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# Cutting Through the Smog: Teaching about Mountain Top Removal at a University Powered by Coal

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# Cutting Through the Smog: Teaching about Mountain Top Removal at a University Powered by Coal

## **Abstract**

Stepping onto the campus of Iowa State University, you can't help but notice the impressive ancient trees, the dignified brick and stone buildings, the flawless work of what seems like hundreds of groundskeepers, and, if you care about the environment, the enormous energy plant lurking on the edge of it all, a big smog-belching monster. Iowa State University offers a PhD in wind energy and dominates academic research in biofuels, but running the university depends on coal, the dirtiest energy source on the planet. Our power plant is ten stories tall, and emissions float over our campus twenty-four hours a day; yet, amazingly, it might as well be invisible, because many on campus—students, staff, and faculty alike—are virtually incapable of seeing it.

## **Disciplines**

Environmental Studies

## **Comments**

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# Cutting through the Smog: Teaching Mountaintop Removal at a University Powered by Coal

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Brianna R. Burke

What we are doing to this land is not only murder. It is suicide.

—Ann Pancake, *Strange as This Weather Has Been*

**S**tepping onto the campus of Iowa State University, you can't help but notice the impressive ancient trees, the dignified brick and stone buildings, the flawless work of what seems like hundreds of groundskeepers, and, if you care about the environment, the enormous energy plant lurking on the edge of it all, a big smog-belching monster. Iowa State University offers a PhD in wind energy and dominates academic research in biofuels, but running the university depends on coal, the dirtiest energy source on the planet. Our power plant is ten stories tall, and emissions float over our campus twenty-four hours a day; yet, amazingly, it might as well be invisible, because many on campus—students, staff, and faculty alike—are virtually incapable of seeing it.

As soon as I arrived in 2011 to teach environmental humanities, I knew I would have to address the haunting behemoth that makes everything on campus possible. On the first day, as I pulled into the parking lot adjacent to my building, the power plant towered above me, framed perfectly by my windshield. Coal is often considered the least expensive energy source on the planet, but it is only because

what the industry calls “externalities”—the ecological and social devastation caused by its extraction, and the myriad pollutants shed by its combustion—are not figured into its kilowatt-per-hour price. Instead, those “externalities” burden the global commons and are expensive indeed: coal is the largest contributor to global greenhouse-gas emissions.<sup>1</sup> If we truly hope to slow climate change, we must stop burning coal and leave the rest of it in the ground. We must start educating for sustainability, especially in the environments where unsustainable practices are woven into the fabric of our everyday lives.

Because our contribution to climate change is visible at Iowa State University and because climate change will dominate the future of every student in our classrooms, I designed a unit plan to connect my students to it directly via their energy consumption on campus. I include this unit both in my literature and environment class and in my transnational environmental justice course (alongside a unit on oil). The unit includes the eco-documentary *The Last Mountain*, written, produced, and directed by Bill Haney (2011); the novel *Strange as This Weather Has Been*, by Ann Pancake (2007); an “energy consumption” journal; the song “Stream of Conscience,” by 2/3 Goat (2010); and a field trip to the power plant itself. Like many in the environmental humanities, my pedagogy aims to render the invisible impacts of our everyday choices visible for students who live in a system they cannot see and that is not of their design, and my unit on coal has four primary objectives: it asks students to examine the multiple ways their lifestyles depend on energy consumption, to learn about the social and environmental impacts of coal, to link their consumption of energy directly to coal via a trip to the power plant, and, finally, to discuss personal accountability and activism, a theme that runs throughout my courses.

## Leveling Appalachia

*The Last Mountain* is the perfect text to open our discussion of coal and its environmental impacts, for when it comes to mountaintop removal, I have found that the old cliché “seeing is believing” is true. You can tell people that coal companies are literally blowing up mountains, that their modus operandi is to plow down some of the oldest and most biodiverse forest in the world, push it over the edge of the mountain, detonate 2,500 tons of explosives “equivalent to the power of a Hiroshima bomb every week,” sift through the rubble for coal seams, and then

dump the rest off the edges of what has become a barren wasteland into the valleys and streams below, where communities have lived for more than seven generations.<sup>2</sup> But until people actually *see* an entire mountain heave with TNT and disintegrate into a pile of rock and dust, they won't believe it. Words cannot encompass the sheer scale and madness of the destruction. The documentary initiates multiple conversations that echo throughout the course, encompassing our resource pleonexia, its effect on environments and peoples in other places, and its impact on us; the corruption of the democratic process by corporate power and financial influence; climate change and the mandate for clean, sustainable energy; grassroots activism at community, state, and national levels; labor laws, personal rights, and corporate "accountability"; the delicate "insider/outsider" balance of environmental activism; and what it means to love place or home so much that those who belong to it will fight desperately to save it. In fewer words, the film begins a larger and longer conversation about environmental justice and how all of our bodies inhabit complex networks of place, politics, and ecological processes—what Stacy Alaimo calls "transcorporeality."

The documentary opens with an aerial view of the mountains while a hawk circles overhead. As the camera pans, a cloud of smog issuing from a coal-burning power plant oozes across the screen, blocking our view of the forest. Bill Raney, president of the West Virginia Coal Association, says in a voiceover: "I don't think people understand where electricity comes from. I think most people feel like it's an entitlement." We then are told that "almost half of the electricity in the United States comes from burning coal" and that the film will revolve around the fight to save Coal River Mountain in West Virginia.<sup>3</sup> I linger over these opening moments, discussing the jarring juxtaposition between deciduous forest and pollution; I then ask my students: Is Bill Raney right? Is energy an entitlement? I want students to see that they live as if energy *is* an entitlement—we are taught to live our lives this way, and the environmental price of our lifestyles is purposely obscured. In this way, students' lives are bound into a system they did not create but nonetheless are culpable in perpetuating. Most of us are. The realization that they are complicit in destroying the environments and the lives of others without knowing it is devastating to many students; they can get stuck here, frozen in place. I understand their frustration. I feel it, too. But first we must learn to *see* the systems that co-opt our consent to conduct practices we may find abhorrent (or even criminal)—only then can we understand our place within them, begin to think of ways to work around them, and create strategies for enacting large-scale change.

*The Last Mountain* gives many examples of people doing just that—fighting to change a system, both from inside Appalachian communities and from outside. The documentary introduces us to Maria Gunnoe, resident of Coal River Valley and recent winner of the Goldman Environmental Prize; to Bo Webb, a member of the Coal River Mountain Watch; to Jennifer Massey, who explains how water contamination has affected her small community; and to Ed Wiley and his granddaughter as they fight to relocate Marsh Fork Elementary School, imperiled by an enormous slurry impoundment of toxin-laden sludge. These people are our local, on-the-ground grassroots community activists; they are the voices and faces of the fight against mountaintop removal, making it personal and intimate. Director Haney pairs these activists with “outsiders,” most notably Bobby Kennedy Jr. and members of Climate Ground Zero, to show that the fight is not just a local problem, but truly national in scope.

My discussion of the role “outsiders” can play in working with a community for change developed through successive years of teaching this unit, when I found students asked how they could get involved. To talk about the role of “outsiders,” I begin by discussing what David Aaron Smith, an activist for Climate Ground Zero, says in the beginning of the film: “I feel like there is a huge crime going on, and I have a right as a citizen to get in the way of a crime taking place.” I turn to my students: Do you agree? Do you ever feel that way? Why or why not? As a class we contrast Smith’s statement with Chad Stevens’s critique of Kennedy’s inclusion in the film. In a review of the documentary in the *Journal of Appalachian Studies*, Stevens argues that while Kennedy is a “great character” whose “celebrity” will draw attention to both the film and mountaintop removal, “the focus on Kennedy also places the people who are sick and struggling in the shadow of this one man, an outsider who has, presumably, come to the rescue of the locals.”<sup>4</sup> Is this critique fair, I ask students?

What Stevens really addresses with his criticism of Kennedy’s inclusion in the film is the difference between fighting *alongside* a community versus purporting to speak *for* them, a distinction I emphasize to my students. The people who live in the shadow of mountaintop removal don’t need a savior, I tell my students; they need *allies*. There is a huge difference between the two. We need to start educating students on the ways they can enact their education in the world and on what it means to be an ally. As allies, “outsiders” can garner national attention to a problem often ignored or hidden, which is what I also see myself doing. Like many of my students, I do not want to be complicit in a system that exploits others while silently co-opting my consent to do so. Rendering the otherwise invisible

impacts of our energy consumption visible for students is one of the ways I address my own personal complicity, but there are other ways to address it as well. As the unit lesson unfolds, we discuss the personal changes they can make by being mindful of their energy consumption. We also discuss how they can get involved by joining protests, because “outsider” bodies can make certain kinds of violence against “insider” activists unacceptable. If we aren’t willing to put our bodies into the fight, we can always agitate our politicians for change or lend our support to local people working on the ground in any way possible. *The Last Mountain* will suggest avenues for action, too, while showing that the balance between “insider” and “outsider” environmental and social activists fighting mountaintop removal is delicate. Both groups of activists are often scorned by the very people they want to protect—those for whom mining is a way of life and, in most of rural West Virginia and the rest of Appalachia, the only work available.

Unfortunately, the film does not give those who work for coal a real voice, an omission that is problematic, as it replicates their loss of voice in the industry as a whole. Students can’t imagine the lives of these men and women or the pressures they live under, which is why *Strange as This Weather Has Been* is an important corollary to the film. Instead, in *The Last Mountain*, coal workers are portrayed as ignorant, manipulated, “white trash” hicks. They appear briefly in a few scenes as they protest anti-mountaintop-removal activists, shouting, “Go home” and “Our coal, our jobs.” We even glimpse a Massey Coal–sponsored rally where workers are encouraged to engage in a call-and-response chant:

Whose coal? *Our coal!*

Whose mountains? *Our mountains!*

Whose jobs? *Our jobs!*

Whose freedom? *Our freedom!*

Whose America? *Our America!*

Don Blakenship, then the chief executive officer of Massey Coal, subsequently takes the stage and tells workers that “Environmental extremists are all endangering American labor. In fact, they are making American labor the real endangered species!”<sup>5</sup> While it is true that viewers are given a small window into how coal workers are manipulated and intentionally made to fear environmental activists (in the chant above, “coal” equals “jobs” equals “freedom”), what is missing is any sense of compassion for these men or their actual stories. Students don’t understand

that these men have families to support and labor under generations of pressure that have taught them that their very identities as men are linked to working with coal; furthermore, they have little, if any, power over their labor conditions. Massey Coal and other coal conglomerates have demonstrated time and again that their workers are fully replaceable. Students often will ask questions like “why don’t they just move?” without comprehending the depth of poverty in the region (to where? with what money?), which directly corresponds to wealth extracted in coal, or that educational attainment is also lowest in areas with the most environmental destruction.<sup>6</sup> In addition, because most of our students have come of age in a culture that does not value the environment or land in any other but economic terms, they forget to weigh what it means to belong to—and love—place. Most of my students are from Iowa or the Midwest, so of course they also don’t know the long history of labor, gender, and environmental politics in Appalachia, a gap *Strange as This Weather Has Been* subsequently helps to fill.

*The Last Mountain* finishes by including all viewers in the fight against mountaintop removal through a long discussion of climate change. Coal consumption doesn’t affect the people and the environments in Appalachia alone. It affects everyone. Because “coal is the largest source of greenhouse gases worldwide,” the documentary declares that “the epicenter of the climate change battle is Appalachian coal.” It then shows viewers how much the coal lobby spent on political campaigns—\$86 million—and argues that sustainable economic development in the region could instead reside in wind energy.<sup>7</sup> I rest here with my students for a moment to discuss both corporate influence in our democratic system and wind energy as a viable solution to our energy needs. In 2012, the coal lobby spent more than \$153 million on political campaigns, donating 89 percent of their money to Republicans. Alpha Natural Resources, which acquired Massey Energy in 2011, was the largest contributor by far. As for wind energy, Iowans have a great deal of pride in our state’s burgeoning industry, which provides more renewable clean energy to its citizens than any other state in the nation.<sup>8</sup> If my students didn’t exactly know that investments in sustainable green energy bring economic prosperity, they can *feel* it as more people move into the state to work in the wind energy industry. We will return to these issues again after we visit the energy plant on campus, because even as it is true that Iowa is on the forefront of renewable wind energy development, our infrastructure at ISU still depends on coal, and so perhaps here more than elsewhere, Gunnoe is right when she ends *The Last Mountain* by declaring, “You’re connected to coal, whether you realize it or not. Everyone is.”

While *The Last Mountain* opens a panoply of issues we will slowly work our way through for weeks, one of the weakest aspects of the film is its failure to discuss love of place, or *topophilia*. Perhaps such a discussion would bleed into sentimentality, but it is a deep, unspoken undertow to the narrative of the documentary. In class, I have students write and share a series of free responses to the question of whether they feel connected to a place. Some do, having grown up on small family farms or in families who value a connection to land, while others feel no connection whatsoever. It is important to discuss these broader cultural ideologies, I think, because more and more people are taught not to cultivate a relationship with place. Indeed, the economy they will enter after graduation demands transiency, for many of my students must relocate to find viable work. But love of place is precisely what leads Marie Gunnoe, Bo Weber, Jennifer Massey, Ed Wiley, and countless others we do not see to fight. This is their home at stake, and “home” is bound to family, futurity, and ecological continuance. Of *The Last Mountain*, Stevens concludes:

This kind of storytelling is like a stone skipping across the surface of a body of water. It catches our eye, demands our attention and encourages us to question the issue. To continue the dialog, we need stories of the people deeply affected by the gigantic politics and economics of the region . . . and we need empathy for the people.<sup>9</sup>

I agree, and I have seen through successive groups of students each and every year that empathy and compassion can be taught—or at least cultivated—through education. So I continue our conversation through Pancake’s novel *Strange as This Weather Has Been*, which explores the tragedy of mountaintop removal through seven primary characters.

## The Horizon, Gone

As a multigenerational novel, *Strange as This Weather Has Been* demonstrates how the politics and near-total power of coal in Appalachia is ultimately about futurity. The novel follows the Peace family—Lace and Jimmy Make, the parents, as well as their four children, Bant, Dane, Corey and Tommy—as they face the indeterminacy of a poisoned future that might claim their lives. When the novel begins, they have already experienced a catastrophic flood caused by a collapsed sediment pond, and the novel follows their efforts to find out exactly what is happening above

their home. Meanwhile, the coal companies lay off workers, cordon off areas of the mountain, arrest residents for “trespassing,” and fail to maintain their other sediment ponds, which remain a haunting threat as the mountain reverberates with TNT and flyrock rains down from above. By the end of the novel, the family is broken. Jimmy Make leaves, taking his remaining sons with him, leaving Lace and Bant behind. The novel is not only about environmental injustice; it also illustrates that the violence the coal companies use to extract resources extends equally to the inhabitants of the area, who are viewed as yet another expendable resource.

*Strange as This Weather Has Been* beautifully articulates the push and pull of belonging to place, the relationship of inhabitation. Sometimes, against our very wills, a place claims us, declares that we belong to it. Many of us don’t learn this lesson until a place is “lost,” either through corporate exploitation, as is the case with Appalachia, or through dis/relocation. I try to get students to grapple with the fact that “belonging” to place is neither easy nor simple. The characters we meet as we read struggle with the desire to leave, then experience an attendant achy missing when they do. Pancake has remarked in interviews that “the characters both love their places and hate them, need to leave and need to stay.”<sup>10</sup> Students can begin to access the characters’ feelings by considering their own feelings toward home, places where they belong, yet need or want to leave in order to grow into adulthood. But imagine, I tell them, that instead of wanting to leave home, you are forced out, your family threatened with nowhere to go. Imagine your home disappearing beneath you even as you inhabit it—what Rob Nixon calls “stationary displacement” in *Slow Violence and the Environmentalism of the Poor* (2013). Some of them already know the violence of this kind of displacement and will talk about the loss of their family’s small farm to agribusiness. Many of Pancake’s characters, including her two primary narrators, Lace and Bant, experience these feelings, and one narrator, Avery, expresses the complex emotional consequences of having left permanently.

It is fitting that Lace and Bant narrate the bulk of the story—they have the strongest connection to their place and so stay behind to fight when Jimmy leaves at the conclusion of the novel. Lace and Bant’s situation merely reflects the reality of the fight against mountaintop removal and many other environmental justice fights around the world: they are led by women who are left to hold everything in place. In struggles like these, men are purposely disenfranchised by a system that defines their masculinity in terms of being the primary wage earners; when they are injured or lose their jobs, their very identities as men are threatened. In Appalachia, “shifts in economics . . . cause a kind of emasculation,” Pancake notes in an interview.<sup>11</sup>

Although *Strange as This Weather Has Been* is definitely an ecofeminist novel, Pancake has a great deal of sympathy for men who have no alternative options for meaningful work other than coal mining, which from the very beginning of their lives is continually portrayed as a noble and brave profession. In fact, we talk about how the enormity of the loss the people in Appalachia are experiencing is hard for any film or documentary to encompass fully; perhaps it does take 370 pages to begin to voice what it means to lose home, history, community, faith, land, hope, and, often, most of your family in the process. Literature has narrative possibilities and depths that films do not, and one of the most important gaps in the documentary that the novel addresses is the reality of the men who work in the coal industry. For example, like so many men in the novel and throughout Appalachia, Jimmy Make is “injured on the job.” He cannot support his family, and this injury wounds more than his body; it ruptures his very identity. In turn, Lace becomes the primary “breadwinner” and then a budding ecofeminist activist.

Added to the narrative complexity of the novel are the viewpoints of the four children, and students identify best with these voices. Bantella (or Bant) is the oldest child, a teenager for most of the story. She is born at a time when the family is very poor and depends on the mountains for food, so she learns an impressive breadth of local ecological knowledge and forms a deep attachment to place. Students identify with Bant because the novel is partially her coming-of-age story. Dane is the next oldest, and he is marked by a nonspecific birth defect (caused perhaps by mercury and pollution); his body is feminized and underdeveloped, and he suffers from a recognizable anxiety disorder. He says, “I am only twelve years old. And I’m going to see the End of the World.”<sup>12</sup> Corey is the next sibling in birth order and the stereotypical white American boy, obsessed with machines and the mine-waste flood-trash that litters the valley. He feels no connection to the land and sees the “hollow” as a narrow, limiting place. Last, there is Tommy, so young and innocent that his character’s voice is as underdeveloped as he is. When the flood hits, Tommy sits on the kitchen floor and cries for the family’s dogs.

All of the children live with fear as their constant companions; they sense it from their parents, from the slow disappearance of species around them, from the very glass- and coal-dust-filled air. It is arguable that since bombs are constantly exploding overhead, all of the characters in *Strange as This Weather Has Been*—and perhaps many people in Appalachia as well—suffer from post-traumatic stress disorder that is not “post,” as would anyone living in a war-torn and threatened country. Fear changes all of them. Corey dies, technically in a four-wheeling

accident, but as Carmen Rueda-Ramos notes, “it is machinery that kills him in a land that has been slaughtered and transformed into a dangerous vertical spillway wall where children play.”<sup>13</sup> Jimmy Make, Dane, and Tommy become refugees. Lace and Bant turn fear into anger, and then anger into radicalization.

Pancake also gives us two more pivotal narrators, Avery and Moge, whose chapters act as hinges of different kinds. Avery is a representative of the many who leave Appalachia searching for education or jobs—or any semblance of life that doesn’t revolve around coal mining—and never return, but who nevertheless leave behind family that ties them to place. Pancake uses Avery’s story to recount the Buffalo Creek Disaster of February 26, 1972, when 125 people died, more than one thousand were injured, and more than four thousand were left homeless because a slurry impoundment flooded the hollow with 132 million gallons of a toxic, gelatinous, poisonous substance that one activist in *The Last Mountain* calls “coal toxin concentrate.” In turn, if Avery is Pancake’s way of encapsulating history and longing, Moge’s voice is the soul of the novel. He is described as having “the gentleness of trees.”<sup>14</sup> Injured when a kettle bottom fell on his head, he has debilitating headaches, but also an insight into place that is profound.

As students watch *The Last Mountain* and then read *Strange as This Weather Has Been*, I ask them to keep a running tally of all of the “externalities” caused by mountaintop removal; by the end of the novel, the list is overwhelming. *The Last Mountain* does a good job of isolating the major issues—water pollution, flyrock and dust, cancer, climate change—but *Strange as This Weather Has Been* fills the outlines of the picture in with painful detail: cracked foundations, lost jobs, disappearing food sources, dying and migrating species, spoiled wells, physical injuries, fear campaigns, intimidation, secrecy, the use of eminent domain to prevent citizens from knowing what is above their heads, and slowly dying communities, drained of citizens and cultural capital. Pancake accurately labels this a “cultural genocide.”<sup>15</sup> The list, covering the entire board, shows how, bit by bit, the people in Appalachia are losing their land, their homes, their souls, and even their very lives, because they have the misfortune of living in an area with a natural resource.

## Personal Accountability

Pancake’s novel is a commitment—at 370 pages, it takes about three weeks to discuss thoroughly. The last week as we finish *Strange as This Weather Has Been*,

students keep a five-day journal recording their energy consumption. As they keep these journals, we discuss in class the ways they consume energy that they do not realize, such as when they eat or simply by living within the campus grounds, which are magically manicured by an invisible army of gardeners using all kinds of machines. Did they go to the grocery store? Food requires transportation, which uses energy; the lights in the grocery store use energy; getting to the grocery store means using more energy (unless they bicycled there); cooking food requires yet more. Did they listen to an iPod? Energy. Use their computers? That question is almost laughable. Phones? Clothing? Every single day, almost everything we do other than interact with one another or read outside requires energy and so has an environmental cost. We list the activities on the board, separating them by probable energy type: coal (if on campus), some wind, batteries (and lithium has its own problems), natural gas (ditto), and oil. The vast majority of the energy they use comes from the Iowa State energy plant. Energy consumption is so completely intermeshed with how we live our lives that we no longer can imagine how to live without it. We have become extensions of a gluttonous energy-consuming monster. By the time we are ready to visit the power plant, my students are thoroughly riled, ready to denounce coal and demonize anyone who works for it.

Our tour of the power plant changes everything. I hadn't realized until writing this chapter that this experience is probably the least replicable element of my coal unit due to liability issues, but it is worth attempting to tour your local energy plant because this part of the unit is more powerful than I could have imagined. First of all, walking into an energy plant is humbling. You walk into a huge room reverberating with machinery, *millions* of moving parts, and you can't help but be amazed at the ingenuity of humanity. There is a sense, based in the very arrogance that drives our resource consumption, that if we can build this, we can build anything. There is a little flash of hope, too: we figured this out, so maybe we can actually do better.

Thanks to *The Last Mountain* and *Strange as This Weather Has Been*, students at this point have created a binary where good, honest people are on one side and everyone associated with coal is on the other. However, when faced with the men who work at our coal plant, that binary ruptures, creating an opportunity to talk about the gap between the people who run the company and the people who work for it. In talking with the men who staff our coal plant, it is clear that they are proud of their jobs. Each guide talks about what a strong "environmental" record our plant has, and while we might think such a statement is a contradiction in

terms, the men who work at Iowa State's energy plant take it seriously. They have conducted independent studies to ascertain if the waste from the plant enters the groundwater—the university produces 2.7 tons of ash every hour—and have written their own environmental protections for disposal of this waste, because before they did, there weren't any.<sup>16</sup>

But easily the most valuable part of the tour is how it shows students that they are complicit in the practices of Big Coal simply because of how and where they live, and that this was not a choice they were allowed to make—their consent was co-opted. On our last trip to the plant, our guide stood in front of the conveyor belt that carries coal to the burners at a terrifying pace and remarked to the students, “When you flip on a light switch in your dorm room, this conveyor belt speeds up and adds more coal to the fire,” and the looks on the students' faces—mixes of fear, wonder, and disgust—were amazing.<sup>17</sup> I couldn't have planned it better had I given him a script.

That night, students write a reflection paper on their energy journal and on what they have learned. It is the place where they can vent and give voice to feelings of guilt; almost all of them feel hopeless and ask what they can do. To open up a conversation to answer that question, which we have spent all semester circling, I use the music of 2/3 Goat, a “Metrobilly” band whose album *Stream of Conscience* brings attention to mountaintop removal and the fight for Blair Mountain in West Virginia.<sup>18</sup> I first incorporated 2/3 Goat because I like to use different kinds of texts in my classroom, especially music—it's a medium as natural to our students as breathing. What's more, it turned into a productive conversation with Annalyse McCoy, the lead singer of the band. She was happy to share her lyrics and discuss with students over Skype why she wrote the title track and what she hopes it will do. She encouraged students to sign a petition on Facebook to save Blair Mountain and to spread awareness of mountaintop removal to their peers, which many do at the end of the semester. But the music also initiates a conversation about the power of art to create social change, using your particular talents—whatever they may be—to work for what you believe in. The band 2/3 Goat does this, as do Pancake, Bill Haney, and every artist we encounter over the course of the semester. If students believe in change, all they have to do is look to our syllabus to find they are not alone.

## Making a Case for Hope

Over the time I have taught this unit, some things have changed. Unfortunately, Coal River Mountain was destroyed. However, the campaign to move Marsh Fork Elementary School was successful and (with a lot of pressure) Massey Coal helped pay for it. In addition, there is some hope that Massey Coal may yet pay for its transgressions in another precedent-setting and legally binding way. In October 2015, former CEO Don Blankenship stood trial for misconduct, conspiracy to violate mine-safety standards, and conspiracy to impede federal mine-safety officials. Specifically, he was indicted because of the April 5, 2010, explosion at Upper Big Branch mine, which killed twenty-nine men. The mine was cited for safety violations five hundred times in 2009 alone, and the case shed light on years of irresponsible and reckless (dare I say criminal?) behavior by the coal industry. Yet, the jury in Blankenship's case returned a guilty verdict on only one charge, that of "conspiring to violate mine safety and health standards." On the other two charges, he was declared innocent.<sup>19</sup> In other words, for making the decisions that led to the deaths of twenty-nine men, Blankenship faces at most one year in prison and some fines. (At the time of this writing, Blankenship's appeal of the decision was denied and he has begun serving his sentence.)

Some things have changed on our campus as well, although unfortunately none of the changes were caused by altruism; instead and unsurprisingly, they were motivated by economics. Although Iowa State once purchased its coal from Kentucky, for years it has acquired its supply from Illinois. (Ten percent comes from Colorado.) Due to coal extraction in Illinois, "thousands of acres of the best farm lands and diverse Shawnee National Forests have been left in ruins." Then, in 2013, Iowa State switched two old coal-burning boilers to natural gas. (Maybe now I will have to include in this unit the eco-documentary *Gasland*.) The university also installed a small wind turbine, which is more for student study than actually helping to meet our energy needs: a representative from the power plant remarked that it was "about enough to power the president's home for the year." Over the summer of 2015, it also installed an array of solar panels for instruction and student study, and these add a small amount to the campus energy grid. In addition, last year the university purchased 6.8 percent of the campus's energy from the Story County Wind Farm. When students ask what guided these changes, the answer is, of course, cost, and this is important for students to hear. If we want to win the "energy war" and break our dependence on fossil fuels, we need to be able to price

renewable energy resources lower. Already we can see this happening as more and more coal companies declare bankruptcy. Despite these shifts, however, Iowa State in 2014 consumed 102,396 tons of coal.<sup>20</sup> We still hear the coal-laden trains rumbling through town in the middle of the night.

Although it takes nearly five weeks in total, I continue to teach this unit because climate change looms, and every person must be connected to the largest single problem ever to confront our species. Our planet is already hotter, and we know that carbon has a time lapse before its full effects are felt; sea-level rise is worse than was projected, storms are stronger and more destructive, and our ability to grow food or preserve water is threatened. We can no longer afford to be complacent. As I write this in my university office, I can feel warm air issuing from the heater behind me, and I know that more coal has just been added to the fire at the energy plant. I can't change the energy infrastructure at Iowa State, but I can work toward changing the infrastructure of society at large by making the environmental impact of their lives visible for students, for I have found that once they know it, this knowledge haunts them. They want something better, to live in a system less destructive. So do I.

I have had students tell me that after my course they cannot blithely turn on every light in their rooms or hear a train bringing coal to the university in the middle of the night without thinking about the social and environmental costs of the way they live their lives. They often tell me they are trying to make different and, when possible, better and more deliberate choices—but in this case, with energy infrastructure, making large-scale changes is hard. Some changes can be individual or community-based (grassroots or “bottom-up”), but others must be structural (“top-down”). This unit, which appears early in my course, functions in part to draw the distinction between the two kinds of changes needed when it comes to creating more sustainable ways to live. I watch as students struggle to incorporate the personal changes demanded of them, even as they work toward leveraging pressure to alter the more structural problems that face us. But their willingness and desire to change always amazes me. Many people have written about the supposed vapidness of the millennials, arguing that they are self-involved and apathetic—but I have to admit, I don't see it. Each semester I meet another group of young people who look at the truth of climate change, and then think through their own personal contributions to the problem, and who leave my class ready to work for systemic change. I invest much of my hope for the future in their belief that they can make a more sustainable, socially and environmentally just world, and that they can enact the changes demanded of us.

## NOTES

1. According to a recent study published in the *Annals of the New York Academy of Sciences*, factoring the “externalities” of coal into the kilowatt-per-hour price would “conservatively” double or triple the cost. In addition, the authors assert, “the life cycle effects of coal and the waste stream generated are costing the U.S. public a third to over one-half of a trillion dollars annually. Many of these so-called externalities are, moreover, cumulative.” See Paul R. Epstein et al., “Full Cost Accounting for the Life Cycle of Coal,” in *Ecological Economics Reviews*, ed. Robert Costanza, Karin Limburg, and Ida Kubiszewski, special issue, *Annals of the New York Academy of Sciences* 1219 (February 2011): 73–98, <http://dx.doi.org/10.1111/j.1749-6632.2010.05890.x>; Rob Perks, *Appalachian Heartbreak: Time to End Mountaintop Removal* (New York: Natural Resources Defense Council, n.d.), 1.
2. Perks, *Appalachian Heartbreak*, 2.
3. *The Last Mountain*, dir. Bill Haney (Uncommon Productions, 2011). According to the U.S. Energy Information Administration, in 2014 some 39 percent of domestic energy consumption was produced by burning coal. The film was released in 2011 and likely produced before that, so the figure stated in the film is slightly outdated. See U.S. Department of Energy, Energy Information Administration, “Electricity Explained: Electricity in the United States,” last modified March 29, 2016, [http://www.eia.gov/energyexplained/index.cfm?page=electricity\\_in\\_the\\_united\\_states](http://www.eia.gov/energyexplained/index.cfm?page=electricity_in_the_united_states).
4. *Last Mountain*, dir. Haney; Chad Stevens, review of *The Last Mountain*, *Journal of Appalachian Studies* 18, no. 1/2 (Spring/Fall 2012): 317.
5. *Last Mountain*, dir. Haney.
6. Epstein et al., “Full Cost Accounting,” 84; Perks, *Appalachian Heartbreak*, 7.
7. *Last Mountain*, dir. Haney.
8. SourceWatch, “Coal Money in Politics,” last modified September 20, 2012, [http://www.sourcewatch.org/index.php/Coal\\_money\\_in\\_politics](http://www.sourcewatch.org/index.php/Coal_money_in_politics); American Wind Energy Association, *Iowa Wind Energy* (Washington, DC: American Wind Energy Association, n.d.), <http://awea.files.cms-plus.com/FileDownloads/pdfs/Iowa.pdf>. The amount spent by the coal industry cited by *The Last Mountain* (\$86 million) is outdated, and it is unclear where this figure comes from.
9. Stevens, review of *The Last Mountain*, 319.
10. Nicholas Arnold and Michael Baccam, “A Conversation with Ann Pancake,” *Willow Springs*, April 20, 2007, 13, <http://willowspringsmagazine.org/interview/ann-pancake-willow-springs-interview>.
11. *Ibid.*, 2.
12. Ann Pancake, *Strange as This Weather Has Been* (Berkeley, CA: Counterpoint, 2007), 112.

13. Carmen Rueda-Ramos, "Polluted Land, Polluted Bodies: Mountaintop Removal in Ann Pancake's *Strange as This Weather Has Been*," in *The Health of the Nation: European Views of the United States*, vol. 6 of *European Views of the United States*, ed. Meldan Tanrisir and Tanfer Emin Tunç (Heidelberg, Germany: Universitätsverlag Winter, 2014), 228.
14. Kai T. Erikson, *Everything in Its Path: Destruction of Community in the Buffalo Creek Flood* (New York: Simon & Schuster, 1978); *The Last Mountain*, dir. Haney; Pancake, *Strange as This Weather Has Been*, 36.
15. Shannon Elizabeth Bell, "'There Ain't No Bond in Town Like There Used to Be': The Destruction of Social Capital in the West Virginia Coalfields," *Sociological Forum* 24, no. 3 (September 2009): 631–657; Arnold and Baccam, "Conversation with Ann Pancake," 8.
16. Jeffrey Witt, interview by author, Ames, IA, March 4, 2012.
17. Ibid.
18. 2/3 Goat, "Stream of Conscience," by Annalyse McCoy and Ryan Dunn, *Stream of Conscience*, 2/3 Goat, 2014, CD.
19. David Segal, "The People v. The Coal Baron," *New York Times*, June 20, 2015; Ken Ward Jr., "Blankenship Guilty of Conspiring to Violate Mine Safety Rules," *Charleston Gazette*, December 3, 2014. See also *Overburden*, dir. Chad A. Stevens (milesfrommaybe Productions, 2015); it tells the story of the Upper Big Branch mine disaster, documenting the battle of two women—one an activist against mountaintop removal, the other formerly pro-coal—to hold Massey Coal accountable for the industrial mining disaster.
20. Mike McGraw, interview by Brianna Burke, Ames, IA, September 2, 2015; Jeff Biggers, "Heartland Coal Crisis: Illinois Bankrolls Big Coal School Program? Interview with Eco-Justice Leader Lan Richart," *Huffington Post*, June 22, 2011, [http://www.huffingtonpost.com/jeff-biggers/coal-marketing\\_b\\_882383.html](http://www.huffingtonpost.com/jeff-biggers/coal-marketing_b_882383.html); *Gasland*, dir. Josh Fox (Docurama, 2010); McGraw, interview.

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