**Can Green-Blue Cooperation Save Central Appalachian Mountains? Possibilities for Labor-environmentalist Coalition-building to Combat Mountaintop Removal Mining in Southern West Virginia**

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“From the friends of British monarchs to the land and mineral speculators of the late 19th and early 20th centuries to today’s timberland managers, the story of land and mineral ownership in West Virginia has been marked by exported wealth and internal poverty” (West Virginia Center on Budget and Policy 2013: 42).

Introduction

 The quotation above encapsulates the history of power relations in West Virginia since European settlement. Since its European founding, West Virginia has supplied enormous opportunities for business entrepreneurs, and its earliest political leaders served as enthusiastic salesmen (Burns 2007: 60), setting in motion rapid natural resource extraction, faithfully facilitated by the state. The extraction of natural resources, particularly coal, was tantamount to “progress” (Burns 2007: 61). The cost of progress in West Virginia is clear—the continuous exploitation of labor and the environment, at the hands of a captured state.[[1]](#footnote-1) Exploitation has yielded resistance from both labor and environmentalists. At the turn of the 20th century, the patience of West Virginia miners with the mining industry was beginning to wear thin.

 August 24, 2014 marked the 93rd anniversary of the Battle of Blair Mountain in Logan County, West Virginia. In the late 19th and early 20th centuries, southern West Virginia was ground zero of the United Mine Workers’ (UMWA) push to organize industrial miners.[[2]](#footnote-2) The UMWA’s efforts were met with formidable resistance from mine owners and operators.[[3]](#footnote-3) The clashes between miners, who wanted “just compensation” and to improve dangerous—and often fatal—working conditions, and owners, who wanted to maximize the surplus value of mining operations, are known as the “West Virginia Mine Wars.” A major battle of the Mine Wars was the Battle of Blair Mountain—the largest civil uprising, excluding the Civil War, in United States history (Patel 2012; Nyden 2012; Shogan 2004).[[4]](#footnote-4)

 Recently, Blair Mountain has become a focal point of the convergence of labor history and present-day environmental activism. Blair Mountain is owned by MTR producers, including Alpha Natural Resources and Arch Coal. Both Arch and Alpha hold permits to conduct MTR on Blair Mountain (Nydan 2012; RAMPS 2012), which would considerably diminish, if not completely annihilate, the cultural, environmental, and historical significance of the mountain. Environmental resistance to MTR comes in the wake of a rapidly growing body of research that delineates the ecological, human-health, and community destruction of the mining practice. Thus, Blair Mountain exemplifies the opportunity for an environmentalist-labor alliance, which, history demonstrates, has been a difficult relationship to sustain (Obach 2004; Kojola et al. 2014; Zoller 2009; Montrie 2003; Peck 2006; Bonanno and Blome 2001). In the case of West Virginia, an environmentalist-labor alliance has been particularly difficult to sustain, given the historical domination of the coal industry and concomitant state interference.

Events Leading up to The Battle of Blair Mountain

 The Battle of Blair Mountain transpired in a broader context of labor movements worldwide. The 1919 general strikes in Winnipeg, Belfast, and Barcelona were an expression of burgeoning solidarity among the world’s industrial workers (Nida and Adkins 2010: 1). In 1926, a general strike in Great Britain among coal workers significantly dampened industrial output for more than a week (*ibid.*). The labor movement in the United States was also robust, but its heritage has been marginalized in American historical discourse (Durrenburger 2006; Nida and Adkins 2010). The marginalization is not surprising, in light of American narratives about individuality, “classlessness,” and free enterprise that occlude power structures that reproduce inequality and exploitation (Foote 2003; Shackel 2001; Nida and Adkins 2010). Miners in West Virginia expended blood and treasure to stem the abuses of industrial mining operators and a largely complicit state.

 It is no secret that employment in the mining industry was dangerous, but West Virginia mines were outstandingly perilous. Working conditions and labor relations were often worst in the southern coalfields of West Virginia (Shogan 2004: 32-38; Nida and Adkins 2010: 5). In the midst of deplorable working conditions and tense relations with owners, workers participated in a 28-month strike in Mingo County (in solidarity with the United Mine Workers). The strike prompted coal operators to respond with impunity, summoning Baldwin-Felts agents to evict striking miners’ families from company-owned housing in Matewan (Mingo County). The pro-union sheriff and mayor of Matewan questioned the legality of the evictions, which spawned an eruption of gunfire (Nida and Adkins 2010: 6). The mayor was killed, and the sheriff of Matewan, Sid Hatfield, killed a Baldwin-Felts agent. Seven detectives in total were killed in what became known as the Matewan Massacre (Savage 1990: 21; Nida and Adkins 2010: 6).

 Consequently, Sid Hatfield was elevated to the status of hero. As the union gained a foothold in Mingo County throughout 1920 and 1921, the anti- and pro-union camps expanded their arsenals of weapons, and guerilla warfare ensued when the striking miners were replaced, and the mines subsequently reopened (Nida and Adkins 2010: 6). In August 1921, Sid Hatfield was asked to report to the McDowell County Courthouse to answer an indictment for allegedly exploding a coal tipple the previous spring. As Hatfield ascended the steps of the courthouse, he was murdered by Baldwin-Felts agents (Nida and Adkins 2010: 6-7), paving the path to a full miner insurrection.

 On August 7, 1921, miners began to gather in Charleston, West Virginia; by the 24th, the gathering swelled to 10,000 (Blizzard 2004: 200; Nida and Adkins 2010: 7). The miners intended to march from Charleston to Mingo County, but in so doing, the miners had to march through Logan County, whose sheriff (Don Chafin), fervently pro-industry, vowed to crush the march. Nonetheless, the miners moved out of Charleston on August 24th; the UMWA overtook the marchers, and convinced them to wait for trains to take them to Mingo County, in order to avoid armed conflict with Chafin’s forces (Nida and Adkins 2010: 7). The trains, however, did not arrive on time, and the tenuous truce was shattered when Chafin’s men invaded union territory (Blizzard 2004: 256; Nida and Adkins 2010: 8). The miners decided to go forward with the march, determined to break Chafin’s defense, to reach Mingo County (Savage 1990: 107; Nida and Adkins 2010: 8).

The Battle of Blair Mountain

 The first day of open warfare began on August 31st, as miners started their attack on Chafin’s army, an army of approximately 3,000 known as the “Logan Defenders” (Patel 2012: 50). Chafin’s defensive line, replete with machine guns, stretched some ten miles along the ridge of Blair Mountain (Nida and Adkins 2010: 8). The machine gun fire stifled miners’ attempts to break the defensive line. On September 1st, a battalion of 500 miners attacked at Craddock Fork, and after three hours of constant machine gun fire, one of the Logan Defenders’ guns jammed, allowing the miners to break through (Nida and Adkins 2010: 8). The miners approached the city of Logan on September 2nd.

 September 2nd also marks the day that federal troops were mobilized into West Virginia, at the request of Governor Morgan. Recognizing the rising tensions between miners and the Logan Defenders, Governor Morgan, on August 25th, asked President Warren Harding for military aircraft and one thousand troops (Laurie 1991). According to Morgan, “the miners had been inflamed and infuriated by speeches of radical officers and leaders” (*ibid.*). Harding was not convinced and instead sent military advisors to assess the situation. On August 30th, Harding issued a proclamation, which called for both the miners and the Logan Defenders to disperse by noon on September 1, 1921 (*ibid.*). Fighting continued, and on September 3rd, two thousand federal troops, along with fourteen bomber aircraft, deployed to overwhelm the civilian combatants. With air surveillance by the bombers, the federal troops enveloped Blair Mountain, and General Bandholtz, commander of the federal troops, ordered a cease-fire (*ibid.*). Responding to pressure from Morgan—who was responding to pressure from the federal government—the Logan Defenders disbanded. The miners, unwilling to resist the power of the federal government, either surrendered to the troops or simply went home (*ibid.*).

 Archaeologists estimate that over one million rounds of ammunition were fired during the Battle of Blair Mountain (Patel 2012: 50). The number of casualties is estimated at 20-100; however, one early newspaper account reported that miners were loading their dead into boxcars (*ibid.*), suggesting that the miners may have significantly underreported the death toll. The state of West Virginia charged the leaders of the strike with treason, and though not a single miner was convicted—because of sympathetic juries—the trial exhausted the financial resources of the United Mine Workers (*ibid.*). Despite valiant efforts, the Battle of Blair Mountain ultimately ended in defeat for the United Mine Workers, but it undoubtedly sowed the seeds for organizing after the implementation of the National Industrial Recovery Act.[[5]](#footnote-5) Indeed, many of the miners involved in the Battle of Blair Mountain organized mine workers across West Virginia’s southern coalfields in the 1930s, making West Virginia “a stronghold of union sentiment”—at least until a massive wave of union-busting in the 1980s (*ibid*: 51).[[6]](#footnote-6)

The Rise and Fall of the United Mine Workers

 After the passage of the National Industrial Recovery Act,[[7]](#footnote-7) the United Mine Workers experienced intense growth. Indeed, by 1951, the UMWA’s nationwide membership had swollen to almost 350,000 (Burns 2007: 26), making it arguably the most powerful union in the United States. By 1955, the tide had shifted, and the UMWA’s membership plummeted to well below 200,000 (*ibid.*). By 2012, UMWA’s nationwide membership had contracted to little more than 19,000 (U.S. Energy Information Administration 2013). West Virginia’s share of the 2012 UMWA’s membership stood at 5,678 (*ibid.*), which was heavily concentrated in northern WV and underground mines—far away from the MTR operations of the southern coalfields. In fact, merely 931 surface miners were union members in southern WV, out of 5,303 total surface miners across the region (*ibid.*).[[8]](#footnote-8)

 The decline in union membership is attributed to several factors, including declining employment overall in the mining industry, anti-union measures by coal operators (Burns 2007: 26-31), and missteps by the UMWA leadership (Montrie 2003; McNeil 2011). As noted above, nationwide UMWA membership peaked at almost 350,000 in 1951 (Burns 2007: 26), dropping to 19,183 by 2012 (U.S. Energy Information Administration 2013). In 1951, total nationwide employment in the coal industry was 441,905 (Reese et al. 1955: 2), meaning that over 79 percent of coal industry employees were unionized (author’s calculation based on data in Reese et al. 1951 and Burns 2007). By 2012, the percentage of unionized coal industry labor had fallen to just below 22 percent (author’s calculation based on data from the U.S. Energy Information Administration 2013). Increased mechanization and a movement toward more surface mining—which is more capital, rather than labor, intensive—obviated the need for large numbers of miners. While, indeed, coal industry employment has contracted tremendously—explaining the decrease in union workers in absolute terms—the contraction does not explain the significantly decreased rateof unionization. Two major factors are the behavior of coal companies and the leadership of the UMWA.

 In anticipation of increased demand for wartime coal markets—leading up to the U.S.’s involvement in World War II—coal producers reorganized and consolidated companies (Eller 2008: 11). The consolidation of the coal industry made companies larger and, therefore, more resistant to the impact of striking because of their diverse holdings (McNeil 2011: 83).[[9]](#footnote-9) The industry in West Virginia remains consolidated until today, with only a handful of operators producing the lion’s share of coal. Four coal producers were among the largest 25 land owners in West Virginia: Alpha Natural Resources, Arch Coal, Patriot Coal,[[10]](#footnote-10) and Consol Energy (see West Virginia Center on Budget & Policy 2013).[[11]](#footnote-11) The four corporations, collectively, owned dozens of subsidiary companies that operated mines and coal processing facilities, placing them in league with the largest coal producers not only in the state, but indeed in the country. Alpha Natural Resources, Arch Coal, and Consol Energy—together with Peabody Coal, which mines in the mid-western and western U.S.—accounted for over 50 percent of coal production nationally (U.S. Energy Information Administration 2013).

 Alpha Natural Resources was the largest producer of coal from surface mines at approximately 14,431,643 tons (author’s calculation based on data reported by the West Virginia Office of Miners’ Health, Safety, and Training [OMHST] 2013).[[12]](#footnote-12) Consol Energy was the largest producer of coal from underground mines at approximately 31,376,071 tons (*ibid.*). Arch Coal ranked fourth of the four in terms of coal produced from underground mines at 5,831,683 tons, and Consol Energy ranked lowest with surface mine production at 2,534,365 tons (*ibid.*). Together, the four companies accounted for over two-thirds (69.7 percent) of all the coal produced in West Virginia in 2012—90,232,004 of 129,538,515 tons (*ibid.*). Production by active mines ranged from a few thousand tons to almost nine million tons at Mingo County’s McElroy Mine (underground), which was owned by Consol Energy. The largest surface mine, Arch Coal’s Holden No. 22 Mine, was responsible for the production of 3,049,961 tons (*ibid.*).

**TABLE 1. WEST VIRGINIA’S LARGEST COAL PRODUCERS[[13]](#footnote-13)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Surface Tonnage[[14]](#footnote-14)** | **Percentage of Total WV Surface Production** | **Underground Tonnage** | **Percentage of Total WV Underground Production** | **Total Tonnage** | **Percentage of Total WV Production** |
| **Consol** | 2,534,365 | 6.3 | 31,376,071 | 35.1 | 33,910,736 | 26.2 |
| **Alpha** | 14,431,643 | 36.0 | 13,471,974 | 15.1 | 27,903,617 | 21.5 |
| **Patriot** | 6,281,652 | 15.7 | 12,323,019 | 13.8 | 18,604,671 | 14.4 |
| **Arch** | 3,981,597 | 9.9 | 5,831,683 | 6.5 | 9,813,280 | 7.6 |
| **Total** | 27,229,557 | 67.9 | 63,002,747 | 70.5 | 90,232,004 | 69.7 |

 In 2012, Patriot Coal filed for chapter 11 bankruptcy protection, on the heels of a selenium lawsuit settlement. The settlement stipulated that Patriot must clean up dozens of illegal discharges of selenium and must pay $750,000 in fines to the federal government and contribute $6.75 million to the West Virginia Land Trust (Ward 2012).[[15]](#footnote-15) Patriot cited declining coal demand and rising environmental costs as the primary factors contributing to the bankruptcy filing. However, critics claim that Patriot was set up to fail. Patriot Coal was created as a spin-off of Peabody Coal in 2007. The following year, Patriot acquired Magnum Coal from Arch Coal. Together, Arch and Peabody managed to transfer some $1.5 billion in pension and healthcare liabilities to Patriot (Daly 2012). UMWA officials argue that Patriot was “created to fail, as a way for Peabody and Arch Coal to ditch their own union pension and healthcare liabilities (Ward 2012). Peabody and Arch got rid of most of their Appalachian operations and, by extension, their related pension and healthcare liabilities (*ibid.*). Patriot employs approximately 2,000 union members in WV and KY, and is responsible for benefits for another 20,000 retirees and dependents in WV, IN, IL, KY, and OH (*ibid.*). In a settlement reach by Arch, Patriot, Peabody, and the UMA, the companies agreed to pay $400 million in benefits, a mere quarter of the estimated total liabilities (Daly 2013). Originally, Patriot petitioned the court to discharge *all* of its pension and healthcare liabilities, but resistance from coal miners and the UMWA forced the companies to come to the negotiation table.

 The UMWA itself played a notable role in its attenuation. Arguably, John Lewis and his successors played a major part in the decline of union membership and coal industry employment, more broadly. John Lewis guided the UMWA through its rapid expansion of the 1930s and 1940s and then through its initial decline. Beginning in 1919, Lewis was president of the UMWA for 40 years. Lewis spent the first decade of his tenure attempting to solidify the disparate factions of the union (McNeil 2011: 73). The culmination of two decades of work, Lewis struck a deal with the Northern Bituminous Coal Operators. The 1950 wage agreement increased wages and benefits for union miners, by obligating the coal operators to pay a per-ton royalty into a fund controlled by the union (*ibid.*). Lewis believed that the coal industry’s persistent problems were rooted in overexpansion within the industry; consequently, Lewis favored “mechanization as a way to reduce the number of coal mines, stabilize production, and improve the health and welfare of working miners” (Eller 2008: 19).[[16]](#footnote-16) The higher wages and benefits royalty compelled coal operators to invest in mechanized coal mining (to control labor costs), forcing smaller mines out of business, and thus eliminating the “problem” of too many mines and too many miners (*ibid.*). Lewis knew that the move would leave many miners unemployed, but he believed that it would secure the long-term health of the union. Lewis succeeded in tying the interests of (employed) union miners to productivity. Because the benefits were funded by the per-ton royalty, it was in the interest of miners to welcome mechanization, as it allowed them to produce more coal per man-hour of labor. Ultimately, though, Lewis sacrificed quantity of jobs for health and welfare benefits; by 1960, the number of miners employed in West Virginia had decreased by half (McNeil 2011: 73).[[17]](#footnote-17)

 Union miners suffered another blow at the hands of UMWA leadership in the 1980s. In the 1983 contract negotiations, Richard Trumka, president of the UMWA, established “selective striking.” Rather than all union members striking in unison to reinforce solidarity, the union would select certain mines to strike, while others continued to operate. Union sympathizers in southern West Virginia point to selective striking as the downfall of the union (McNeil 2011: 82). In effect, it pitted neighbor against neighbor as one headed to work in the morning, and one stood helplessly by (*ibid.*).

 Selective striking, initially, proved to be effective (*ibid.*: 83). Starting in the 1970s, mine ownership in West Virginia was largely transferred from rail and transportation companies to steel and automobile companies (*ibid.*: 82). When under the ownership of steel and automobile companies, the UMWA had tremendous power not only over coal, but also over the companies that depended on it (*ibid.*: 83). Consequently, the UMWA could strike selectively only the largest producers, thereby sending a powerful signal to the rest of the industry (*ibid.*). Through the 1980s and 1990s, ownership was again transferred, this time from the steel and auto industries to massive energy conglomerates (*ibid.*: 82-83). The holdings of energy conglomerates were so diverse that they could withstand selective striking; “the larger the corporate owners, the fewer direct connections companies were likely to have to local sites of production” (*ibid.*: 83). In short, the fractured solidarity of the UMWA was no match for the consolidated power of the world’s largest energy companies.[[18]](#footnote-18)

 Even prior to Trumka’s selective striking, there were noticeable fractures between union leadership and rank-and-file members. Starting in the 1960s, union miners, radicalized by broader social change in the United States, wanted the UMWA to take a harder line against the coal industry. John Taylor, a former attorney for the UMWA, stated that there existed friction between the UMWA leadership in the 1970s because the UMWA was no longer set up to challenge capitalists’ interest (McNeil 2011: 78). Taylor was quoted, “Whereas the union leadership’s collective bargaining position said, ‘We want our piece of the pie,’ the miners’ attitude was, ‘Fuck that! We make the pie—let us have it’” (McNeil 2011: 79).

 Fissures in terms of the desire to curb surface mining also emerged in the middle of the 20th century. In the 1960s, in particular, there was a renewed effort to ban strip mining in West Virginia, in light of the environmental and social damage. The UMWA leadership employed the age-old “jobs-versus-environment” aphorism. The UMWA leadership worried that banning strip mining would leave too many unemployed (perhaps a bit ironic, given that UMWA had feared overexpansion a decade earlier). Some rank-and-file miners, especially underground miners from Boone County, WV, argued that a strip mining ban would open up employment opportunities, as more underground mines would be needed to meet coal demand (Montrie 2003: 117). Rank-and-file members confronted the president of UMWA District 31, contending that strip miners were from outside WV; moreover, they argued that strip mining caused damage to roads and houses (Montrie 2003: 118). The UMWA International vice president, George Titler, made the leadership’s position clear. He stated, “I believe any who owns a piece of coal land has a right to mine it if the land is properly reclaimed” (Montrie 2003: 119). Of course, the rhetorical power of his statement is contingent upon the implementation of “proper reclamation,” a practice that is vehemently contested until today. Surprisingly, George Titler’s words sound as if they could have come out of the mouth of a coal industry executive—not the mouth of a labor leader.

The UMWA as Corporate Ally?

 The UMWA, at times, seems merely to have been an agent of the coal industry. The union’s inability to take strong stands on critical issues like MTR and its inability to organize mines, particularly those run by Massey (now Alpha Natural Resources), has drawn criticism from rank-and-file members and coalfield residents generally (McNeil 2011: 88-89).[[19]](#footnote-19) In the summer of 2014, the U.S. Environmental Protection Agency held public hearings in regard to the EPA’s proposed power plant rule—which, if implemented, would raise carbon dioxide emissions standards for fossil fuel-powered electricity generating stations. The rule would reduce carbon dioxide emissions from power plants by 30 percent by 2030 (Ward 2014). Environmental activists claimed that reducing carbon dioxide emissions from power plants in the U.S. is critical to the long-term survival of our species on the planet, as average global temperatures are steadily inching upward (Hopey et al. 2014). The UMWA organized a demonstration in Pittsburgh, PA, one of four EPA hearing locations across the country. The UMWA arranged bus transportation for thousands of miners and their families—on approximately 70 buses—from West Virginia, Pennsylvania, Virginia, Ohio, Kentucky, and Alabama (Ward 2014). UMWA president, Cecil Roberts, echoing West Virginia governor, Ray Tomblin, argued that the proposed carbon dioxide rule would destroy mining families across West Virginia and other coal-producing regions (Archer 2014). Not only would jobs vanish, Roberts and Tomblin argued, but the cost of electricity would skyrocket. Roberts stated, “We did not choose this fight, and we refuse to sit on the sidelines and watch the EPA destroy the coal industry where we live and work” (*ibid.*).

Worker (Un)safey: Deteriorating Mine Working Conditions in the Wake of the UMWA’s Decline

In the wake of the UMWA’s increasing inability to ensure safe working conditions, miners, again, find themselves in unacceptably dangerous situations. West Virginians are no strangers to mining and mining-related disasters. Official mining disasters have claimed the lives of thousands of workers (WVOMHST 2012).[[20]](#footnote-20) West Virginia coal mines have recorded the highest rates of injuries and fatal accidents in the country, and mines in southern WV have proven particularly deadly (McAteer et al. 2011: 18). According to a report prepared for WV’s former governor, Bob Wise, concluded that in the short period between 1991 and 2000, 25 percent of the U.S.’s mining fatalities occurred in southern West Virginia (*ibid.*). Indeed, West Virginia is the location of the deadliest mining disaster in U.S. history, in which the Monongah No. 6 and No. 8 mines exploded, ending the lives of approximately 362 miners (including children).[[21]](#footnote-21) According to the U.S. Mine Safety and Health Administration of the Department of Labor, on December 6, 1907, the earth shook as far as eight miles away, shattering buildings and pavement and derailing street cars (Mine Safety and Health Administration).

 More recently, on January 9, 2014, thousands of gallons of 4-methylcyclohexane methanol (MCHM) spilled into the Elk River, near Charleston, WV, threatening the health of over 300,000 West Virginians in nine counties (Unger 2014). The chemical is used to “wash” coal before it is burned to generate electricity so that smoke stack emissions, ironically, can be brought into compliance with the Clean Air Act. MCHM is considered potentially harmful if inhaled or swallowed; it can cause skin and eye irritation (*ibid.*).[[22]](#footnote-22) A mere month later, some 100,000 gallons of coal slurry spilled from the Kanawha Eagle coal preparation plant (a Patriot Coal-owned facility) into Fields Creek; the slurry contained MCHM (Conlon 2014). In May 2014, Patriot Coal’s Brody Mine No. 1 suffered a collapse, killing two miners. The Brody Mine had been on notice for a “pattern of violations of mandatory health and safety standards” (Phillips 2014). During a nine-month review period, the mine was cited for 253 significant and substantial violations, and in 2012, the Mine Safety and Health Administration found 29 injuries that Brody failed to report and 724 lost work days (*ibid.*).

 The Brody Mine incident occurred after the 2010 Upper Big Branch Mine disaster, which was the deadliest of the last 40 years. On April 5, 2010, an explosion tore through the Upper Big Branch Mine, producing a death toll of 29 miners. Governor Joe Manchin empanelled a group of investigators to determine the cause of the blast. The panel found evidence “of an explosion that started with the ignition of a small amount of methane gas and then was fueled by coal dust that had been allowed to build up for miles through the mine” (McAteer et al. 2011: 67). The sparks were likely the result of the shearer’s[[23]](#footnote-23) encounter with sandstone (a common phenomenon), which is much denser than coal. What should not have been common was the malfunction of shearer’s sprayers, which were supposed to extinguish sparks immediately. Unfortunately, the investigation panel found that some of the sprayers were clogged and others had been removed altogether (McAteer 2011: 23). As another defense against explosions, coal dust is covered with limestone dust to reduce its combustibility. In the case of Upper Big Branch, limestone dusting was not even a full-time job, which was woefully inadequate given the enormity of the operation[[24]](#footnote-24) (*ibid.*: 50). What is more, the machine used to spread limestone dust was often in disrepair (*ibid.*). Adding to the volatility of the situation in the mine, the ventilation system was faulty. Insufficient air flow in particular corridors and improper ventilation system controls plagued the mine (*ibid.*: 60). In short, the Upper Big Branch Mine contained the ingredients of a perfect storm, and indeed a perfect storm ensued.[[25]](#footnote-25)

 Miners of the Upper Big Branch Mine were well aware of the pressure to produce and control costs. The capital investment in an underground mine can be in the hundreds of millions of dollars (*ibid.*: 22). A mining system like that of the Upper Big Branch Mine is capable of producing thousands of tons of coal per hour; therefore, an operator is in a position to generate enormous revenue (*ibid.*). The pressure to produce is also felt by federal mine safety inspectors. Because safety can narrow a company’s margins, operators “sometimes try to evade, ignore or sidestep those regulations” (McAteer et al. 2011: 76). Some operators, Massey included, challenge enforcement. McAteer et al. wrote, “Some companies, Massey among them, relish the opportunity to challenge inspectors’ enforcement actions by disputing findings and arguing about what the law requires” (*ibid.*: 77).[[26]](#footnote-26) In other words, Massey used intimidation tactics to avoid safety measures and increase its profit margin. At the state level, the strain on enforcement is more severe. The West Virginia Office of Miners’ Health, Safety, and Training is small and understaffed. Furthermore, it is subject to powerful political winds that are controlled by the coal industry. McAteer et al. wrote, “Political figures depend on the industry for campaign contributions, and they realize that careers can be destroyed if they oppose policies and legislation supported by… ‘Big Coal.’” (2011: 89).[[27]](#footnote-27) Additionally, the state suffers from the “revolving door” phenomenon, whereby regulators and industry “share” employees. For instance, WV’s OMHST director, Ronald Wooten, worked at Consol Energy before being named head of the state regulatory agency, and Terry Farley, the state’s lead investigator into the Upper Big Branch Mine disaster, left his position beforethe conclusion of the investigation to accept employment with Alpha Engineering Services, Inc. (*ibid.*). Wooten’s behavior is only one example of a problem that pervades West Virginia, which will be investigated more systematically in chapter five.

 Beyond regulatory failures, Massey’s corporate culture played a large role in the 2010 disaster. In an attempt to divert attention away from Massey’s corporate practices, Massey provided funds to bring doctors to coalfield communities, and funds for students scholarship programs, for volunteer fire departments, for Christmas gifts for needy children, and for financial assistance to coalfield schools (McAteer 2011: 92). Massey also created the “S-1 program,” whose slogan was “safety first, production second.” According to an interviewee of the investigation panel, the slogan was just that: a slogan—with no appreciable improvement of safety for miners (*ibid.*: 94-95).

 The investigators describe the behavior of Massey as the “normalization of deviance”—citing the work of Diane Vaughan, who conducted a sociological study of the National Aeronautical and Space Administration’s O-ring technology failure and the resulting 1986 *Challenger* disaster.[[28]](#footnote-28) The normalization of deviance “refers to a gradual process through which unacceptable practices or standards become acceptable” (McAteer et al. 2011: 97). Unacceptable behavior is repeated, initially without catastrophic consequences, until it becomes normalized; catastrophic consequences, though, are not indefinitely avoidable and facilitate, eventually, disasters like the *Challenger* disintegration and Upper Big Branch Mine explosion.

 In the push to produce coal, miners were routinely subjected to unacceptable, and frequently dangerous, conditions in the Upper Big Branch Mine. The unacceptable and dangerous conditions were fostered by lack of air, improper ventilation, lack of effective engineering design, high water, insufficient safety equipment, inadequate rock dusting, and disabled safety mechanisms (McAteer et al. 2011: 98-99). Additionally, miners encountered intimidation, inadequate regulation by regulatory authorities, and steep disincentives to complaining about poor work conditions.[[29]](#footnote-29)

 Massey’s culture allowed it “to use its resources to create a false public image to mislead the public, community leaders and investors—the perception that the company exceeded industry safety standards” (McAteer et al. 2011: 102). It is in the context of normalized deviance that it became acceptable to vilify regulatory agencies charged with the protection of miners and to make life unbearable for miners who attempted to rectify grave safety hazards (*ibid.*). In the wake of the Upper Big Branch Mine disaster, deviant behavior continues, and Massey is not the only culprit.

MTR’s Destruction of the Environment, Health, and Communities as a Backdrop for Activism

 MTR is made possible by the corporate ownership of land and mineral rights. The legacy of land ownership in West Virginia, concentrated in the hands of a few absentee elites, can be traced to the British colonization of North America. King Charles II gifted parcels of land in present-day West Virginia to many of his supporters (Williams 2002: 32). By 1810, as much as 93 percent of West Virginia’s current territory was held by absentee owners, more than any other state in the United States (West Virginia Center on Budget and Policy 2013: 5). As early as the 1800s, speculators with a better understanding of the courts, laws, and the workings of local and state governments used their knowledge and connection to their own advantage (Montrie 2003: 15). Consequently, by 1910, non-West Virginians controlled not only the best stands of timer and the thickest seams of coal, but also a large percentage of the land in the region (*ibid.*). Subsistence became more challenging, and many southern highlanders joined the wage labor force, digging coal (*ibid.*).

 The consolidation of land ownership in the hands of a few was facilitated by a legal instrument known as the broad form deed. Broad form deeds were legal tools that transferred subsurface mineral rights of a grantor to a grantee (Strobo 2012: 101). In most instances in Appalachia, the grantor was a poor, illiterate landowner, and the grantee was a representative of a large land-holding company (*ibid.*). Broad form deeds left the grantor with only a nominal title to the land and complete responsibility for property taxes (*ibid.*). Courts held that the owners of the subsurface minerals had the right to extract those minerals by any means, even if it included the destruction of the surface (*ibid.*). Most broad form deeds were signed in the late 1800s and early 1990s, when the primary method of mineral extraction was underground (*ibid.*). By the mid-1900s, however, surface mining became a more widespread method of extraction; at that time, owners of surface resources learned that owners of subsurface minerals could disturb the surface, including by strip mining (*ibid.*). In short, broad form deeds were legal instruments that effectively separated the ownership of surface resources from subsurface resources. The courts in Appalachia held that owners of subsurface resources had the prerogative to extract those minerals, even by destroying the surface, and compensation did not have to be provided to the owners of the surface resource (*ibid.*). Broad form deeds were eventually abolished in Appalachia, but the damage had already been done.[[30]](#footnote-30) The distribution of land in West Virginia was not comprehensively examined until the 1970s, with the work of Tom Miller.

 Starting in the 1970s, Tom Miller, a reporter for the *Huntington Herald-Dispatch*, and the Appalachian Land Ownership Task Force set out to evaluate systematically land ownership patterns in West Virginia. Miller found that two dozen absentee corporations owned a third—roughly four million acres—of the private land in the state (inclusive of mineral and surface acres), and 13 corporations controlled another four million acres of coal or gas rights (1974: 316).[[31]](#footnote-31) In addition, in nearly 50 percent of West Virginia’s counties, at least half of the land was owned by absentee land interests (*ibid.*). What is more, in two counties, the amount of acres controlled by outside interests exceeded the numbers of acres in the county.[[32]](#footnote-32)

 Consistent with Miller’s investigation, the Appalachian Land Ownership Task Force found that corporations owned some 30 percent of the surface acres and 55 percent of the mineral acres in West Virginia (1983: 15-16). In terms of the concentration of ownership, the Task Force concluded that the top one percent of owners controlled slightly over one fifth of the surface acres and nine percent of the mineral acres (17-18).[[33]](#footnote-33) Coal interests dominated; the researchers found that the top fifty private owners controlled approximately one quarter of surface and mineral acres, with “coal and coal lands” as the primary business activity designation (28). Therefore, ownership of land in West Virginia for the purpose of extracting natural resources is evident.

 Until 2013, a comprehensive study of land ownership in West Virginia had not been conducted in over 30 years. The West Virginia Center on Budget and Policy set out to provide a snapshot of land ownership patterns in the 21st century.[[34]](#footnote-34) What the investigators found, in fact, was that, fundamentally, little had changed. The top 25 private owners own 17.6 percent of the state’s privately held acres (West Virginia Center on Budget and Policy 2013: 6). In six counties, five of which are located in the southern West Virginia coalfields (Boone, Logan, McDowell, Mingo, and Wyoming), the top ten land owners control at least half of the private land (*ibid.*). The highest percentage of land owned by the top ten owners is in Wyoming County at 76 percent (West Virginia Center on Budget and Policy 2013: 12). And not one of the state’s top ten land owners is headquartered in West Virginia (West Virginia Center on Budget and Policy 2013: 6*.*), suggesting that concentrated absentee corporate land ownership still pervades.

 Indeed, while the big picture remains the same in the state, there are several noteworthy changes. The 2013 study found that timber management interests have become powerful players. The largest private land owner in West Virginia is currently Heartwood Forestland Fund, which controls over 500,000 (mostly surface) acres of land (*ibid.*). The third largest owner, pending approval of a merger, is Plum Creek Timberland,[[35]](#footnote-35) with well over 200,000 acres. Moreover, some counties that had high concentrations of land ownership in the earlier two studies now have lower concentrations, namely Barbour, Harrison, Lincoln, Mineral, and Putnam (*ibid.*).[[36]](#footnote-36)

**TABLE 3. LARGEST LAND OWNERS, LARGEST ENERGY-INTERESTED LAND OWNERS, AND THEIR SHARE OF PRIVATE LAND OWNERSHIP FOR THE WEST VIRGINIA COUNTIES WITH SURFACE MINING PRODUCTION EXCEEDING 1,000,000 TONS[[37]](#footnote-37)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **County** | **Largest Land Owner** | **Largest Land Owner’s Share of Private Land** | **Largest Energy-interested Land Owner** | **Energy Type of the Largest Energy-interested Land Owner** | **Largest Energy-interested Land Owner’s Share of Private Land** |
| Boone | Natural Resource Partners | 11.4% | Natural Resource Partners | Coal | 11.4% |
| Fayette | Heartwood Forestland Fund | 10.3% | Pardee Resources | Coal, oil, and natural gas | 5.7% |
| Kanawha | Penn Virginia | 5.9% | Penn Virginia | Oil and natural gas | 5.9% |
| Lincoln | Heartwood Forestland Fund | 4.6% | Alpha Natural Resources | Coal | 1.3% |
| Logan | Heartwood Forestland Fund | 13.1% | Natural Resource Partners | Coal | 11.4% |
| McDowell | Norfolk Southern | 22.2% | Berwind Corporation | Coal and natural gas | 7.0% |
| Mingo | Heartwood Forestland Fund | 16.7% | Alpha Natural Resources | Coal | 2.2% |
| Nicholas | MeadWestVaco | 10.2% | Pardee Resources | Coal, oil, and natural gas | 7.2% |
| Raleigh | Rowland Land | 13.0% | Beaver Coal Company | Coal | 9.7% |
| Webster | Pardee Resources | 19.2% | Pardee Resources | Coal, oil, and natural gas | 19.2% |
| Wyoming | Heartwood Forestland Fund | 25.7% | Natural Resource Partners | Coal | 6.6% |

 Nevertheless, energy interests still hold title to a tremendous number of acres. For instance, Natural Resource Partners of Houston, Pardee Resources,[[38]](#footnote-38) Penn Virginia, Alpha Natural Resources, and Consol Energy own some 692,550 acres of land in West Virginia (author’s calculation based on data in West Virginia Center on Budget and Policy 2013: 10). In all of the counties with production of surface tonnage greater than 1,000,000 tons per annum and all eight southern coalfield counties (there is significant overlap between the two designations), at least one of the top ten largest land owners is an energy corporation.

**TABLE 4. LAND OWNED BY TOP TEN LAND OWNERS OF WEST VIRGINIA COUNTIES WITH SURFACE MINING PRODUCTION OF 1,000,000+ TONS[[39]](#footnote-39)**

|  |  |  |  |
| --- | --- | --- | --- |
| **County** | **Surface Acreage Owned[[40]](#footnote-40)** | **Share of Private Land[[41]](#footnote-41)** | **Coal Production (Surface Tonnage)[[42]](#footnote-42)** |
| Boone | 189,608 | 59.1% | 8,831,756 |
| Fayette | 172,292 | 44.1% | 1,738,966 |
| Kanawha | 142,332 | 30.1% | 3,070,455 |
| Lincoln | 32,893 | 11.9% | 2,710,219 |
| Logan | 165,412 | 60.8% | 7,810,757 |
| McDowell | 182,806 | 62.7% | 1,820,881 |
| Mingo | 189,608 | 59.1% | 6,991,492 |
| Nicholas | 162,237 | 43.1% | 2,718,075 |
| Raleigh | 169,240 | 48.2% | 4,846,029 |
| Webster | 186,933 | 60.8% | 1,989,227 |
| Wyoming | 231,199 | 75.8% | 1,832,032 |

 With this consolidated land and mineral ownership, production choices by private corporations have profound consequences on the environment—land, air, and water—also affecting negatively the people who live nearby. MTR’s tremendous effects on the environment are becoming clearer, as the body of scientific literature about the ecological, health, and community implications of the practice grows. Studies that examine the psychological and learning, stream chemistry and accompanying decline of aquatic life, morbidity, and mortality consequences, among others, demonstrate the connection between mining coal and human and ecological deterioration.

 MTR/VF has significant terrestrial impacts. According to Wickham et al. (2013), the terrestrial impacts include forest lost and fragmentation, loss of topographic complexity, impact of soil loss on forest succession, changes in biological diversity, and the loss the carbon sequestration potential. Topographic changes in mountains and valleys—by sheering mountain ridges off in the MTR process and dumping the overburden into adjacent valleys—has lowered mountains, on average, by 34 meters, and has reduced slope steepness by 9-11 percent (Wickham et al. 2013: 338). The removal of mountain tops is also affecting microclimates in southern West Virginia, raising average surface temperatures (1.3 degrees Celsius) (Wickham et al 2013: 339). The authors suggested that in areas with a high concentration of MTR activity, the regional climate may be affected (*ibid.*). In the reclamation process, overburden is compacted to prevent slope failure; in the absence of topsoil, forest succession was challenging. The result was often domination by non-native plant species (Wickham et al. 2013: 343), thereby exacerbating the loss of biodiversity in the most biologically diverse terrestrial ecosystem outside the tropics.

In addition to terrestrial impacts, MTR and valley fills (VF) are altering stream flow and chemical concentrations. Ions, like sulfate, bicarbonate, calcium, magnesium, and selenium, are often found in elevated concentrations below MTR and valley fills (Griffith et al. 2012: 10; Hartman et al. 2004). The ions all contribute to elevated levels of total dissolved solids (TDS), which change the electrical conductivity of the water (*ibid.*), suggesting degradation. The valley fills also alter stream discharge; evidence shows that precipitation from more intense storms results in greater storm flows because of soil compaction and deforestation (*ibid.*). The altered stream flows and water chemistry effect the presence and distribution of macroinvertebrate and vertebrate species (Hartman et al. 2004; Hopkins and Roush 2013; Hitt and Chambers 2014). Macroinvertebrate species are negatively affected by MTR/VF operations; species richness was negatively related to conductivity, alkalinity, and metals in streams below valley fill sites (Hartman et al. 2004).[[43]](#footnote-43) In examining several fish species, Hopkins and Roush (2013) found that all fish species in their study showed negative response to MTR/VF in the form of range contraction as compared with historical distribution data. Larger, contiguous MTR/VF operations exert a disproportionately higher influence on stream systems than smaller mines totaling an equivalent area (*ibid.*).[[44]](#footnote-44) A West Virginia Department of Environmental Protection study found that elevated selenium exposure correlated with larval and adult-form deformity. Larval deformity rates among bluegill fish in control streams ranged from 0 percent to 1.27 percent; however, deformity rates in impacted streams ranged from 0 percent to 47.56 percent (WVDEP 2010: 2). Elevated deformity rates were also found among largemouth bass in larval form (*ibid.*). Moreover, MTR/VF was associated with lower taxonomic and functional diversity (i.e., changes in reproductive and trophic strategies) than reference fish assemblages (Hitt and Chambers 2014). Taxonomic diversity (i.e., species diversity) differed between reference and exposure sites. Reference sites supported an average of 2.3 more species/100 meters squared than exposure sites, and total abundance of fish decreased by as much as 80 percent (*ibid*: 919).

 The literature demonstrated a strong correlation between coal mining and morbidity and mortality. For males and females, mortality rates in Appalachian counties with the highest level of coal mining were considerably higher, relative to non-mining areas, for chronic diseases of the heart, kidneys, and lungs (Hendryx 2008; Hendryx and Ahern 2008; Hendryx and Zullig 2009). Higher rates of chronic disease in coal mining areas likely reflected environmental exposure to particulate matter or toxic agents present in coal (*ibid.*), which are liberated during the mining process. Communities with greatest coal production were at the greatest risk to develop chronic pulmonary, heart, kidney, and vascular disease (Hendryx and Ahern 2008: 670). Lung cancer rates were substantially higher in coal-mining areas of Appalachia, even when controlled for smoking, poverty, education, age, sex, race, and other covariates (Hendryx et al. 2008). Lung cancer mortality in coal mining areas of Appalachia had an occurrence of 67.06 deaths per 100,000 people, as compared with only 56.55 deaths per 100,000 in non-coal mining communities (Hendryx et al. 2008: 2-3). Indeed, the largest coefficient was found for Appalachian surface mining (*ibid*: 4), suggesting that those living around surface mines are at greater risk of developing fatal lung cancer than those who live in areas with underground mining. In fact, coal mining areas exhibited a cancer rate that was five percent higher than non-mining areas; elevated rates of cancer include those of the bladder, lung, skin, breast, urinary and digestive tracts, and kidneys (Hendryx et al. 2011: 324). The five percent higher prevalence of cancer translated into an additional 60,000 residents with cancer in Central Appalachian coal mining communities alone (*ibid*: 325). Moreover, Appalachian coal mining areas were characterized by 1,607 excess annual death over the period from 1999-2004, even after adjusting for all covariates (Hendryx 2008: 5). Mortality rates increased with increasing coal production from one to seven million tons—a finding that illuminated the environmental inequity that pervades Appalachian coal mining communities (*ibid.*).

 Furthermore, psycho-social impairment and lack of environmental competence among healthcare providers diminished quality of life in coal mining communities. Cordial et al. (2012) argued that solastalgia,[[45]](#footnote-45) stress, and post-traumatic stress disorder are evident in high-producing coal areas of Central Appalachia. Stress stemmed from poverty and the perception of powerlessness and uncertainty about the future associated with environmental destruction (*ibid.*). Post-traumatic stress disorder is attributable to the “shell shock” of rapid environmental change, in the wake of, for instance, blasting and horrific flooding. Those who have been affected by flooding experience increased anxiety when it rains, fearing that another flood may occur (Cordial et al. 2012: 205). Additionally, stress can result from the desecration of family graves and the dismantling of close-knit communities, as residents attempt to escape the threat of encroaching mines (*ibid.*).

 Cain and Hendryx (2010) contended that children who live in coal mining areas were subject to socio-economic risks for poor cognitive developmental outcomes. Proficiency rates in mining counties versus non-mining counties were significantly lower in all subject areas as a consequence of socio-economic disadvantage (*ibid.*). Even taking into account county high school education rates, percent of low-income students, percent of highly qualified students, number of students tested, and smoking rates, disparities persisted (*ibid*.). Disparities were ascribed to the deleterious effects of known pollutants associated with coal extraction, including arsenic, mercury, lead, cadmium, aluminum, manganese, hydrocarbons, and benzenes, among others (Cain and Hendryx 2010: 74). Making matters worse, healthcare providers in rural Central Appalachia are not competent to address illnesses resulting from environmental risk factors. Ahern and Hendryx write, “Regarding pollution from the coal mining industry itself, there is at present poor understanding of the pollution types, quantities, and transport routes that impact local communities” (83). Given the risk factors, healthcare providers might recommend to their patients behavioral changes, such as the use of filters or bottled water, or even the possibility of relocating to a less toxic community (*ibid.*). Often, healthcare professionals treat the extant illness, without acknowledging the implications of the environmental context in which rural Appalachian residents live. The apparent degradation of communities and the environment begs the question: What can coalfield residents do?

Convergence of Labor and Environmental Activism

 Historically, labor and environmental movements in the United States have had a complicated relationship, punctuated by fruitful cooperation, as well as acrimonious disagreement (Kojola et al. 2014: 72; Bysthydzienski and Schacht 2001: 7; Bonanno and Blome 2001: 367). Labor-environmentalist coalitions have spanned a broad spectrum of industries, from hide tanning, to timber, to mineral extraction, including coal. Cooperation, especially in the coal industry in West Virginia, has been particularly difficult to sustain. Nevertheless, labor-environmentalist cooperation endured long enough in West Virginia to engender policy and social changes, and cooperation is a necessary condition of protecting both the environmental and labor (Obach 2004: 10). In the early 2000s, Arch Coal applied for, and was granted, a permit to mine coal, via mountaintop removal, on Blair Mountain, the very mountain on which thousands of miners had fought to win the right to organize in the United Mine Workers. The issuance of the permit set the stage for a convergence of interests—those who wished to preserve American labor history and those who wished to end the destructive practice of mountaintop removal mining. Since then, events like the MCHM chemical spill in Charleston, WV and activists’ efforts to develop a transition economy (i.e., economic diversification moving away from coal extraction) have changed the political-economic landscape in Central Appalachia. Are the changes enough to sustain a worker-environmentalist alliance in service to significant social transformation?

 Brian Obach (2004) explored the alliance of hide tanners and environmentalists in upstate New York.[[46]](#footnote-46) Obach argued that, fundamentally, the root of labor-environmentalist conflict is “an economic system in which private control material resources and the pursuit of individual gain generate costs for outside parties and the public at large” (2004: 11). In essence, those with private control seek to enlarge profits, sharing a small portion of revenue with workers in the form of wages. Therefore, owners have made workers “stakeholders” in economic processes that are destructive to the environment. However, environmentalists have labored to make workers aware of their “stake” in the environment; that is, workers live and work in places whose natural capital—the sustenance of all life—is under threat, in part by virtue of workers’ having been thrust into the fray, as industry seeks allies in the fight against environmentalists who wish to curb the externalization of the costs of coal production. Through cooperation in upstate New York, workers and environmentalist have made employment more secure for those currently employed because of investments by tanneries in environmental protection; consequently, the natural environment is better protected, and the entire community, including workers and their families, is enjoying those benefits (Obach 2004: 6).[[47]](#footnote-47) It is possible to imagine a far less desirable outcome—one in which the labor-environmental (i.e., jobs versus the environment)[[48]](#footnote-48) conflict resulted in a compliant workforce fearful of job loss, environmental degradation, and a fractured community mired in the status quo (*ibid.*).

 Grassroots organizations, in terms of coalition building with labor, has gotten more scholarly attention lately. Obach (2004) argues research shows that grassroots organizations have put pressure on larger organizations to expand their agendas to include issues of environmental justice, although he believes that top-down (i.e., union leadership to rank-and-file union members) is a fertile path to worker-environmentalist collaborations.[[49]](#footnote-49) Grassroots organizers often live in impacted communities, disrupting the notion that environmental organizations are populated by “outsiders” who do not know nuances of the political, social, and environmental constellations in local communities. Kojola et al. (2014) contend that the sustainability of blue-green coalition will, at least in part, depend upon grassroots-level connection between workers and environmentalists (73). Kojola et al. (2014) demonstrate empirically that, indeed, workers are concerned about environmental deterioration. They find, however, that support for environmental regulation is highest during an auspicious economy. Environmental attitudes are susceptible to larger economic trends, wherein pro-environmental beliefs and support for policies protective of the environment are more constrained during weaker economic times than during stronger one (Kojola et al. 2014: 76). Moreover, the researchers found no evidence of any barrier to potential collaboration between rank-and-file members of both the labor and environmental movements, and mobilization over social justice issues may be a fruitful avenue for a broader strategy of union revitalization (Kojola et al. 2014: 86). Grassroots organizations, with significant attention paid to environmental justice, are uniquely situated, as they consider issues of equity and power affecting working class and minority communities; this focus creates new possibilities for labor-environmentalist collaborations (Kojola et al. 2014: 76).

 One suggestion for fostering worker-environmentalist alliances may lie in reconceptualizing work spaces are “environments” themselves. Zoller (2009) argues that the growth of the environmental movement and the development of environmental health and environmental justice activism together represent an opportunity for the languishing labor movement to forge alliances focused on worker and community health (290). “Geographies of labor” undermine the dominant environmental frame that constructs “the environment” as abstract and unrelated to human health issues (Zoller 2009: 296).[[50]](#footnote-50) Separating health from the environmental, Zoller argues, reinforces the tendency to equate health with individual lifestyle rather than a more integrated perspective—one that views humans as a constituent part of the environment (*ibid*.). Furthermore, when workers’ health deteriorates or “accidents” cause injury in the mines, there is an inclination to blame individual behavior, instead of management’s actions and attributes (consider the Upper Big Branch Mine disaster). In fact, it is not surprising that union workplaces are healthier and safer than non-union workplaces, as the history of several occupational epidemics, such as Black Lung, illustrates the importance of unions in forcing medical attention on occupational disease (Zoller 2009: 298).[[51]](#footnote-51)

 The logging industry, too, has experienced labor-environmentalist coalition building, despite the odds created by a corporate dominated global system. Maxxam, a Houston-based company, purchased Pacific Lumber (PL).[[52]](#footnote-52) Maxxam was owned by Charles Hurwitz, who also owned the United Savings Association of Texas (USAT). Hurwitz bought USAT in 1982, and used the company to finance over $700 million in junk bonds to purchase PL. In order to pay off the bond debt, Maxxam more than doubled PL’s logging of virgin forest in Northern California. The drastically increased production angered both workers and environmentalists—though labor was not monolithically disgruntled. In 1988, USAT collapsed, and the federal government intervened with a $1.6 billion bail-out. Earth First! and grassroots organizations suggested that Maxxam, as compensation for the bail-out, “donate” 57,000-76,000 acres of its virgin forest holdings for the creation of a forest preserve. When the Headwaters Forest Act was introduced in the House in 1994, it was a proposal to protect 44,000 acres of virgin forest. The final agreement—after the company had put considerable pressure on the state and federal governments—provided for California and the federal government to *purchase* the land for $480 million. In addition, 8,000 acres would be covered under a Habitat Conservation Plan, though ownership would be retained by PL. The agreement enraged environmentalists and labor, because not only had a mere small portion of the forest been saved, but PL was paid nearly a half a billion dollars for it. And PL was permitted to continue its highly mechanized operation in Northern California, which proffered little relief for unemployment woes, and did not protect the forest.

 The unity of the labor and environmental movements can constitute a strong progressive alliance, if the movements are able to recognize their common anti-corporate roots (Bonanno and Blome 2001: 375). With respect to logging in the Headwaters Forest in Northern California, differences between loggers and environmentalists remained, but it was clear that Maxxam (PL), the largest timber corporation in the forest, not only condoned the conflict, but also added to it (*ibid*: 370). Local residents acknowledged that local law enforcement had historically intimidated environmentalists on behalf of the timber industry; in fact, at least part of the bad blood between loggers and environmentalists stemmed from state involvement in the conflict (*ibid.*). In any case, both movements saw the destructive power of the logging industry in virgin forest in California, and they forged an alliance to protected virgin stands. Of course, the demands of the alliance were not all met, but thousands of acres of forest were saved. It is not difficult to imagine how much more could have been accomplished, if the worker-environmentalist alliance could have presented a united front, in the face of corporate hegemony.

 Dewey (1998) suggests that elements of American labor were so precocious in their environmental advocacy that their early activities could legitimately be called “proto-environmentalism” (46). Cooperation between environmentalists and labor was relatively strong until the 1970s, when stagflation, pressure from foreign competition, and other economic and social stressors led to the break-down of green-blue alliances (*ibid*.). The Reagan administration worked hard to break the strength of organized labor and refused to enforce occupational health and safety laws (Dewey 1998: 59). Employers rewarded workers’ loyalty (consider Massey’s enhanced pay incentives), and punished “disloyal” workers with lay-offs and outsourcing (*ibid*.).

 “Proto-environmentalists” engaged in a variety of activities to support safe environments, particularly working environments. In 1948, for instance, the United Steelworkers blamed the United States Steel Corporation for the “Killer Smog” incident in Donora, Pennsylvania (Dewey 1998: 47). The incident killed twenty people and sickened nearly half of the town’s population (*ibid.*). While the U.S. virtually exonerated the United States Steel Corporation, the incident demonstrated the willingness of labor organizations to hold industrial polluters responsible for the health of local residents (*ibid*.). While support for environmental protection was not monolithic, there was overall support for preservation efforts. And not all support for environmental protection was distinctly self-interested (Dewey 1998: 50). In 1958, two major lumber workers’ unions in the Pacific Northwest went against their industries and expressed support for wilderness preservation; union representative Early Hartley called on U.S. senators to save old-growth forest before it was too late (*ibid*: 51). Rank-and-file members, too, expressed alarm over the state of the environment. In St. Louis, in 1969, James Pace, a community action director for Teamsters Local 688, organized a delegation of workers and their families to testify about severe local air pollution in the greater St. Louis area (*ibid*: 55).[[53]](#footnote-53)

 The UMWA also has a history of environmental concern. It was, for example, central to the first fights against “straight piping”—running sewage lines straight from the house to the creek (McNeil 2011: 163). However, Montrie (2000) contends that for both the leadership and the rank-and-file, the health of the coal industry and the preservation of mineworker jobs often took precedence over protection of the environment (76). For instance, after World War II, the union opposed government regulation of water and air pollution, which was consistent with the stance of coal companies (*ibid.*).[[54]](#footnote-54) Montrie (2000) is decidedly less enthusiastic about labor’s environmentalism credentials than Dewey (1998) and Obach (2004). Perhaps a scholarly shift to focus on grassroots organizing, both of labor (rank-and-file, instead of labor leadership as in Obach [2004]) and environmentalists, might provide a fruitful analytical lens.

 As the effects of MTR and increasingly mechanized coal mining on the labor market and the environment become increasingly obvious, potential collaborations are emerging between labor activists and environmentalists (Scott 2010: 5). The emergence of globalization—sped up by Reagan’s “free-market” policies of the 1980s—has signified a direct attack against labor and the environment (Bonanno and Blome 2001: 366; Boggs 1986). Mechanization, in the name of efficiency, threatens both the environment and labor. Blair Mountain highlights the convergence of both the environmental and labor movements.

 In the late 1980s, Mingo Logan Coal Company, a subsidiary of Arch Coal, applied for a permit to mine coal at the Left Fork Mine (RAMPS 2012). The West Virginia Department of Environmental Protection approved the permit. In the early 1990s, Mingo Logan Coal Company applied for another permit to mine Blair Mountain coal at the Bumbo #2 mine, and again the WV DEP approved. Angered by Arch’s plans to excavate American labor history and destroy yet another mountain, environmentalists and labor began to organize to protect the battlefield.[[55]](#footnote-55) Grassroots activists organized to have the battlefield added to the National Register of Historic Places (the union was not initially involved) (McNeil 2011: 135-136). Inclusion on the National Register does not guarantee protection from mining, but permitting authorities (i.e., the WV DEP) would have to consider the permit’s impact on the historical value of the site. After years of nominations and revisions, the activists succeeded in 2009, against the objections of the coal companies, particularly Massey Energy (now Alpha Natural Resources) (Howell and Moroses 2011). Alpha Natural Resources waged a campaign to have Blair Mountain delisted. After nine months, the National Park Service delisted the site, citing a dispute about who owns the properties on Blair Mountain (Nyden 2012).[[56]](#footnote-56) Labor groups and environmental groups sued the National Park Service in federal court, arguing that the Park Service had violated its own guidelines for processing Massey’s objections over land ownership on the mountain. In 2012, a federal district court upheld the Park Service’s decision. The labor and environmental groups appealed to the U.S. federal appellate court in Washington, DC. In 2014, the appellate court ruled that the groups have standing in the case and may, therefore, proceed. The decision sends the case back to the federal district court.

 The UMWA ultimately came out against mining on Blair Mountain. The union eventually negotiated with Arch Coal to preserve a small section of the mountain as a historic site commemorating the battle (McNeil 2011: 135-136). The union has also filed legal briefs and contacted the National Register of Historic Places to support the protection of Blair Mountain (Lavender and Hiar 2011). However, the UMWA leadership and rank-and-file members appear to be splintered, with respect to the issue of mining Blair Mountain. In 2011, environmentalists and [some] miners retraced the march of the miners in 1921—50 miles from Charleston to Blair Mountain, WV. UMWA Local 1440 offered its strident support to the march, and the Local clearly supported the full protection of the mountain. The International was more reticent. Paul Smith, director of communications for the UMWA, stated, “Do we have to get out there and have a rally and a picket line every time we want to show our support? I’m not sure we need to do that” (*ibid.*). In short, the International did not support the march. Other locals, such as Local 2286, denounced the participation of local 1440 in the march (Ramsburg 2011). Locals opposed to the march viewed the participation of Local 1440 as an act of betrayal to MTR miners (*ibid.*). This account offers context for environmentalist-worker alliances in West Virginia, which will be investigated in Chapter 6.

Conclusion

 West Virginia, perhaps more than any other state in the U.S., has been shaped by its natural resources, especially relations among those who mine the resources and those who own them. Reference to coal in West Virginia was first made in 1742 by John Peter Salley during an exploratory trip across the Allegheny Mountains, though it was not commercially exploited until the mid-1800s (West Virginia Geological and Economic Survey 2004). Since then, West Virginia has become a peripheral region within the American and global market system (Burns 2007: 2). Coal extracted from the state fueled the American industrial revolution and later industrial growth, resulting in the death of thousands of miners, devastating health and economic disparities, and ecocide.

 Deplorable working conditions, at the turn of the 20th century, prompted union organizing efforts, which were met with deadly resistance from coal owners and operators. The West Virginia Mine Wars represent a second American civil war, in which miners demanded, with arms, rights and protections in one of the country’s most dangerous occupations. Though union organizing did not take root in earnest until the passage of New Deal legislation, the Mine Wars planted the seeds for the rapid labor organizing growth of the 1940s and 1950s, after which UMWA membership began to decline. The decline is attributable to the behavior of the UMWA leadership, assaults from the state, and corporate anti-union measures, including mechanization. The largest earth-moving machines in the world chew through the tops of mountains, intensifying the destruction of West Virginia’s natural capital. The systematic destruction of natural capital necessarily impinges negatively upon human health.

 Systematic destruction now threatens Blair Mountain, the site of the largest civil uprising in U.S. history (outside the Civil War). The prospect of MTR operations atop Blair Mountain proffers an opportunity for environmentalists and miners to join forces in resistance to Big Coal in West Virginia. Historically, labor and environmentalists in the U.S. have had a complicated relationship, with stints of productive cooperation and periods of bitter disagreement. Already, some environmentalists and miners have come together to resist the MTR ambitions of Alpha Natural Resources and Arch Coal on Blair Mountain, but to what end? The political economy of West Virginia is ever changing, and again, West Virginia finds itself at a crossroads. The gas industry is slowly, but steadily, displacing coal as an energy source, and competition from Western coal mines is growing in intensity. Is progressive social transformation on the horizon in this period of transition?

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1. “Capture” in the study of public policy typically refers to an agency whose regulatory authority has been compromised because of its close relationship to those whom it is charged to regulate. Jasanoff defines the classic “capture” paradigm as “an agency grown too close to those it seeks to regulate tends to accept unquestioningly the self-serving view of risk advanced by the regulated interests and their hired experts” (1994: 15). Although the capture paradigm is usually restricted to an agency, I am suggesting that capture in the context of West Virginia penetrates far beyond any particular agency—hence the term “captured state.” The executive, the legislature, and the courts are all complicit in the reproduction of Big Coal’s hegemony. [↑](#footnote-ref-1)
2. The United Mine Workers organized in Columbus, Ohio in 1890, in an effort to unify coal miners for “action and purpose, in demanding and securing by lawful means the just fruits of [their] toil” (Burns 2007: 19). [↑](#footnote-ref-2)
3. Coal companies hired private detective agencies to keep unionization at bay. The two most well-known were Baldwin-Felts and Pinkteron. Mining families lived under constant threat from detectives, “who used terror, murder, and espionage to thwart pro-union activity” (Nida and Adkins 2010: 5). [↑](#footnote-ref-3)
4. The Battle of Blair Mountain is, by no means, the only noteworthy battle. Although they generally receive short shift, the Battle of Stanaford, the Paint-Creek-Cabin-Creek Conflict, and the Matewan Massacre are all part of the rich history of the United Mine Workers (Burns 2007: 20). According to Burns (2007: 20-21), the events of the Battle of Stanaford unfolded as follows: In 1902, 259 miners walked out of Raleigh County, WV’s fledgling coal industry, in an attempt to bring the union into their county. In late February 1903, a U.S. marshal encountered threats when he tried to deliver a court injunction against the walk-out to 33 of the miners, who had marched from Fayette County to East Beckley. The marshal then recruited some fifty “special marshals,” and he was joined by the Raleigh County sheriff—a staunch anti-unionist—and a Baldwin-Felts detective. The group entered Stanaford and attacked the miners, ultimately killing 11. Stanaford was a tremendous defeat for the union, effectively driving the United Mine Workers out of the county, as mine owners concentrated their efforts to keep the mines union-free. [↑](#footnote-ref-4)
5. Though it is, I think, of less salience than the role of the industry in regard to stifling unionization, it is noteworthy that some contend that West Virginia’s social and physical geography also played a role in the struggle to unionize. McNeil (2011) argues that West Virginia’s mountainous terrain and lack of population centers served to exacerbate an already untenable anti-union climate (72). [↑](#footnote-ref-5)
6. For more comprehensive accounts of the Battle of Blair Mountain and the events leading up to it, see Savage (1990) and Shogan (2004). [↑](#footnote-ref-6)
7. In 1933, Franklin Roosevelt signed into law the National Industrial Recovery Act (NIRA). When he did so, he did not anticipate that it would foster labor unrest (a wave of strikes) or that section 7(a) would set off a firestorm (Bernstein 1970: 172). Section 7(a) affirmed 1.) the rights of employees to organize and designate representatives; 2.) the obligations of employers not to interfere with those rights; and 3.) the direct prohibition of yellow dog contracts (Bernstein 1950: 39). However, the legislation failed to establish a procedure for enforcement, and the means of determining representatives and the duty of the employers to recognize said representatives was ambiguous (*ibid.*). The labor unrest and disagreement over section 7(a) prompted Roosevelt to approve the creation of the National Labor Board, charged with the mediation of disputes (Bernstein 1950: 58). The National Labor Board was plagued by an inability to enforce its decisions (Bernstein 1970: 322), although it was instrumental in hammering out a “’common law’ of section 7(a), applying to its cases a set of basic principles of labor relations that were to be more enduring than the agency itself” (Bernstein 1970: 175). Nevertheless, recognizing the limitations of NIRA, Senator Wagner of New York, a strong supporter of labor protections and a key legislator involved in NIRA, undertook the drafting of new legislation to rectify the shortcomings of section 7(a). The National Labor Relations Act (NLRA) was signed into law in 1935. NLRA incorporated the same basic principles dealing with the establishment of collective bargaining (Bernstein 1950: 130), and it provided a basis for enforcement by establishing the National Labor Relations Board. In terms of selecting collective bargaining representatives, for instance, the National Labor Relations Board was “to exert such control in determining the appropriate unit, deciding the conditions under which elections would be held, stipulating the form of the ballot, and implementing majority rule” (Bernstein 1950: 148). In short, NLRA resolved the ambiguity and ineffectuality of NIRA. [↑](#footnote-ref-7)
8. West Virginia’s total mining employment—surface and underground—stood at 22,334 in 2012, with only approximately one quarter represented by the UMWA (U.S. Energy Information Administration 2013). In the decade from 2002-2012, union membership declined from 6,045 to 5,678, despite the fact that overall mining employment *increased* from 16,046 to 22,334 (U.S. Energy Information Administration 2002). Total coal industry employment in West Virginia exceeded 100,000 in the early 1950s (Burns 2007: 27). [↑](#footnote-ref-8)
9. Massey and Pittston, two large, consolidated energy corporations, resisted paying healthcare benefits for union widows and retirees. In 1989, three years after yet another failed strike against Massey, the UMWA organized a strike against Pittston that resulted in large fines and strained relations (Burns 2007: 27). The UMWA, according to its labor agreement, was not permitted to strike because the miners were contractually obligated to submit to a grievance process instead (McNeil 2011: 74), which essentially made null and void the right to strike. Although the fines were dismissed by the Supreme Court (*ibid.*), the failed strikes demonstrated that the much weakened UMWA stood little chance of forcing large energy conglomerates to meet its demands. [↑](#footnote-ref-9)
10. I anticipate that Patriot’s total coal production will decline, as it filed for bankruptcy protection in 2013. As part of its corporate restructuring plan, Patriot “closed lower-margin and unprofitable mines in order to better align with market demand” (Patriot Coal). It is shifting its resources into metallurgical coal, which commands a higher price per ton. Nevertheless, it will remain, I suspect, a major coal producer in West Virginia. [↑](#footnote-ref-10)
11. In 2013, Consol Energy significantly diminished its stake in West Virginia by selling its Consolidation Coal Company to Murray Energy Corporation. The Consolidation Coal Company included the Shoemaker Mine in Ohio County, the McElroy Mine in Marshall County, the Loveridge Mine in Marion County, the Robinson Run Mine in Harrison County, and the Blacksville Mine in Monongalia County (Ward 2013)—all of which are underground mines located in northern WV. Moreover, Consol, through the sale, unburdened itself of significant UMWA healthcare pension liabilities, totaling nearly $1 billion (Ward 2013); Murray will assume the liabilities. Murray Energy Corporation is the largest privately held coal company in the United States (Murray Energy Corporation 2014). Its safety record is questionable. Murray Energy owned the Crandall Canyon Mine in Utah, where, in 2007, a series of collapses killed six miners and three rescue workers (Ward 2013). The company pleaded guilty to two criminal violations of mandatory health and safety standards (*ibid.*). [↑](#footnote-ref-11)
12. Surface mining encompasses a variety of methods, including auger, contour, highwall, mountaintop removal, and open pit. While there are some differences among the methods, all of them involve removing part of a mountain in order to gain access to the coal seam. Given that West Virginia is a mountainous state, it is virtually impossible to mine without excavating mountains. Even by the West Virginia Office of Miners’ Health, Safety, and Training’s own accounting, mining designated as MTR constituted over 65 percent of surface mining in 2012. In speaking with an activist, she stated that the difference between contour mining and MTR is, for all intents and purposes, unrecognizable. Mining designated as MTR and contour accounted for approximately 90 percent of all surface mining in West Virginia in 2012 (WVOMHST, Surface Mining Method of Production). [↑](#footnote-ref-12)
13. Ascertaining which companies are the state’s largest producers and how much they produce was not a straight-forward task. Coal production is reported to the West Virginia Office of Miners’ Health, Safety, and Training (OMHST) by operator, not owner. In other words, the companies listed are subsidiary companies—not parent companies—making it very challenging to get an overall sense of the presence WV’s most well-known owners: Alpha Natural Resources, Arch Coal, Consol Energy, and Patriot Coal. In order to figure out which parents own which subsidiaries, I went to the U.S. Securities and Exchange Commission (SEC) Web site. The SEC requires all publicly traded companies to submit a 10-K form, which is an annually submitted comprehensive report of a company’s performance. The report includes company history, organizational structure, financial statements, executive compensation, equity, *and* subsidiaries. Subsidiaries are reported in Exhibit 21.1 of the 10-K form. I reviewed the most recent Exhibit 21.1 submissions to identify the subsidiary companies of Alpha, Arch, Consol, and Patriot (available through the SEC’s EDGAR search tool accessible at http://www.sec.gov/edgar/searchedgar/companysearch.html). I cross-referenced the subsidiary lists with company production reports submitted to the OMHST (each company/subsidiary reports its total production each year). From that, I was able to calculate the total production of Alpha, Arch, Consol, and Patriot subsidiaries (based on the subsidiaries that they control), thereby giving me a more comprehensive sense of the production power that these four companies alone wielded in West Virginia in 2012. [↑](#footnote-ref-13)
14. Coal production by mine operators (subsidiary companies) was obtained from the “FY2012 Annual Report and Directory of Mines,” (April 2013), *West Virginia Office of Miners’ Health, Safety, and Training*, retrieved from http://www.wvminesafety.org/PDFs/FY2012%20FINAL.pdf. The report contains mine and subsidiary production data. It also contains total production (surface and underground) for West Virginia. I calculated the percentages based on the data presented in the report. [↑](#footnote-ref-14)
15. West Virginia Land Trust is West Virginia’s only statewide 501 c(3) solely dedicated to protecting the state’s natural lands and scenic area in perpetuity; the Land Trust has protected thousands of acres throughout the state (West Virginia Land Trust, About Us). [↑](#footnote-ref-15)
16. Mechanization was nothing new in West Virginia. During the 19th century, there was increasing interest in making a business out of strip mining, using scrapers and steam shovel, which allowed for expanded production that was less labor-intensive (Montrie 2003: 18). Contour strip mining (a method of surface mining)—that is, mining along the contour of a mountain ridge—began with steam technology in the early 20th century (Montrie 2003: 21). By the 1960s, operators made early attempts to mine coal using a method that became known as mountaintop removal mining; however, valley fills were not particularly large because technology limited the amount of overburden that could be economically removed (Montrie 2003: 23). In 1958, stripping could produce 21.5 tons per man-day as compared with underground mining’s 9 tons (Montrie 2003: 24). Mechanization has intensified even further in the last couple of decades. Lewis may not have foreseen the innovation of draglines, very large earth-removal machines that are capable of excavating 100 cubic yards of overburden in a single scoop (Wickham et al. 2013: 335). [↑](#footnote-ref-16)
17. The union, struggling to remain relevant, was especially damaged by Lewis’s “a deal with the devil” (McNeil 2011: 163). Unable to organize significant numbers of new miners and desperate to keep the remaining active members, the UMWA could not take a strong stand against mountaintop removal, even though—as it turns out—most MTR jobs are non-union and large numbers of the rank-and-file oppose the practice (*ibid.*). The union fears alienating surface miners, who may work, under the auspices of the industry, to weaken the union further. [↑](#footnote-ref-17)
18. In 1981, for instance, Massey Energy became part of Fluor Corp., a multinational energy empire whose holdings included Royal Dutch Shell (McNeil 2011: 83). [↑](#footnote-ref-18)
19. Cecil Roberts, the current president of the UMWA, expressed his support for MTR miners. In doing so, he indicated a UMWA partnership with the coal industry and the government of West Virginia. In a letter to UMWA surface miners, lambasting efforts to protect the environment because of the potential loss the surface mining jobs, Roberts wrote, “That is why we have joined with industry and political leaders in West Virginia in rallies…to very clearly state our position on the preservation of those jobs and maintaining the economic benefits that those jobs bring to the communities where our members live and work” (Roberts 2008). [↑](#footnote-ref-19)
20. A “mining disaster,” according to the West Virginia Office of Miners’ Health, Safety, and Training, is an accident that fatally injuries three or more employees. From 1884-1961, a mining accident was considered a disaster only if five or more employees were fatally injured (WV Mine Disasters 1884 to Present; last updated in 2012 http://www.wvminesafety.org/disaster.htm). [↑](#footnote-ref-20)
21. Although official reports indicate that 362 miners perished, there is evidence to suggest that the death toll was considerably higher, around 500 people (see McAteer 2007). Although it is not entirely clear how the explosion was ignited, McAteer notes the No. 6 mine and the No. 8 mines were both far enough and deep enough that is was increasingly likely that dangerous levels of methane could be found (2007: 21). [↑](#footnote-ref-21)
22. Studies show that MCHM is much more toxic than originally thought. A team of researchers—led by Andrew Welton, a researcher at the University of South Alabama—tried to replicate company-conducted tests assessing the toxicity of MCHM for aquatic life. Ken Ward writes, “In its 1998 study using Daphnia [a water flea that is widely used for toxicological studies in freshwater ecosystems], Eastman [the chemical company that produces MCHM] had concluded that the ‘no observed effect concentration, or NOEC, for crude MCHM was 50 milligrams per liter. However, using the same conditions and testing procedures, Welton’s team found a NOEC of 6.25 milligrams per liter—eight times lower than the Eastman study” (Ward 2014). [↑](#footnote-ref-22)
23. A shearer is a large underground mining machine that travels along a coal seam. As the machine advances, a rotating drum fitted with steel “picks” slice into the coal, shearing it away from the rest of the seam. The sheared coal is then transported via a conveyor belt system away from the coal face. [↑](#footnote-ref-23)
24. The mine had approximately 2.7 miles of active underground works (McAteer et al. 2011: 15). [↑](#footnote-ref-24)
25. The Upper Big Branch Mine was also a “gassy” mine; it liberated approximately one million cubic feet of methane each day (McAteer et al. 2011: 78). [↑](#footnote-ref-25)
26. On one occasion, Massey’s Vice President for Safety reportedly took a violation, turned to her people, and said, “Don’t worry, we’ll litigate it away” (McAteer et al. 2011: 77). [↑](#footnote-ref-26)
27. Governor William Marland’s career was destroyed in the 1950s after he supported a severance tax on coal. His efforts landed him a job as a taxi cab driver in Chicago (McAteer et al. 2011: 89). [↑](#footnote-ref-27)
28. The O-ring was a piece of technology designed to keep pressurized gas from escaping from the rocket booster. Pressurized gas breached the O-ring, allowing the gas to impinge upon an external fuel tank, thereby compromising the fuel tank’s structural integrity and leading to the disintegration of the space shuttle (McAteer 2011: 8-9).

 Diane Vaughan (1996) argues that the *Challenger* disaster was not merely a technical failure of the O-rings; the entire National Aeronautics and Space Administration was at fault. The assumption was that middle managers had concealed information about O-ring failures from higher administrators. Vaughan contends that the assumption was erroneous. It served to divert attention away from powerful elites (e.g., Congress and the White House) who took actions that compromised the environment of technical decision-making (389). Under pressure to produce results (i.e., launch a space shuttle) and protect their jobs, NASA administrators, too, made deals that altered NASA’s culture, structure, and goals (390). For instance, allowing a teacher—in this case, Christa McAuliffe—in space flight was not anticipated at the inception of the program; it was a response to an environment of scarcity, to energize waning public support for the program (390). NASA managers *were* aware of O-ring risks, but they ignored information that the O-rings were developmental, not operational (supporting the narrative that space flight was routine and operational, at the expense of consideration of legitimate risk factors) (390). Vaughan writes, “What is important to remember from this case is not that individuals in organizations make mistakes, but that mistakes themselves are socially organized and systematically produced” (394), generally in the context of political and economic constraints. [↑](#footnote-ref-28)
29. For instance, Massey used “enhanced employment agreements,” whereby the company offered bonuses, pay increases, and guaranteed employment for a period of three years. By accepting the terms of the agreements, miners became “at will” workers, and they their employment could be terminated for insufficient performance (as determined by company managers), “unacceptable” conduct, or serious safety infractions; upon termination, employees were required to return all “enhanced pay” received under the contract (McAteer et al. 2011: 100). [↑](#footnote-ref-29)
30. The broad from deed was not abolished in Kentucky, the last state to uphold the broad form deed, until the late 1980s. [↑](#footnote-ref-30)
31. Ownership of resources can be denoted in a variety of ways—including surface and mineral rights, mineral rights only, surface rights only, or even a portion of the mineral rights (such as coal, but not other minerals) (Miller 1974: 316). A corporation can, for instance, own the minerals (e.g., coal) underneath the surface while another corporation (or individual or government) owns the resources on the surface. [↑](#footnote-ref-31)
32. That is, the total number of deeded acres was more than the geographical acreage of the counties. In the case of the counties whose owned acres exceeded the number of acres in the respective counties, there was likely duplication, whereby one firm owned surface rights and another owned mineral rights (Miller 1974: 316). [↑](#footnote-ref-32)
33. As a basis for comparison, the investigators found that the bottom one percent controlled only .02 percent of the surface acres and .0006 percent of the mineral acres (17-18). [↑](#footnote-ref-33)
34. This study examines only surface acres, not mineral acres. [↑](#footnote-ref-34)
35. Heartwood Forestland Fund is an example of a “Timberland Investment Management Organization” (TIMO), and Plum Creek Timberland is an example of a “Real Estate Investment Trust” (REIT). According to the authors of the 2013 land ownership study, TIMOs and REITs are organizational structures that arose in the 1980s, as a result of the Employment Retirement Income Security Act of 1974 and the Tax Reform Act of 1986. The 1974 act allowed institutional investors (e.g., pension funds) to invest in timberlands—leading to the establishment of TIMOs—in an effort to diversify securities. The 1986 act made it possible for REITs to classify some timberland investment revenues as capital gains, which are taxed at a relatively low rate, as compared with corporate gains. TIMOs and REITs, combined, own over 32 million acres in the United States, valued at nearly $30 billion (West Virginia Center on Budget and Policy 2013: 10). [↑](#footnote-ref-35)
36. The authors of the 2013 study suggest that the changes in values of county-level ownership concentrations may be attributable to methodology, wherein earlier investigators may have double counted acreage (mineral and surface). [↑](#footnote-ref-36)
37. Source: West Virginia Center on Budget & Policy. (2013). Who Owns West Virginia? Retrieved on December 5, 2013 from <http://www.wvpolicy.org/wp-content/uploads/2013/land-study-paper-final3.pdf>. The table was constructed using data presented in the report “Who Owns West Virginia?” In order to determine whether a company is “energy-interested,” I reviewed the descriptions of the corporations of the end of the report. [↑](#footnote-ref-37)
38. Natural Resource Partners and Pardee Resources, while they are among the largest land owners in parts of West Virginia, do not appear on the list of the largest producers of coal. That is because they themselves do not engage in mining. Rather, they manage natural resource lands and lease extraction rights to operators (producers). [↑](#footnote-ref-38)
39. All of the counties are located in the “southern coalfields” of West Virginia, except Webster and Lincoln (Burns 2007: 7). Webster and Lincoln, though, are directly adjacent to the southern coalfield counties. [↑](#footnote-ref-39)
40. Source: West Virginia Center on Budget & Policy. (2013). Who Owns West Virginia? Retrieved on December 5, 2013 from <http://www.wvpolicy.org/wp-content/uploads/2013/land-study-paper-final3.pdf> [↑](#footnote-ref-40)
41. *ibid.* [↑](#footnote-ref-41)
42. West Virginia Office of Miners’ Health, Safety, and Training, (2012 August 7), *West Virginia Mining Statistics*, retrieved on May 20, 2013 from http://www.wvminesafety.org/STATS.HTM. [↑](#footnote-ref-42)
43. One study showed that more than 90 percent of 27 Appalachian streams below valley fills were impaired—per Clean Water Act standards—while none of 10 streams in non-mining areas indicated any impairment (Holzman 2011: A482). [↑](#footnote-ref-43)
44. Coal mining was significantly associated with ecological disintegrity [sic] and higher cancer mortality (Hitt and Hendryx 2010). Spatial analyses revealed that cancer clusters corresponded to areas of high coal mining intensity (*ibid.*). Ecological disintegrity [sic] was associated with higher mortality rates of respiratory, digestive, urinary, and breast cancer (*ibid*.). [↑](#footnote-ref-44)
45. Solastalgia is a psycho-terratic mental health issue that points to place-based distress resulting from unwelcome environmental change (Cordial et al. 2012: 203). In other words, it is a mental health issue that stems from negatively perceived and felt environmental changes—a longing for an environment that has been irreparably degraded/changed, in this case, by mining operations (*ibid.*). [↑](#footnote-ref-45)
46. Hide tanning is a chemical-intensive process. Tanneries in upstate New York were dumping chemical waste into streams, thereby degrading their biological integrity. [↑](#footnote-ref-46)
47. It is important to note here that “labor” refers to organized labor, particularly union leadership building bridges with the environmentalist leadership. [↑](#footnote-ref-47)
48. Empirically, the jobs-versus-environment argument disintegrates under scrutiny. According to Goodstein (1999), environmental regulation has had a *positive* effect on employment rates nationwide. Goodstein (1999) argues that only about 3,000 jobs had been lost, prior to 2000, as a result of regulatory intervention. Nonetheless, jobs loss arguments still have remarkable rhetorical power. [↑](#footnote-ref-48)
49. Obach contends that cultural and ideological cleavages between unions and environmental organizations might be more distinct between rank-and-file members than leaders and that divisions are related to structural and organizational differences rather than class culture (Kojola et al. 2014: 77). [↑](#footnote-ref-49)
50. Peck (2006) argues that while environmental historians have done a good job at explaining the evolution of geographies of capital, they have neglected, by and large, the central role of class relations in shaping and creating structures of capital accumulation in tandem with environmental change (213). Harvey (1998) is a notable exception. Harvey argues that all socio-political projects are ecological projects and vice versa (174). In other words, alienation from labor and the social struggles they engender undoubtedly involve struggles over nature and its transformation (*ibid*.). [↑](#footnote-ref-50)
51. Morantz (2013) conducted an empirical study of traumatic injuries at union and non-union underground mines. She found that unionization is associated with a 14-32 percent decrease in on-the-job fatalities, and that the effects are especially pronounced at large mines (2013: 90). In a personal correspondence with Morantz, she indicated that while her published study did not include surface mines, the “data did initially include all mines (surface and underground) and the pattern of results was qualitatively and quantitatively similar” (personal correspondence, May 2014). The results are not particularly shocking, as the UMWA has—since its inception—fought for safer working conditions in mines. Three of the UMWA’s “Eleven Points,” in 1890, called for improvements in the health and safety conditions of miners (Fox 1990). [↑](#footnote-ref-51)
52. This narrative is adapted from Bonnano and Blome (2001). [↑](#footnote-ref-52)
53. Starting in the 1950s, union members’ awareness and concern about air pollution in the workplace *and* the wider community developed and spread; “workers’ awareness of potential health risks from pollution appeared quite advanced in comparison to that of their follow citizens” (Dewey 1998: 48). [↑](#footnote-ref-53)
54. Consistent with Kojola et al. (2014), the apparent lack of union support for environmental protection may have stemmed from an initial perception of precarious employment opportunities. Once the dust of war settled, and economic growth was obvious, support for environmental protection generally increased until the 1980s. [↑](#footnote-ref-54)
55. It is noteworthy that the UMWA’s support for the protection of Blair Mountain was not guaranteed from the outset. Given the history of the mountain, “no one doubted that the union would come to the rescue, except for the fact that this was to be a union mine. Union miners were actually going to methodically and efficiently remove their own history—the field where their own fathers and union brothers fought for their union” (McNeil 2011: 135). Arch’s decision to propose a union mine, I believe, was not a mere coincidence. [↑](#footnote-ref-55)
56. Not all of the land on Blair Mountain is owned by Arch and Alpha Natural Resources—though they are two of the largest landowners (Howell and Moroses 2011). Indeed, there are many smaller private landholders. In order to be listed on the National Register of Historic Places, a majority of the landholders had to vote to agree to its listing. Although a majority agreed, Massey claimed that there were vote counting irregularities. Environmental activists doubted the veracity of the irregularities. Under pressure from industry, the National Park Service buckled, and removed Blair Mountain from the register. [↑](#footnote-ref-56)