child whom he came to consider his), and then to care for his mother until her death, in 2008.

To be the steward of his dad's land, George beamed, was "all I ever wanted." He devoted most days to his estate. He paced the perimeter for hours each day ("I just love to walk my property"), religiously mowed the grass (which took the better part of a day), and tended to the lilac bushes his mother planted long ago. And he took hundreds of mundane photographs of his land with disposable film cameras, which he planned to compile as a book that will "stay with the property . . . after I'm dead and gone . . . [as] a record of what went on" here. George loved showing off his land and hated to leave the premises for even a few hours. He seldom did. In fact, he claimed it had been thirty years since he overnighted somewhere else. "My daughter *had* to see Disneyland," he chuckled.

I first met George in the spring of 2013. The Texas-based Anadarko Petroleum Corporation was in the midst of drilling six natural-gas wells on four acres of leased land it had cleared in a field 350 yards behind his house. It had long been rumored in these parts that vast reserves of methane lay frozen inside a stratum of shale buried a mile or so underground. Over the last century, ragtag "wildcatters" and a few more-established petroleum companies had periodically poked thousand-foot holes in the earth in the hopes of tapping into pockets of the gas that leaked out of the porous rock. In time, they threw everything but the kitchen sink down vertical wellbores to try to shatter the shale and increase the flow rate of escaped methane molecules. Some tried dynamite, and even napalm; the government once experimented with nuclear bombs.² It was mostly a fool's errand. Even when wildcatters began hydraulically fracturing—aka fracking—shale in the 1950s, by forcing water, lubricants, and sand down the well at pressure high enough to open up tiny fissures in the rock, the value of the amount of gas recouped from each well seldom exceeded the cost of drilling. Drilling vertically into shale is like taking a core sample—each well can only tap a tiny cross section of it.

In the 1980s and 1990s, petroleum companies began experimenting with remote-controlled drill bits that, during their approach to the rock

layer, could gradually angle ninety degrees so that they tunneled along the methane-laced seam of shale—the equivalent of tapping the vein. It was only by marrying fracking with so-called horizontal drilling that the largest deposit of natural gas in the United States, the Marcellus shale “play” (industry parlance for a large shale mineral deposit), was finally opened up for development this century.

It is a cornerstone of American property law that estate ownership traditionally extends above and below the land’s surface, excepting instances in which surface rights and mineral rights have been explicitly severed by a previous title holder. The idea descends from the medieval Roman jurist Accursius’s dictum “Cuius est solum ejus est usque ad coelum et ad inferos” (Whoever owns the soil, it is theirs up to heaven and down to hell). This meant that energy companies could only extract the gas beneath George’s and his neighbors’ property if landowners gave them permission.³ It also meant that energy companies had to pay them a leasing bonus, compensate them for any “surface disturbance” to the land, and share a portion of the royalties generated by selling the gas extracted from their estate. George was one of thousands across the poverty-stricken rust belt who eagerly leased their mineral rights in the ensuing land rush, inviting an energy company to drill under his beloved homestead in the hopes of winning the fracking lottery.

Wearing a threadbare Montoursville High School Basketball T-shirt, George excitedly led the way to the parking lot-sized gravel well pad. “I’m fascinated by what they’re doing and how they’re doing it and how much it takes to do it. It’s really, really neat to watch it. I come down here every day.” The trail of trampled grass from his back door to the pad was testament to the retiree’s preoccupation. As we scrambled atop the berm overlooking the giant industrial operation, a 150-foot-tall drilling rig loomed like a larger-than-life erector set, methodically driving three forty-foot segments of threaded steel drill pipes into a predrilled hole. George marveled at the engineering feat we were witnessing: ultimately, the threaded-together sections of steel pipe would plunge vertically for a mile, then gradually arc horizontally as they neared the shale layer, where they would then burrow parallel to the surface for another mile through the rock seam under George’s and his neighbors’ properties. After cement casing was poured as a protective

lining, pipe-bomb-like depth charges placed along the horizontal portion of the wellbore would be detonated, unleashing a hail of ball bearings to perforate the shale. Finally, dozens of big rigs carting millions of gallons of water, sand, and chemical-laced lubricants would idle on the well pad as their contents were mixed and then injected at high pressure into the well to frack it, creating thousands of tiny fissures in the rock that allow the gas to escape. (The sand acts as a “proppant,” holding the fractures open.)

George conceded that the rural serenity he held dear was shattered by the security guard shack and portable toilet stationed at the entrance to his unadorned gravel driveway, the caravan of big rigs inching by his house, the large earthmovers tearing up his meticulously mowed lawn, and the din of drilling equipment. “I might as well be in Williamsport,” he grumbled, meaning that fracking brought the worst of the urbanized county seat to the pastoral landscape of Trout Run. Despite enduring months of near-nonstop disruption, however, George said he still felt good about having leased his land to Anadarko. “Anadarko’s been great to me,” he emphasized, noting that when they dug up “mom’s lilacs” they carefully replanted them. If the gas firm caused any problems, George insisted, “I would be the first to tell you.” His smile fading to a stone-faced stare, he vowed, “It’s my dad’s land. Excuse the phrase, but nobody’s gonna fuck it up, or I’m going after ‘em.”

George had heard about problems with fracking in Dimock, a town to the north made infamous by the images of flaming faucets featured in the provocative 2010 documentary *Gasland*. But, a contrarian by nature, he was skeptical: “All the crap you hear on TV of this is bad, this is gonna happen, they’re doing this, they’re doing that . . . I just don’t go for it.” Perhaps George would have paid heed if he had known about the troubles experienced by a couple living just eighteen miles from Trout Run, in another rural hamlet outside Williamsport. Tom and Mary Crawley, childhood sweethearts who kept a tidy home on nine acres of ancestral farmland, only leased their land after consulting with other residents of Green Valley. They wanted to be good neighbors. In the end, the Crawleys and their neighbors decided to collectively bargain with gas companies as a landowner coalition in an effort to get fair leases for everyone. Strikingly, after a neighbor’s gas well flooded their drink-

ing water with methane, the Crawleys' neighborliness also kept them from "raising a stink" about it. Tom said he was determined to keep the incident out of the news. As he saw it, his friends benefited from fracking, and he worried that environmentalists might harass his neighbor if they found out how the neighbor's gas well had contaminated his water.

Environmentalists were not welcome around here. After many conversations with George, I could not help think that his skepticism about the risks posed by drilling was related to his disdain for a certain anti-fracking activist named Wendy Lee who taught philosophy at Bloomsburg University. A tattooed self-proclaimed Marxist, atheist, and feminist, Wendy was known for disrupting local town hall meetings, blocking gas trucks, and stalking lessors' properties to photograph how fracking "rapes" the land. What galled George the most was that she did not even live in the area. Wendy was, in the words of a local industry-funded pro-fracking advocacy group, a "professional protester," commuting from a college town located an hour and a half away—beyond the edge of the Marcellus shale—to stir up trouble.⁴ George had yet to meet her, but he seemed to be almost spoiling for a fight should she dare trespass on his land.

Even more than by his dislike of Wendy, it seemed likely to me, George's confidence in the gas industry was influenced by the fact that Anadarko had provided him with a life-changing windfall before drilling even began: the pensioner received \$60,000 for allowing a small-diameter pipeline to be buried along the perimeter of his field in 2012; the pipeline would transport the gas away from his wellheads to East Coast energy markets. He saved some of the money as a college fund for his adopted daughter's kids, and he proudly showed off a new Ford SUV, a zero-degree-radius mower, and a treadmill that he purchased with the remainder. Once the six gas wells in his backyard were hooked up to the pipeline, in 2014, George's first royalty check for the gas extracted from under his land was a whopping \$34,880. George was on his way to becoming a *shaleionaire*.

* * *

Sociologist Kai Erikson notes that the Scotch-Irish and German immigrants who settled along the spine of the Appalachian mountain

range in the late 1700s and early-to-mid-1800s possessed a “keen independence of mind and a distrust of society.” To this day, the rugged hollows that stretch from Alabama to New York act as a “natural shelter from the jurisdiction of state and Federal law.”⁵ Observers like J. D. Vance note the perseverance of a “remarkably cohesive” Appalachian culture that upholds the individualist spirit of its original settlers.⁶ Life in Appalachia is not easy. It has some of the highest unemployment and poverty rates in the country, and many residents struggle with opioid and methamphetamine addiction. Locals can be notoriously hostile toward people perceived to be racial and cultural outsiders. But where many outsiders see a “white ghetto” marked by deprivation and pathology, many residents believe that their spatial and social isolation affords them “an almost perfect freedom,” according to Erikson.⁷ “To be free, un beholden, lord of himself and his surroundings,” opined the documentarian of Appalachia Horace Kephart, “is the wine of life to a mountaineer.”⁸

George would agree. He was fiercely protective of his property, and jealously guarded his sovereignty over it. He scoffed at the idea that his community—or the government, for that matter—had any say in how he used it. Live and let live, he figured. Many of his neighbors figured the same. So when the traveling salespeople known as “landmen” stalked country roads outside town, soliciting landowners to lease their minerals, many potential lessors like George took for granted that the decision was a private matter, even though development on their land could create spill-over effects that harmed their neighbors’ properties or degraded local environmental resources. In fact, there was no formal mechanism in place to facilitate collective deliberation over leasing. Nor was there robust federal oversight of land leasing or the industry itself. Most residents saw nothing unusual or troublesome about the fact that landowners had near-total autonomy over this land use decision and bore responsibility for determining the risk. Yet it struck me as odd, considering that many private decisions that may impact the commonwealth, like constructing a cell phone tower or a pond on one’s property, required a greater degree of public consent.

Most of us can avoid acknowledging how our behaviors may hinder others’ ability to enjoy environmental goods. Carbon-intensive actions like traveling by plane or eating meat are framed as personal lifestyle

choices that have no bearing on the public interest and therefore ought not be subject to oversight or restriction. The environmental impacts are diffuse and abstract. It is only when summed with countless others' individual acts that yours contribute to global warming, sea-level rise, droughts, wildfires, and hurricanes (which in turn jeopardize others' livelihoods). Though often described in the dispassionate language of behavioral science (e.g., "externalities"), the result is a political—and planetary—crisis: live and let live becomes a logical contradiction. It's impossible to freely live in a way that does not hinder others' ability to do so. I call this the *public/private paradox*.

Though few lessors thought about it on this scale, the decision to lease one's mineral rights for fracking can have significant planetary consequences. Every lease plays a small role in slowing America's transition to renewable energy. Methane itself is a potent greenhouse gas, and so the leakage of unburned methane from wells, pipelines, and other infrastructure contributes to global warming as well. But many of the spillover effects are felt much closer to home, on adjoining properties, in the form of air, water, and light pollution, damaged roads, the degradation of a community's rural character, and so on. Fracking is intimate. Shale communities are in the unenviable position of having to confront the public/private paradox face to face, at the fence post, the general store, Little League games, and town hall meetings. This book centers on how Williamsport-area residents negotiated the conflict between their commitments to personal sovereignty and to letting others live free—a dilemma that the climate crisis will force all of us to reckon with, sooner or later.

My analysis of how the public/private paradox played out in greater Williamsport offers a pathway into a series of large and pressing questions about how and why natural-resource dilemmas arise and persist, and about how America's political traditions and the rural-urban divide contribute to them.

* * *

In the end, almost every landowner in greater Williamsport leased. The few who sounded alarm bells were, for the most part, dismissed as elitist

outsiders with no skin in the game and a misguided faith in state regulation. Cindy Bower, a silver-haired environmentalist in her sixties, was one of those outsiders. She traveled the world, preferred the *New York Times* over the *Williamsport Sun-Gazette*, and drove a Toyota Prius hybrid. And she was considerably wealthier, more educated, and more liberal than most of her neighbors. (Donald Trump's populist message resonated with about 70 percent of Lycoming County voters in 2016 and 2020; the city of Williamsport, which is nearby but somewhat removed from the rest of the rural county, was Democrats' sole island of support.) Originally from Pittsburgh, Cindy moved to rural Pennsylvania with her first husband in 1973 to teach elementary school after getting a master's degree from Penn State. That made her a "rusticator"—someone of means who moved from a metropolitan area to the country—notwithstanding her decades of local residence. After getting divorced, she settled in town and remarried. In 1997, Cindy persuaded her second husband, a "city boy" and millionaire hotelier, to relocate from Williamsport to a 150-acre plot of dense forest and gently sloping fields adorned with a large man-made pond. "My husband said, I want water. If you can find some water, I'll move to the country." Cindy called the place her refuge from the world. The pond, the property's centerpiece, was rimmed by two handsome chalets that the Bowers had built (one for her parents) and a guest cottage reconstructed from the original nineteenth-century log farmhouse.

As we sipped coffee in her sunroom on an overcast April morning in 2013, watching raindrops send countless tiny ripples across the pond's surface, Cindy reminisced about carrying signs for the first Earth Day, in 1970, and lamented that the condition of the planet has only worsened since then. Most especially, she worried about the ecological damage wrought by what she described as America's century-long addiction to fossil fuels, of which the shale gas extraction around her was just the latest chapter.

The first time Cindy saw a well pad, she said, was on top of Bobst Mountain, in 2010. "It was a shock," she recalled. "It was a jaw-dropping shock." Five acres of century-old white pine trees had been ripped out and piled on the side of the road like matchsticks; dozens of belching big rigs overran the edges of steep gravel switchbacks. "I couldn't believe

they were doing this here.” She felt violated. Soon after, she joined the Responsible Drilling Alliance (RDA), an anti-fracking advocacy group cofounded by Jon Bogle, Ralph Kisberg, and six others, in 2009, and based in Williamsport. When the landman came knocking later that year, “I said, no thank you, we’re not interested. I threw away the paperwork.”

Over the next three years, Cindy watched fracking transform the tranquil, bucolic hamlet of Trout Run into a clamorous, gritty mining town. In the half dozen times I visited her, within just a quarter mile of her house I saw that earthmovers had leveled the side of a mountain to build a parking-lot-sized well pad; two huge drilling rigs manned by dozens of workers operated around the clock; tractor trailer caravans snarled traffic and pulverized the road; and a fifty-foot plume of fire shot from a flare stack for days. “We have a tendency to destroy what sustains us,” Cindy rued, “and that’s what I see happening here.” But, unlike some RDA members, she also acknowledged that taking a stand against fracking was a privilege her land-poor neighbors could ill afford. She did not begrudge George, or the many other residents of Trout Run, for leasing. “Who am I to deny them the money? We don’t have to make money off this land; we make money from hotels.”

Cindy was doing her part to protect the region’s natural heritage. Outraged that the governor had leased 102,679 acres of public forests for drilling between 2008 and 2010, she spent the next six years voluntarily assisting the Pennsylvania Environmental Defense Foundation in pursuing a lawsuit against the state. The suit alleged that auctioning and developing the mineral rights under public lands violates a clause in Pennsylvania’s constitution that designates these areas “the common property of all people” and guarantees residents a “right to clean air, pure water, and to the preservation of natural, scenic, historic, and esthetic values of the environment.”⁹ Though Cindy had no say in what her neighbors did on their own private property, state forests are “our land.” As a stakeholder, she felt she had both a right and a duty to stop the privatization of these commons.

Closer to home, Cindy and her husband obtained a conservation easement on their land in 2009 from the Western Pennsylvania Conservancy

to enshrine its Arcadian character. She took comfort in knowing that her sliver of the dense second-growth forest ecosystem, which stretched from her front door up the side of a mountain a half mile away, would remain pristine in perpetuity. But Cindy was powerless to stop the “noise, the light pollution, and the smells” of industry—the aggregate result of George’s and her other neighbors’ decision to lease their land—from trespassing on her Eden. Her usual avenue of environmental advocacy—civic engagement in local land use public hearings—was effectively blocked. Although Pennsylvania is a “home rule” state, new industry-friendly laws enacted by the Republican-dominated government in Harrisburg neutered municipalities’ ability to use zoning to control how fracking proceeded within their jurisdictions.

The acute sensory disturbances, like dynamite explosions and flames from a flare stack so bright and loud that they blotted out the stars and forced Cindy to sleep with ear plugs, were more than an annoyance: they produced a deep-seated feeling of anxiety and dislocation. Cindy lost sleep, stopped going for walks, and talked about moving to New York, where fracking is banned.

Of all the landowners I befriended during the eight months I lived in Williamsport, in 2013, and in my six years of follow-up research, Cindy was the last one I expected to lease her mineral rights to an energy company. But Cindy had a startling confession to make as we perused a new forest clearing for a gas well in her Prius one summer day—she and her husband had actually leased their land the year before I met her. Registering my stunned silence, Cindy quickly added that the lease did not violate their property’s conservation easement. The gas company could only burrow 1,000 feet or more beneath the land. Not “a single fern or rock can be overturned” on the surface. The restrictions she put in place also meant that her lease would not contribute in any noticeable way to the industrialization of Trout Run. No well pads. No pipelines. No flaring. No trucks. No noise.

Cindy flatly admitted she did not need the \$150,000 lease bonus. But she saw it as “the only possible compensation” for the deteriorating quality of life she had involuntarily endured for years because of her neighbors’ decision to lease their land. Cindy’s revelation shocked me,

but I was sympathetic. Because of the state and federal governments' hands-off approach to regulating the industry, and because of the unique degree of control that American property law traditionally grants to mineral estate owners, she faced an impossible situation. In the end, she concluded that her principled holdout did nothing to allay the devastation caused by fracking in the area. "Everything around us is leased completely!" It was a lost cause. Cindy was entangled in a real-life *resource dilemma*, which is what decision scientists call a situation when noncooperation among individuals—that is, putting self-interest before the group—leads to the deterioration and possible collapse of a shared resource. In the end, she behaved seemingly just as economists would predict—selfishly.

George's relationship to fracking also changed over time. In April 2014, about a year after I first met him and soon after he got his first royalty check, for almost \$35,000, I invited George to speak to my students at New York University (NYU) as a representative of lessors who benefit from and support fracking. He used a portion of his new-found wealth to make the four-hundred-mile round trip to my class in a stretch limousine—only to tell us that he now regretted leasing. George was not one of those well-documented lessors who became reluctant activists after their land or water was poisoned; his property suffered no environmental calamities.¹⁰ His regret was the net effect of dozens of ostensibly minor indignities—a guard temporarily blocking his driveway to facilitate the removal of heavy equipment; a security camera installed by the gas company without his knowledge to monitor the well pad in his yard; the nonchalant manner in which truck drivers drove on his grass—that sapped George's enthusiasm for the industry. It was a profound lesson for my students, and for me. The essence of George's lament was that he had unknowingly surrendered his land sovereignty to a powerful industry that trades in misinformation. He was no longer lord of himself and his surroundings.

Cindy and George lived only two miles from one another, which qualified them as neighbors in the sparsely populated community of Trout Run. Though beginning with opposing views, over time, each of them became deeply ambivalent about fracking. Both second-guessed

their decision to lease their land. Yet they never discussed their experiences with each other. In fact, they never met. One could say they occupied different worlds. Cindy was a member of the RDA, the small anti-fracking advocacy group comprised almost entirely of rusticators and townies that regularly gathered at a high-end restaurant in Williamsport's urban center. The group coordinated small protests in front of the courthouse and natural-gas installations, distributed leaflets in plazas and local businesses, sat down with local politicians and regulators, and organized local nature hikes and photography exhibits to raise awareness about gas drilling in state parks.

Few of the RDA's activities brought members face to face with residents in the surrounding rural parts of the county. Many nearby landowners like George avoided Williamsport. They felt more at home dining at Cohick's Trading Post, on Route 973, which advertised two items on its roadside letter sign: "Waffles and Chix" and Remington rifles; the woods were for hunting and fishing, not nature walks. They suspected that fracking skeptics like Cindy were liberal, elitist city slickers with no understanding of the local economy and no respect for rural values. Some saw fracking opponents as a threat, attempting to regulate away their livelihoods and land sovereignty (along with, perhaps, their guns).¹¹

Over a period of seven years, I became intimately familiar with Lycoming County's urban and rural social worlds—and with the boundaries that often separate them. I hobnobbed with artists at city galleries, prayed with gas workers in backwoods churches, hiked with environmentalists and tailed along with hunters in state forests, huddled with farmers at the kitchen table, cheered with families at Little League games, and attended dozens of town hall meetings.

Yet in all my travels, I only came to know one person who regularly traversed the political, economic, and cultural divides that separated George and Cindy: Ralph Kisberg, the sixty-year-old cofounder and president of the RDA. Born and raised in Williamsport, this prodigal son returned in 2008 to care for his elderly mother after stints marketing oil-and-gas-drilling investments for a Wall Street firm, working in an offshore oil-and-gas-production field in the Gulf of Mexico, and manag-

ing a tribal-hunting preserve in New Mexico. Gas drilling was just picking up then, but his life experience led him to conclude that the idyllic outdoors of his childhood were endangered. At the same time, Ralph understood that many locals were desperate for the economic boon that fracking might provide and were not politically predisposed to see regulation of industry as a good thing. He also conceded that, from a planetary perspective, it could be worse—fracking was far less disruptive than mountaintop coal removal. And he was humble enough to recognize that he had spent far too long away from home (over thirty years) to swoop back in and tell people how to live.

From the beginning, Ralph sought common ground, a sentiment reflected in his support of the idea to name their organization the *Responsible* Drilling Alliance rather than, say, the *Anti*-drilling Alliance. He held out hope that many of the problems created by fracking could be solved with better technology and more oversight. And he sought understanding—of the technology that underlies fracking and of the perspectives of landowners deciding whether or not to lease their land. Living mostly off unemployment insurance and the occasional house-painting job, Ralph dedicated his life to researching fracking from every possible angle. For five years, he went to almost every permit hearing and public comment forum that he heard about (his traveling expenses were offset by donations he helped secure for the RDA); spent several mornings a month at the regional Department of Environmental Protection (DEP) office scouring gas well inspection reports for violations; studied industry magazines and attended vocational workshops; and read peer-reviewed scientific articles to understand the properties of shale and methane. Perhaps most importantly, he spent hours each day traveling county backroads to document firsthand the impact of fracking and meet with landowners and hear their concerns. He routinely wrote up his findings for the RDA newsletter or used them to place stories with regional journalists. Even when Ralph encountered ardent supporters of drilling, he offered to help them figure out ways to mitigate the quality-of-life impacts.

Ralph took an interest in my research from the beginning and served as my informal community envoy after I moved to Williamsport in 2013.

He still sends me updates, minutes from meetings, and even his own field notes. A folk anthropologist in his own right, Ralph's research helps me stay abreast of local events in between my revisits to the area. I also count him as a friend.

Ralph's deep knowledge of all aspects of the issue, his preternatural capacity for empathy, and his low-key demeanor garnered him respect and goodwill from just about everyone he encountered, no matter their environmental politics. He mingled with buttoned-down petroleum engineers as easily as with anarchist Earth First! activists. He developed a network of professional experts whom he could call upon for advice. And he was often the only "citizen" invited to closed-door meetings with statewide environmental-policy leaders, state representatives, and industry stakeholders in Harrisburg. Despite his (measured) anti-fracking stance, it was through Ralph that I met many people on the other side of the issue. I befriended a landman named Russell Poole after Ralph invited us both out for a night of drinking and karaoke, and a pro-drilling state representative returned my phone calls after Ralph vouched for me. I am also indebted to Ralph for connecting me with George, whom Ralph befriended after he pulled over to look at a drilling rig in George's yard.

Ralph made real connections between the concerns of urbane, liberal environmentalists and provincial, conservative landowners. But it was a lonely mission. The more he rubbed shoulders with industry and Harrisburg power brokers, the more he lost stature among some of his activist peers. Most RDA members were not in the mood to compromise after the Republican legislature rolled back zoning regulations that restricted fracking. Yet here was Ralph, who, despite his personal disgust for the rollback, was saying that he thought a local pro-industry conservative state representative was someone they could work with and questioning whether the scientific evidence supported the RDA's alarmist claims about the link between fracking and cancer. As tensions mounted, Ralph decided to step away from the RDA in the fall of 2013 and embark on a road trip out West "to get back to landscapes that inspired me instead of depressed me." Williamsport lost its emissary between Cindy's and George's worlds.

* * *

Fracking is one of today's most consequential and contentious land uses. Many politicians, corporations, and ordinary people believe fracking offers a chance to return to America's postwar glory days: cheap fuel, energy independence, and a domestic manufacturing revival. But for many fearful environmentalists, fracking augurs poisoned groundwater and an indefinite extension of our dependence on carbon-intensive fossil fuels that will stunt the growth of renewable energy. The gas (and oil) boom enabled by "unconventional" drilling (the industry term for horizontal drilling and fracking) through shale is little more than a decade old, yet more than seventeen million Americans in eleven states now live within a mile of a fracked well. Millions more live within the blast or spill radius of the nation's 2.6 million miles of oil and gas pipelines.¹²

The federal government greased the skids for the boom, both by opening up millions of acres of federally protected land for drilling and by relinquishing its regulatory authority. The so-called Halliburton loophole that Vice President Dick Cheney, a former CEO of Halliburton (the world's largest provider of fracking services), slipped into the Energy Policy Act of 2005 exempted fracking from the Safe Drinking Water Act and effectively stripped the Environmental Protection Agency (EPA) of its jurisdiction over the process. Within this "federal policy vacuum," analysts observe, fracking is subject to "a patchwork of quite different governance systems from state to state."¹³ A few states have banned fracking (e.g., New York, Maryland). But most states with lucrative shale deposits have facilitated development in one form or another, such as by preempting municipalities' autonomy to regulate or ban fracking locally (e.g., Pennsylvania, Colorado, Texas) and by leasing state public land. Pennsylvania does not even impose a severance tax on locally produced gas that is sold out of state. In 2020, a statewide grand jury investigation concluded that Pennsylvania regulators "did not do enough to properly protect the health, safety and welfare" of citizens. The state DEP was so loath to prosecute industry malfeasance that the jury suggested vesting that authority with Pennsylvania's attorney general.¹⁴ Until recently, fracking enjoyed strong bipartisan support, including from President Barack Obama.

The status of fracking as the fulcrum of US energy policy was cemented after the 2016 election of President Trump, who vowed to ramp up domestic fossil fuel production and commanded the EPA to aggressively roll back oil and gas regulations. (Trump's original appointees to head the EPA, Department of the Interior, and Department of Energy were all climate change skeptics bullish on shale gas. Rex Tillerson, his first secretary of state, was previously the CEO of Exxon Mobil.) America's largest shale gas play is the Marcellus, which extends over 90,000 square miles from New York to West Virginia. Pennsylvania commands the lion's share of this mile-deep "super giant gas field," making it the epicenter of the gas boom. Over 12,600 unconventional wells have been drilled there since 2004, and over 9,000 additional permits for unconventional wells have been issued.¹⁵

As many energy analysts note, the frenetic pace and vast scale of the fracking boom constitutes an energy revolution that is transforming geopolitics and the world economy. "King Coal" has been dethroned. Mothballed factories have reopened to supply the steel for pipelines and drilling rigs. And the sudden glut of US natural-gas reserves available for export allows European countries to decrease their reliance on Russia's Gazprom, loosening Vladimir Putin's political stranglehold over his neighbors.¹⁶ (In announcing plans in 2019 to build a liquefied-natural-gas facility to export America's newfound methane surplus to Europe, the Department of Energy called the fuel "molecules of U.S. freedom.")¹⁷

Yet the big picture overlooks how personal fracking is. Shale-gas and oil drilling in the US is peculiar insofar as the decision of whether to extract the resource is in large part an individual rather than a collective choice. To be sure, the federal government manages the mineral estate of about seven hundred million acres, almost one-third of the US, "for the benefit of the American public."¹⁸ But the fracking boom depends on millions of private citizens, or companies, who own subsurface mineral rights privately agreeing to lease or sell their mineral estate to firms like Shell and Chevron. In most countries, decisions about subsurface oil and gas development aren't made by private citizens. Instead, the government retains mineral rights (only the surface can be privately

owned) and decides whether developing them is in the public interest, often with input—if not votes—from its citizens.

The United States is in fact the only country in the world where private individuals own a majority of the subsurface estate.¹⁹ Inspired by the philosopher John Locke's declaration of private property as a "natural right," eighteenth-century English common law—which governed property rights in the American colonies—adopted a "maximalist" definition of property ownership, called *freehold*, after the abolition of feudalism. "Land hath," the law stated, "an indefinite extent, upwards as well as downwards." This meant that a freehold title gave its holder control over not only the surface, but also the subsurface and the air above, "with freedom to dispose of it at will."²⁰

In English common law, this freehold guarantee was accompanied by a huge asterisk: the Crown retained exclusive rights to all subsurface oil, gas, coal, gold, and silver. After throwing off the yoke of imperial oppression, America's founding fathers were determined to build a democracy that guaranteed freedom from government control over individuals' private actions and the fruits of industry.²¹ Locke, whose classically liberal ideals—life, liberty, and property—undergird the US constitution, insisted that sovereignty resides solely within individuals, and that the state can "never have a power to take to themselves the whole or any part of the subject's property, without their own consent."²² American property law embodies this tenet in a concrete and consequential way.

It was only in America, the true land of the freehold, that it became possible for "whoever owns the soil" to own it "up to Heaven and down to Hell." (The advent of air travel, however, restricted air rights.)²³ Freehold titles are still the most common form of property ownership in America. But another distinctive dimension of American property law has resulted in a situation whereby millions of landowners—especially in the American West—do not own the minerals underneath their estate: the title to the mineral estate and the surface can "vest in different owners," meaning that a freehold property owner can convey the mineral estate separate from the surface. This is known as split estate.²⁴ One reason why split estate is common west of the Mississippi is that the

federal government retained the mineral rights to most of the land it granted to Western settlers from 1909 onward. Another reason is that the long history of conventional gas and oil drilling in states like Texas and Colorado means that the mineral estate may have been severed from the surface during a previous era of development by the original freehold title holder.²⁵ In split-estate scenarios, the surface owner can't prohibit the mineral estate owner from developing the subsurface, even if the surface is impacted. Nor does the former share in any profits that result.²⁶

Lest we get bogged down in the details of split estate and public versus private subsurface ownership, the upshot is this: it is only in America that private citizens own the majority of the mineral estate and are granted the exclusive right to enter into private negotiations with a third party to extract subsurface gas and oil—and profit from it.²⁷ This reality goes a long way in sealing the fate of shale-gas and oil extraction in the US as a seemingly unavoidable resource dilemma. There was little room for collective deliberation. And rather than mediate land use decisions in the name of the public interest, the government mostly stepped aside—or got in on the action itself.

It is estimated that over three-quarters of producing oil and gas mineral estate acreage in the continental US is privately held.²⁸ It just so happens that most of these mineral estates sit under the socially and geographically isolated heartland communities most decimated by the postindustrial service and tech economy. What this means is that, especially east of the Mississippi, where split estates are far less common, this incredibly momentous and far-reaching decision about the planet—to frack or not to frack—is largely in the hands of conservative, working-class whites residing in rural America—precisely the communities that purportedly feel forsaken by beltway politicians and coastal elites. This book tells the story of one such place: greater Williamsport, Pennsylvania, a down-on-its-luck Appalachian rust-belt community known for hosting the Little League World Series that tried to reinvent itself as “The Energy Capital of Pennsylvania.”

Williamsport, a city of 28,000, is the gateway to North-Central Pennsylvania. Served by several interstate highways and proximate to the



FIG. 0.1. Williamsport. Photograph by Tristan Spinski.

Susquehanna River and East Coast energy markets, this faded former lumber town affectionately nicknamed “Billtown” became ground zero of the gas boom. Its tiny downtown added new hotels and restaurants to cater to an influx of itinerant gas workers; its office buildings and industrial parks enticed oil and gas companies like Halliburton; and the gas companies met many of their servicing needs through subcontracting with myriad local businesses. White pickup trucks—the company car of the oil and gas industry—were everywhere.

The surrounding area saw more new gas wells drilled in 2012, the year before I moved to Williamsport, than any other county in Pennsylvania.²⁹ For a time, Billtown was boomtown. These days, however, a glut of natural gas has led to a massive industry slowdown. White gas trucks have disappeared from the Holiday Inn parking lot; a Texas barbecue restaurant popular with gas workers closed; the local Halliburton facility went from six hundred to forty employees.

When I first moved into a former lumber baron's subdivided mansion in Williamsport, in January 2013, with a trusty old Toyota Camry I bought with 178,000 miles on it, I worried that my outsider status (and maybe even my Japanese car) might hinder my ability to integrate into the community. Although some were quick to ask if I was a "liberal" biased against fracking when I told them I was a professor at a university in New York, few objected to me asking questions and hanging around. It is plausible that other aspects of my biography—in particular, that I am white and was born and raised in Pennsylvania—may have helped facilitate rapport. Parochialism worked for me in other ways too: the quirks of small-town living created surprising social networks, with the result that one acquaintance could often introduce me to a broad array of people. Many locals were involved in civic groups that cut across social class and occupational lines. Even George, who was mostly a loner, sat on the school board of Montoursville Area High School, where he was a janitor for thirty years, which connected him to some of the town scions. I eventually became so well-known in certain social circles that it became socially awkward to stonewall me. One petroleum engineer politely refused to meet with me for months, but after running into me repeatedly at public gatherings and seeing that I knew many of his acquaintances, he graciously relented to my request for an interview.

My move to Billtown was inspired by my NYU students. I had just finished teaching a course called "Environment and Society" for the third year in a row. The course coincided with the release of the incendiary anti-fracking film *Gasland* and the drilling explosion that heralded the so-called Shale Revolution. The flaming faucets and brown water featured in *Gasland* prompted fierce debates among environmental scientists and in the media about whether drilling can cause methane to migrate into drinking water (it has) and to what extent the millions of gallons of frac fluid (0.5 percent to 2 percent chemical additives; the rest is water) injected deep underground to stimulate each gas well can contaminate groundwater (there is less evidence of this).³⁰ Against this backdrop, my students and I watched President Obama's 2012 State of the Union address, in which he declared that fracking could unlock enough natural gas from under America's soil to supply cheap domestic

energy for a hundred years and support more than 600,000 jobs by the end of the decade. In addition to the economic benefits, he added, it could reduce greenhouse gas emissions by making “dirty” coal obsolete. Tapping into the mood of an increasingly war-weary and isolationist populace, Obama also held out the tantalizing prospect that fracking could finally allow the US to free itself from dependence on Middle Eastern oil.

Amid the euphoria over the game-changing economic potential of fracking, my home state of Pennsylvania was suddenly being called the “Saudi Arabia of Natural Gas.” Governor Ed Rendell (D) moved quickly to auction the mineral rights to over 100,000 acres of public land, raking in \$413 million for state coffers.³¹ In my adopted state of New York, Governor Andrew Cuomo (D) could not decide whether to lift a moratorium on fracking installed by his cautious interim predecessor or ban it. Fired up by *Gasland* and the star-studded protest anthem “Don’t Frack My Mother” (penned by Sean Lennon and Yoko Ono), many of my NYU students became fractivists, organizing protests in Washington Square Park and chartering buses to Albany to push for a ban. Opposing fracking suddenly became chic. After years of public equivocation, Cuomo enacted a ban in 2014, citing health and safety risks. Poor up-state rural residents, who lost the ability to develop their mineral rights, accused Cuomo of spurning them; one online headline read: “Gentry Class Elites Tell Rural America to Drop Dead.”³²

I admired my students’ passion, but I felt ill-equipped to lead a discussion about an environmental issue so new that I had trouble locating scholarly research on the topic. I had no idea if fracking posed a significant threat to drinking water. And I did not know enough to deliberate the complicated question of whether the costs outweighed the benefits for impacted communities. One day in class, several students launched into a diatribe against the oil and gas industry—and against the land-owners who had leased to them—and urged their classmates to attend an anti-fracking rally. I asked the class of eighty whether anyone had ever seen a gas well or met anyone who leased their land. No one had, including me. This made sense: almost all of the country’s shale deposits are located in flyover country, while almost all of the epicenters of

fractivism are coastal cities. I realized that this reality spoke to the political and cultural distance between rural and urban America. And I worried that my students and I were enveloped in a cosmopolitan “filter bubble” that isolated us from information and viewpoints that might tell a different story about fracking.³³

I wanted to hear directly from rural landowners who leased and, in some cases, refused to lease their properties to gas companies. I would adopt the mission and methods of the anthropologist by moving to a shale gas community and doing my best to understand things from locals’ perspective. Yet, as a trained sociologist, I had absorbed the key lesson from the classical sociologist Émile Durkheim’s book *Suicide*: even the most seemingly personal or selfish actions, like taking one’s life, are often impelled by broader social and cultural trends. So I was skeptical from the outset about claims that lessors were acting out of purely economic self-interest. In my class, we talked a lot about “environmental inequality,” by which we meant that poor and politically marginalized communities are least able to escape environmental problems: they are more likely to live near a toxic-waste facility and to suffer from asthma, lead poisoning, and other maladies.³⁴ In light of studies that show that these populations often have no other choice as to where they live, it was tempting to think of many lessors as helpless casualties: because they struggled financially and had few other economic opportunities, they had no real choice but to allow industry in their backyards. But most lessors bristled at the suggestion that they were victims. “Nobody held a gun to my head,” a retired truck driver named Doyle Bodle insisted, even as he showed me how gas drilling had blackened his water.

The story of fracking is often told as a parable of Main Street versus Wall Street: rapacious corporations threaten to crush Middle America’s soul (the journalist Seamus McGraw’s *The End of Country* falls squarely in this genre). Otherwise, fracking is presented as a “wedge issue” that tears towns in half or leads communities to rise up in solidarity, as in the Matt Damon–starring film *Promised Land*. But most shale communities do not easily fit into either of these narratives. Greater Williamsport is one of them. I was surprised at how uncontroversial fracking was here. Very few people mobilized against it. And almost everybody leased, so

I did not find a community divided between lessors and holdouts. I now know that more shale communities responded like greater Williamsport than not.³⁵

Surveys indicate that the majority of people residing over shale plays do not merely condone fracking. They endorse it. What was it, I wondered, about rural political and community life that led communities like greater Williamsport to enthusiastically support what armchair analysts categorize as a “locally unwanted land use”?³⁶ Certainly, locals had concerns. But they were much more likely to complain about truck traffic and noise, which to them made the country feel like the loathsome city, than they were to worry aloud about pollution and health. Was fracking less disruptive to the land and local communities than fractivists believed? Did locals simply have other priorities? And what happened to generations-deep bonds among neighbors, I wondered, when one struck it rich while the other struck out in the fracking lottery?

It was only after getting to know lessors like George and Cindy that I began to understand the social dynamic set in motion by land leasing as a rare opportunity to observe the unfolding in real time of a resource dilemma. A resource dilemma arises when the pursuit of self-interest results in the degradation of a shared resource, harming the common good. An oft-cited example is the abrupt collapse of the codfish population off the Atlantic coast of Canada in the 1990s after decades of unchecked overfishing, which crippled the marine ecosystem and put as many as forty thousand people out of work.

In the absence of external regulation or mechanisms that promote collective decision-making, understanding how people choose between self-interest and the community is critical for preventing resource dilemmas that endanger the planet. Yet researchers are usually forced to simulate resource dilemmas in a lab: they present subjects with a tangible and mutually exclusive choice set—hoard money or contribute to a collective pool—that forces them to deliberately choose between putting themselves or the group first. Such behavioral games can reveal important insights: for example, that the prospect of being shamed can make people more likely to act altruistically.³⁷ But knowing whether or not someone in a lab setting will donate a dollar that a scientist gave

them to a group of strangers hardly seems like an adequate way of predicting how they would respond to a community resource dilemma. Though nobody talked about fracking this way, I began to see it as a quasi-natural experiment: the “exogenous shock” of fracking forced people to choose between themselves and their neighbors. The stakes were palpable and high, and the fracking lottery created winners and losers largely based on geology and geography. The lived experience of the people of Lycoming County offered important real-world lessons that behavioral games could not uncover.

* * *

Behavioral scientists would explain lessors’ decision to lease their land (or not) as a rational strategy aimed at maximizing their utility: many locals leased because they needed the money. On the one hand, it’s important not to treat such a verdict, if correct, as indicative of human nature: if lessors had some say in how fracking transpired in their communities, or if the government took a more active role in regulating mineral leasing and the process of fracking itself, local landowners may have responded to fracking differently. On the other hand, much like classical sociologist Max Weber observed that the “Protestant ethic” of asceticism and capitalism’s logic of accumulation mutually reinforced each other, my research in and around Billtown convinced me that certain so-called American values played a distinctive role in enabling the resource dilemma associated with fracking.

Echoing nationalist public discourse about energy independence and the vaunted conservative principle of minimal governmental interference in the private sector, people like George firmly believed they had not only the God-given *right* to total autonomy over how they used their land but also a *duty* to realize its productive potential. They saw no conflict between gas drilling and so-called traditional values; fracking dovetailed with their ideals. After all, while citizens consent under the Rousseauian social contract to cede some independence to a higher authority in exchange for protection of their remaining rights, the US constitution enshrines personal liberty and property rights as inalienable. Exercising

these rights and retaining any benefits that accrue from them is more than permissible—it is moral, perhaps even patriotic.

The moral language that lessors like George used to defend private land-use decisions that have planetary consequences reflects the libertarian ideology that, according to cultural observers like Colin Woodard and Kai Erikson, reaches its apex in Appalachia: government distrust is rampant, individual sovereignty and private property are exalted (and protected, if need be, with guns), and privacy and self-reliance are prized. Yet it is worth bearing in mind that this worldview isn't a fringe political position. It is the product of a distinctively American mindset that has deep roots in our country's pervasive cultural veneration of individualism.

In his landmark study *Democracy in America*, written over 185 years ago, the French intellectual Alexis de Tocqueville noted Americans' peculiar "habit of always considering themselves in isolation" and "fancy[ing] that their whole destiny is in their hands." Americans feel that they "owe no man anything and hardly expect anything from anybody." (One need only imagine the archetypal homesteader, forty-niner, or entrepreneur.) This sentiment, Tocqueville observed, "disposes each citizen to . . . withdraw to one side with his family and friends, so that after having thus created a little society for his own use, he willingly abandons society at large to itself."³⁸ American property rights are a tangible and distinctive manifestation of this bootstrapping sensibility: one's land is her fiefdom; a freehold title holder is free to dispose of the soil and subsurface at will, and to hoard the fruits of her labor. Woodard credits Thomas Jefferson, the principal author of the Declaration of Independence, as the founding father most responsible for the abiding libertarian vision of America as a "republic of free and self-sufficient individuals whose economic and civic decisions would, in aggregate, produce a thriving economy [and] an ideal society."³⁹

Yet Tocqueville also observed that Americans' fear of government tyranny led citizens of all stations in life to display an unusual zest for self-governance and volunteerism. He perceived his subjects to be "forever forming associations"—from service organizations like the Rotary Club to school boards and civic groups—to foster local self-reliance.⁴⁰

Such participation, Tocqueville deduced, created a civic-minded citizenry committed to the common good. Citing Jefferson's nemesis Alexander Hamilton, who rejected the doctrine of *laissez-faire* and persuaded his colleagues that "the accomplishment of great purposes" required that individuals cede some sovereignty to a centralized federal government, Woodard claims that communitarianism is also a cornerstone of America's political heritage. The US remains "an individualistic outlier among liberal democracies." However, there are notable times and places in its history where cooperation aimed at advancing the general welfare and ensuring equality of opportunity triumphed over private interests.⁴¹

From the Constitutional Convention to the present day, political life in America has hinged on the problem of how to balance individual freedom and the *commonwealth*, which, in the words of constitutional and environmental-law scholar Jedediah Purdy, can be understood as "the general good or the well-being of the whole community."⁴² The question of independence versus community is an existential as much as an ethical question. And, despite the fact that conservatives are seen as prioritizing personal liberty while liberals are viewed as favoring the common good, it sometimes transcends traditional left-right politics. It is at the heart of debates about whether parents have the right to exempt their children from vaccines when doing so endangers population health, whether the invasion of privacy is justified in the name of national security, or whether citizens should be able to own assault rifles. And it explains why physical distancing and wearing a mask during the COVID-19 pandemic became such an explosive political issue in the US.

The advent of fracking imposed this political dilemma on rural communities in an acute form. Almost all residents felt they should be free to do what they wanted with their own property. On this principle, private leasing was nobody else's business. But they also believed others were equally entitled to that same right and in being a responsible community member. On these grounds, neighbors' interests warranted consideration since private leasing often impacted their quality of life.

Many prominent public intellectuals have concluded that Americans' emphasis on self-reliance and privacy has eroded citizens' involvement

in the public sphere and isolated them from one another. According to the well-known political scientist Robert Putnam, membership in voluntary associations, from the Lions Club to bowling leagues, has declined precipitously, as has voting, attendance at town hall meetings and public hearings, and churchgoing.⁴³ If “the ultimate ethical rule is simply that individuals should be able to pursue whatever they find rewarding, constrained only by the requirement that they not interfere with the ‘value systems’ of others,” sociologist Robert Bellah and his colleagues lament, there is no common purpose that unites us as a polity.⁴⁴

Concerns about excessive individualism and the apparent decline of associational life have become a recurring theme in our national public discourse. Yet missing from the conversation entirely, at least until President Trump exited the Paris Climate Accord, in 2017, is how the trend toward what could be called *civic dissociation* may impact Americans’ commitment to protecting the commons—the finite natural resources that equally belong to all, like air and water. In the pages that follow, I ask how American individualism and property law color people’s stance toward resource management on both private and public (i.e., state) land. I explore how environmentalism’s failure to craft a message that resonates with Middle America relates to the movement’s generalized antipathy toward self-governance. And I conclude by considering how our nation’s reverence for liberty and independence is implicated in America’s halting response to climate change.

* * *

When I moved to Billtown, I worried most about whether fracking tainted groundwater. By the time I left the area, my biggest concern was whether the liberty granted to citizens to lease their land, or to otherwise act in ways that limits others’ access to environmental goods, taints democracy.

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