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From Black Marxism to Industrial Ecosystem

Racial and Ecological Crisis in William Attaway's Blood on the Forge

Introduction

Remarkable for its apocalyptic view of industrial capitalism, William Attaway's 1941 novel *Blood on the Forge* follows in the naturalist and black Marxist tradition of Richard Wright's *Native Son* (1940). One of the novel's central conflicts is the clash between southern pastoral and northern industrial-urban ways of living. Employing both naturalism and pastoralism to dramatize this clash, Attaway breaks out of these two representational modes through his use of a relatively minor secondary character named Smothers, a prophetic spokesman for the earth's pain: "[o]ne of the men whispered that Smothers was off his nut. Yet they listened and heard a different sort of tale: 'It's wrong to tear up the ground and melt it up in the furnace. Ground don't like it. It's the hell-and-devil kind of work'" (1941: 52-3). His legs dismembered in a brutal steel mill accident, Smothers's shrill prophecies are the product of wisdom gained through suffering, of a heightened sense of what the "ground" feels as it is mined, smelted, and made into steel. Because he brings an ecological perspective to the ethical and ontological relations among worker, machine, and earth, this character appears on the literary scene as an enigma. Building on previous themes of urban nature in Du Bois's *Darkwater* and *The Crisis*, this chapter explores this strange anomaly of Smothers and the confluence of ecological themes and intersectionality in *Blood on the Forge*.

As with most of the literary texts examined in *Civil Rights and the Environment*, no critic has explored the ecological themes in *Blood on the Forge*, nor asked why a novel published in 1941 and set in 1919 should so strongly engage the conservation movement.¹ Perhaps this marginalization is due partly to the novel's critical reception and classification as African-American fiction, a genre typically associated with social injustices rather than environmental causes. Lawrence R. Rodgers, for example, categorizes *Blood on the Forge* as a "fugitive migrant novel," a special variant of the Great Migration novel that challenges narratives about black migrants' socioeconomic ascent in northern cities (1997: 98). Alan Wald reads the novel within the political context of the late 1930s, calling Attaway a black Marxist "whose exertions were aimed in part at educating the white labor movement about the corrosive costs of continued racial chauvinism" (2002: 282). Wald cites Attaway's involvement with the Communist Party as evidence for his strong political commitments, though *Blood on the Forge* reveals more an analyst of race and capitalism than a propagandist supplying cultural weapons for an American October Revolution.

We never see in *Blood on the Forge* the triumph of racial accommodation and assimilation, or the awakening of class consciousness. Set in 1919, when the First World War had cut off migratory flows from Europe and thus depleted the pool of cheap immigrant labor in northern industrial cities, *Blood on the Forge* follows the three Moss brothers—Big Mat, Chinatown, and Melody—as they migrate from the Jim Crow South to the industrial wasteland of western Pennsylvania. Northern steel mill employers saw that if they could maintain the influx of racially diverse labor, then they could rely on perpetual conflict to undermine organized labor (Marks 1989: 15). The narrative ends tragically with one brother dead, another blinded by a mill explosion, and the third with an injured hand that prevents him from "licking away" his blues on the guitar. The two surviving brothers catch a train ride farther north to the Pittsburgh city limits, each feeling uncertain about his future. Attaway's protest is bleak, even nihilistic, but it does testify to the singular experience of workers who might otherwise be lost in a Chicago School sociologist's or proletarian novelist's progressive narrative of racial assimilation: the Moss brothers do not pass through stages on life's way toward unionization.

Great Migration narrative, naturalism, ghetto pastoral, and black Marxism: all of these frames, of course, help to illuminate the novel, but they also tend to downplay its central figuration of ecological degradation—a degradation comparable to the representations in the work of Booker T. Washington, whose writing is similar to Attaway’s in its scientific orientation. Building on these critical frameworks, this chapter argues that *Blood on the Forge* both complicates and radicalizes the Great Migration narrative and black Marxism by engaging in the same problematic as the 1930s ecological discourses. This 1930s problematic consists of questions concerning the short-term and long-term effects of human activity on local and global ecosystems; thus, it focuses on the interaction between social and environmental history. Such an analysis of the novel requires an eco-historical method that folds together its setting—the Pittsburgh area during the Red Summer of 1919—with its late Great Depression publication in 1941. The first half of this article, then, situates *Blood on the Forge* alongside a paradigm shift within the scientific ecology of the 1930s—a shift partly demanded by humanmade ecological catastrophes such as the Dust Bowl. In 1935, botanist Arthur Tansley defined the “ecosystem” concept, which signified ecology’s turn away from an organic model of environments and toward what historian Donald Worster calls a more materialist “energy-based economics of nature” (1977: 306). As I show, the shared materialist ontology of Marx’s philosophy and Tansley’s ecosystem ecology enfolds *Blood on the Forge*’s black Marxist with its ecological vision; its ecology is internal to and inseparable from its radical politics.

My subsequent reading of the novel examines how it refracts the industrialized and polluted Pittsburgh of 1919 through this materialist ontology, in the process participating in the 1930s ecological discourses by linking ecological degradation to racial conflict and exploitative labor policies. The last section of this chapter focuses on how *Blood on the Forge* develops an ecological ethic that anticipates conservationist Aldo Leopold’s “land ethic” (1949). For Leopold, the land ethic encapsulates conservationist values, for it “changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it” (1939: 240). Attaway’s ecological ethic, on the other hand, focuses more on the intersection of race, labor, and industrial capitalism than conservation per se; his ethic comes packaged in the form of Smothers, who gives voice to what he calls the earth’s “feelin’” (1941: 53).

Ecology of the 1930s: A. G. Tansley and the Ecosystem Concept

The 1930s natural disasters and large-scale industrial pollution conspired with urban infrastructural problems and economic inequality to amplify the havoc, prompting ecologists such as Tansley to consider the blurred distinctions between economics and ecology, between human-made and natural disaster. For instance, the Dust Bowl made the Great Depression as much an ecological as an economic catastrophe. Beginning on April 4, 1934, a large cloud of dust—nicknamed the “black blizzard”—swarmed out of Texas and dumped millions of tons of dirt on major cities ranging from Chicago to Washington, DC (Worster 1979: 221). Partly the product of drought, more the bad karma of decades of poor farming practices that depleted the soil, the Dust Bowl was, according to Worster, the “inevitable outcome of a [capitalist] culture that deliberately, self-consciously, set itself the task of dominating and exploiting the land for all it was worth” (1979: 4). Like the Joads in John Steinbeck’s *The Grapes of Wrath* (1939), Dust Bowl refugees were forced to travel west for work (Merchant 2007: 106). The Dust Bowl’s impact, like its origins, was as social as it was environmental; some ecologists were inspired by this confluence. For example, Paul Sears, author of the Dust Bowl history *Deserts on the March* (1935), later wrote about the crucial social function of ecology as a method for shaping human and natural environments in his 1939 *Life and Environment* (129).

Closer to the setting of Attaway’s novel, this social–environmental confluence also spills over into Pittsburgh’s 1936 St. Patrick’s Day Flood, which exposed the consequences of poor urban planning. Over the course of two days in March 1936, heavy downpours added to rapidly melting snow and raised the city’s water levels to forty-six feet—nearly twice the height of flood stage levels. Trolleys, cars, and many homes were completely submerged or uninhabitable; five thousand people were marooned throughout the city (Lorant 1964: 359). When the waters receded, approximately 135,000 people had lost their homes, sixty were dead, and hundreds injured; the city suffered \$150 to \$200 million in property damage (Lorant 1964: 370). This disaster revealed how regional planning and natural forces are especially intertwined in the unique geography of the Pittsburgh region. Situated where the Allegheny

River from the north and the Monongahela River from the south converge to form the Ohio River, Pittsburgh had always left itself exposed to flood dangers. In fact, the city saw eleven major floods between 1832 and 1907 (R. Smith 1975: 8). In 1908, the city's Chamber of Commerce appointed a Flood Commission to assess the danger and develop a mitigation plan that would call for multiple protective measures, most notably the construction of nine flood control dams north of the city in the Upper Ohio River Valley. But on attempting to implement the plan in 1912, a conflict arose between the United States Congress and the city's local Corps of Engineers, who were wary of federal involvement in regional affairs (Kleppner 1989: 171). In an unpublished 1928 report, the Corps of Engineers secretly concluded that it would be more profitable to sustain flood losses than to build the dams (R. Smith 1975: 17). Moreover, the US Congress stated that it would provide federal funding for the dam project only if it aided river navigation (R. Smith 1975: 14). After thirty years of gridlock and cost-benefit analyses, the Congress passed the federal Flood Control Act of 1936 and finally approved the plan in June of that same year, three months after the disastrous Saint Patrick's Day flood (Lorant 1964: 370).

Disasters such as the Dust Bowl and the 1936 Pittsburgh Flood accelerated scientific ecology's rise to prominence in the popular mind throughout the 1930s. By the start of the 1930s, and spurred along partly by the Tuskegee Institutes innovations in agricultural science, ecology was already an established academic discipline in the United States, centered in the Midwestern universities of Nebraska, Chicago, and Illinois at Urbana-Champaign, where William Attaway studied creative writing and earned his degree in 1936 (Wald 2002: 281). Most of these schools borrowed their vocabulary from Frederick Clements, whose ideas are significant because they represent the paradigm from which fellow ecologist Arthur Tansley broke in 1935. A botanist at the University of Nebraska, Clements published the highly influential study *Plant Succession: An Analysis of the Development of Vegetation* (1916). Clementsian discourse reflected an ontology grounded in late-nineteenth-century philosophical holism and organicism; he conceived of plant formations as organs within a "super-organism," as productive citizens functioning on behalf of a "community." These communities follow developmental stages known as "successions," which move toward a "climax state" or a final point of balance

and stability (Worster 1977: 209–20). All the individual members seem to work harmoniously for the community, ushering it toward its highest evolutionary stage. As Worster summarizes, Clements “insisted stubbornly and vigorously on the notion that the natural landscape must eventually reach a vaguely final climax stage” (1977: 210).

In his pivotal 1935 essay, “The Use and Abuse of Vegetational Concepts and Terms,” British botanist Arthur G. Tansley directly challenged the ontological roots of this Clementsian paradigm. Published in *Ecology*, the leading American journal in the field, Tansley’s essay sought to replace the organicist premises of Clementsian ecology with a more rigorous scientific materialism that drew from thermodynamics and systems theory (Kingsland 2005: 184). After critiquing, fine-tuning, and cordially dismissing a number of Clementsian concepts (succession, climax, organism), Tansley goes on to attack the organicist philosophy of holism that underpins these concepts. He argues that holism implies a closed system, a unified whole—the community or the superorganism—that acts on the parts; the concept of wholeness is at worst a nonscientific transcendent vital principle, at best an analytic category that is purely heuristic (Tansley 1935: 298–9). Tansley’s goal, as environmental historian Sharon E. Kingsland claims, was not to discard a sense of the whole, but rather “to express the concept of wholeness without falling into the circumlocutions of organicism” (2005: 184). To do this, Tansley borrowed the term “systems” from physics and substituted it for “community” and “organism” in order to designate “highly integrated wholes” that, crucially, included inorganic factors (Tansley 1935: 297). In other words, he both expands and limits the “whole” of Clementsian holism: he expands it to include nonliving factors, while limiting it to the material parts of the various micro- and macro-systems that produce it.

Tansley was implicitly replacing an organicist with a materialist ontology, for he extended the field of the living to the nonliving while dropping the organicist principle. A fusion of ecology and physics, this materialist ontology led Tansley to a neologism, “ecosystem,” that did not assume ontological distinctions among the organic, inorganic, natural, and human components of a given region or formation (1935: 299). Ecosystems form the “basic units of nature on the face of the earth,” and include such factors within the physical environment as climate and soil. He asserts the reliance of organic life

on inorganic factors: “there could be no systems without them, and there is constant interchange of the most various kinds within each system, not only between the organisms but between the organic and the inorganic” (1935: 299). Most importantly, Tansley recognized that nature could not be studied apart from human interference, particularly with the advent of industrialization: “[i]t is obvious that modern civilised man upsets the ‘natural’ ecosystems or ‘biotic communities’ on a very large scale” (1935: 303). Perhaps while thinking of the Depression-era and the human-made ecological catastrophes, Tansley bluntly states: “[r]egarded as an exceptionally powerful biotic factor which increasingly upsets the equilibrium of preexisting ecosystems and eventually destroys them, at the same time forming new ones of very different nature, human activity finds its proper place in ecology” (1935: 303). Ecology, in short, must apply itself to environments produced or manipulated by human activity (1935: 304). Worster further explains the concept’s materialist edge: “all relations among organisms can be described in terms of the purely material exchange of energy and of such chemical substances as water, phosphorus, nitrogen, and other nutrients” (1977: 302). This turn toward what Worster calls an “energy-based economics of nature” would eventually take hold as orthodox ecology by the 1940s (1977: 306).

Although Tansley was himself politically conservative and a supporter of Herbert Spencer’s social Darwinism early in his career, the ontology of the ecosystem concept shares striking parallels with the premises of the Marxist politics informing Attaway’s novel. To understand these political implications, one must consider how the Clementsian paradigm is derived from Spencer’s philosophy. In a political reading, Worster locates the origins of Clements’s ontology in the Spenserian ideology of social Darwinism that naturalized the capitalist mode of production (1977: 212). For Spencer, profit could be analogized to the healthy growth of the organism, driving the progress and evolution of society toward a “more perfect state of complex organismic interdependence” (Worster 1977: 213). This vision of progressive evolution, of course, justifies the capitalist exploitation of more “primitive” social formations; it provided a convenient ideology for Europe’s late-nineteenth-century Scramble for Africa. It also underpins Clements’s theory of developmental stages toward a climax community.

Just as Clements and Spencer shared the same organicist ontology, so did Tansley and Marx share the same materialist ontology. In *Capital*, Marx defines labor as the metabolic exchange between humans and nature, a “process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature” ([1867] 1976: 283). Just as the human laborer confronts the world as a resistant “force,” so too must he mobilize the “natural forces” that belong to his body, through which he acts “upon external nature and changes it, and in this way he simultaneously changes his own nature” (Marx [1867] 1976: 283). Humans are an active part of nature, continually shaping and being shaped by natural, material forces.

This connection between ecology and Marxism was not lost on Attaway’s contemporary, Kenneth Burke, a leftist literary critic. In his 1937 *Attitudes toward History*, Burke saw a latent politics in 1930s scientific ecology that was more Tansleyian than Clementsian. He found there a concealed Marxist critique of profit and exploitation: “[ecology] teaches us that the *total* economy of this planet cannot be guided by an efficient rationale of exploitation alone, but that the exploiting part must itself eventually suffer if it too greatly disturbs the *balance* of the whole” (1937: 192). While the notion of “balance” evokes Clementsian ecology, “total economy” suggests the human–nature material exchange found in Tansley and Marx. Speaking of the 1930s ecological catastrophes, Burke continues in a more distinctly Tansleyian vein: “laws of ecology have begun avenging themselves against restricted human concepts of profit by countering deforestation and deep plowing with floods, droughts, dust storms, and aggravated soil erosion” (1937: 192). Rather than encouraging natural growth, profit destroys the ecosystem, which then avenges itself on humans. The Tansley–Burke parallelism forms a sort of discursive chiasmus: Burke saw the need to bring ecology into historical materialism, while Tansley saw the need to bring human (and by extension, social and economic) history into ecology. Attaway’s novel is a narrative and theoretical extension of this chiasmus: it conceives of the relation between human and environmental history, and pushes this relation through the Tansley–Burke crucible.

Carnegie Steel, Labor Policy, and Ecological Degradation

By the twentieth century, Allegheny County, or the Pittsburgh region, had grown into the world's leading iron and steel producer, owing much of its rise to Andrew Carnegie's entrepreneurial skill and the ready abundance of coke—fuel used for smelting iron and steel—in nearby Connellsville (Lubove 1969: 4). It also became a leading polluter. Pittsburgh historian Roy Lubove quips that “[f]ew communities were so frequently compared to hell” (1969: 1). With its air pollution, disease-ridden slums, and rivers full of sewage and industrial waste, the region lived perpetually on the cusp of an ecological catastrophe, turning extreme environmental conditions into an everyday way of life for its poor black migrants and Eastern European immigrants.

The ecologically destructive and racist labor policies of Carnegie Steel (later US Steel under J. P. Morgan), the leading steel manufacturer of the Industrial Era, typifies Pittsburgh-area business practices. Andrew Carnegie was the most well known of Pittsburgh's entrepreneurs and a figure difficult to caricature as a one-dimensional, top-hatted capitalist. His intuition for business put him in the vanguard of the industry shift from iron to steel manufacturing in the 1870s. He made millions from his Carnegie Steel, and by the time he sold it to J. P. Morgan in 1901, he was possibly the richest man in the world (Nasaw 2006: xii). Carnegie's love for philanthropy and profit made him a paradoxical figure: the more he gave to the public the more he took from his workers. In order to finance his philanthropic enterprises, Carnegie “pushed his partners and his employees relentlessly forward in the pursuit of larger and larger profits, crushed the workingmen's unions he had once praised, increased the steelworkers' workday from eight to twelve hours, and drove down wages” (Nasaw 2006: xi). Publicly, Carnegie cultivated the image of a reconciler between the contradictory demands of “Capital” and “Labor”; in practice, he implemented antilabor policies and delegated their execution to his subordinates. These antilabor policies were most notoriously represented in his handling of the 1892 Homestead Strike, which resulted in the long-term dissolution of the Amalgamated Association of Iron and Steel Workers (Rees 1997: 518). Facing increased competition from rival companies, Carnegie decided to destroy the union at Homestead, hiring Pinkertons and entrusting

union-buster Henry Clay Frick with the task. Frick refused to recognize the union, locked out the workers, and brought in scabs, which led to a violent clash between Pinkertons and strikers that left ten dead (Rees 1997: 526–7). After Homestead, the steelworkers’ union took decades to reemerge.

Carnegie’s attitudes toward race followed a similar tension between philosophy and policy, between public statements and managerial actions. His racism took the indirect form of white paternalism, sins of omission, and condescension toward workers. To be sure, Carnegie donated money to the Tuskegee Institute and publicly praised Washington; yet he exemplifies the same white paternalism lampooned by Ralph Ellison in the figure of Mr. Norton in *Invisible Man* (1952). He reserves his explicit prejudices mainly for immigrants rather than African-Americans. In his autobiography, Carnegie extols the manliness of the native-born “working man,” while brushing off the “queer” and effeminate “foreigner”: “[t]here is one great difference between the American working-man and the foreigner. The American is a man” (1920: 237). Presumably he means eastern European immigrants from countries such as the Poland, Lithuania, and Ukraine. He conceives of American racial identity as primarily a mix of British and German ancestry—a notion, of course, with no basis in reality. Carnegie himself was Scottish and an avid Scottish cultural nationalist: he idolized and frequently quoted poet Robert Burns. But Carnegie failed to see a connection between his exploitative labor policies and his racial views. The industry shift from iron to steel allowed him to hire cheaper, lesser-skilled laborers, namely immigrants and, later, black migrants: “[w]hile iron had to be puddled by hand, technological innovations in steel mills made it increasingly easy to train immigrants and other less-skilled workers to replace skilled union men” (Rees 1997: 520). Inevitably, his contempt for labor unions would go hand-in-hand with his contempt for the lesser-skilled immigrant workforce.

Typified by Carnegie, the racial contempt of local elites for foreign laborers buffered the progress of urban planning, resulting in the formation of chaotic communities that resembled mycelia. First-generation European immigrants and black migrants made up a combined 71 percent of the workforce in 1910 (Dickerson 1986: 25); this number dropped to 60 percent overall by 1920, though with a 10 percent increase in black workers (98). Because zoning laws were not passed until 1923, working-class communities were somewhat of a

macabre experiment in “natural” living as they were left to sprout “organically,” free from the human intervention of rational planning. In his contemporaneous 1928 sociological study of northern city slums, T. J. Woofter Jr. posits the formula “death by density” to characterize the proportion of death rate to population density (1928: 78). He blames land-exploitation and the profit motive for these death-by-density conditions:

Spaces that should have been occupied by single-family houses have been built up thickly with flats. In other places single-family houses have been built with a common wall, the effect of which is to eliminate side yards and to reduce the amount of light and of air-space to less than is necessary for health. Front yards have been eliminated by building flush on the sidewalk, and the rear yards have then been cut in two by alleys and secondary streets on which rows of houses have been built. (1928: 88)

In Pittsburgh, a combination of hilly topography and greedy slumlords looking to reap high profits from small plots of land led to the construction of sardine-packed, vertical housing that allowed for little sunlight or open space (Lorant 1964: 369). Overcrowding was so rampant in many mill towns that workers often shared the same bunks, alternating according to shifts (Dickerson 1986: 56). Because they typically lived in areas four times denser than whites (Woofter 1928: 78), African-Americans were more adversely affected by slum conditions, enduring death rates almost twice as high as whites between 1915 and 1930 (Dickerson 1986: 58). Most homes lacked running water and sewage systems. In one neighborhood, Skunk Hollow, steel employees lived in dilapidated shacks built on steep slopes; inadequate toilet facilities sent human waste flowing downhill into the valley below (Lubove 1969: 14). Diseases thrived under these conditions, with frequent outbreaks of tuberculosis, typhoid, influenza, pneumonia, syphilis, and gonorrhea (Dickerson 1986: 59).

Companies such as Carnegie Steel treated the region’s air, rivers, and land as a dumping ground for industrial wastes, further contributing to this slum-generated ecological degradation. Pittsburgh’s transformation from a primarily iron-producing to steel-producing hub led to an increase in coal burning, reinforcing the Steel City’s second nickname: the Smoky City. Locals grew accustomed to blackened skies, even going so far as to equate Pittsburgh’s

high smoke levels with thriving industry, the visual measure of economic prosperity: a “smoky Pittsburgh is a healthy Pittsburgh,” many would say (Lorant 1964: 364). In a 1912 article, “The Smoky City,” John T. Holdsworth attributed the “smoke nuisance” to the profit motive and the low cost of coal, the burning of which was a “scourge to vegetation, a defilement of buildings and merchandise, and a positive check upon civic and industrial progress—all because it is cheap!” (1976: 86). Historian Dennis C. Dickerson describes western Pennsylvanian mill towns as so polluted that “street lamps glowed in midafternoon to chase away the darkness created by the smoke-filled skies” (1986: 55). A 1936 photograph for *Life* magazine, taken by Margaret Bourke-White, shows a sweeping bird’s-eye-view of the city: murky and smoke-choked, more an industrial trash heap than a human dwelling, the city resembles a modern Gehenna (Lorant 1964: 364–5). The need for smoke control had been a long-debated urban planning and public health issue since the early nineteenth century, but the city government and local elites avoided action for decades; it finally passed the Smoke Control Ordinance in 1941, although demands for increased wartime production would delay its enforcement (Lorant 1964: 370).

These same factories that pumped smoke into the air dumped waste into the Ohio, Allegheny, and Monongahela rivers (Lubove 1969: 15). The process of mining the coal necessary to produce steel released a steady stream of sulfuric acid into the rivers; in 1920, 2.5 million tons of acid flowed into the Ohio River, destroying riverbanks and causing massive fish kills (Casner 2003: 89–92). The impact of acid drainage was extra-regional too, extending as far as 170 miles downriver (Casner 2003: 93). Company towns such as Homestead beaded the three rivers as far as thirty miles from Pittsburgh’s downtown; residents relied on the rivers for their water supply (Muller 2003: 54). This dependence on polluted water won the region the dubious distinction for the highest mortality rate in the nation for waterborne diseases (Casner 2003: 93). Because of the lack of water treatment facilities, frequent typhoid outbreaks in the early 1900s killed working-class immigrant and black migrants at nearly twice the rate of native whites (Tarr and Yosie 2003: 70). Produced by and intertwined with labor and regional planning policies, these environmental conditions shape the historical backdrop to *Blood on the Forge*.

South to North: Soil Depletion to Industrial Pollution in *Blood on the Forge*

Attaway represents the subjective experience of this social and environmental history, forming an integrated vision of the Great Migration, industrial landscapes, slum life, and labor struggle. In its scope and concern with ecological degradation, this integrated vision engages, on the aesthetic level, the same problematic as Tansley's ecosystem concept. The novel follows the four stages of the Great Migration narrative as schematized by Farah Jasmine Griffin in *Who Set You Flowin'? The African-American Migration Narrative*: migration out of the South, initial contact with the northern urban environment, an attempt to adjust to northern life, and finally a "vision of the possibilities or limitations of the Northern, Western, or Midwestern city and the South" (1995: 3). Each of these stages, which center on the migrants' changing consciousness, is given a particular ecological inflection in the novel, thus expanding the purview of both the migration narrative and the ecosystem concept. *Blood on the Forge* also contributes to black Marxism in its emphasis on steel production's intertwined, ecosystemic byproducts: a wounded earth, injured workers, and slum living conditions.

In the novel's opening section, Attaway emphasizes the slow, "natural" tempo of southern life, which later serves as a striking contrast with the jarring industrial rapidity of northern life. Unlike the later parts of the novel, the opening section follows a dream-like flashback structure, as narrative form imitates the natural cycles of the Moss brothers' environment: the changing seasons, weather cycles, harvest time, and birth and death for both humans and nature. This premigration scene is set in 1919 Kentucky as the Moss family struggles to survive as sharecroppers. Richard Wright describes the sharecropping system's injustice in his 1941 photographic essay, *Twelve Million Black Voices*: "[t]he Lords of the Land [white landowners] assign us ten or fifteen acres of soil already bled of its fertility through generations of abuse. They advance us one mule, one plow, seed, tools, fertilizer, clothing and food" (38). Black sharecroppers, Wright protests, are forced into debt peonage, always bound more to their white creditors than to the land.

Racial and economic oppression in the South follows a predictable, though tragic, routine that allows the Moss family to cope by means of a blues stylization of life—one that “slicks away” hardship and cauterizes emotional wounds. Melody, the emotional glue that holds the family together, embodies this blues ethos in the novel’s opening sentences: “[h]e never had a craving in him that he couldn’t slick away on his guitar. You have to be native to the red-clay hills of Kentucky to understand that” (Attaway [1941] 2005: 1). Melody laments the family’s wretched condition in a song called “Hungry Blues”:

Done scratched at the hills,
 But the ‘taters refuse to grow . . .
 Done scratched at the hills,
 But the ‘taters refuse to grow . . .
 Mister Bossman, Mister Bossman,
 Lemme mark in the book once mo’. (3)

Attaway’s vision of labor as non-redemptive toil is a striking contrast to the optimist, Tuskegee georgic discussed in Chapter 1.² The first four lines characterize failed agricultural labor as futile “scratching,” a practice that becomes even more futile in the final lines when the black sharecroppers fall into deeper debt to the white “bossman.” The hint of sarcasm in the final lines reveals Melody’s awareness of the white creditor and black debtor economic relation that determines the farmer’s relation to the land. Two forms of inscription—scratching the land and marking the book—racialize the land as white, shaping the ecosystem into an extension of a hostile creditor.

Despite this failure at laboring the land, the blues offer a form of resistance—if only at an intuitive, sensory level—to the endless white creditor–black debtor cycle that dominates the family’s relation to the land. Through Melody, the blues are articulated to the land, offering a black vernacular counter-racialization of a land systematically racialized by white property owners. Melody cuts through this property relation and holds onto an affective bond to the earth: “[r]ight then Melody was feeling the earth like a good thing in his heart” (1941: 22). This affective bond suggests an immediate link between laboring the earth—between the black sharecropper’s literal propinquity to the soil—and the vernacular tradition of country blues that Melody embodies. Because of his blues sensibility, Melody intuits that no one owns the earth: “I got a big feelin’ like the ground don’t belong to the

white boss—not to nobody,” he proclaims to Big Mat (1941: 22). This sublime moment even escapes the codifying force of the blues: “[e]very once in a while he would get filled up like this with a feeling that was too big to turn into any kind of music” (1941: 23). He says this while trekking across Vagermound Common, which borders the Moss farm plot, representing for the brothers a geographic and metaphoric horizon that offers a model and promise of common land. Unlike Booker T. Washington’s emphasis on private property acquisition, Attaway places value on common ownership and the subjective experience of the land. These two factors—Melody’s blues and close proximity to unenclosed, public land—allow the brothers access to some sense of nature unmediated by racism and capitalism.

Attaway further racializes the land through a counter-pastoralist mode of representation. The Kentucky landscape is neither a pastoral ideal nor an anti-pastoral reality; it is marked by both natural beauty and racial violence, doubling as safe haven and potential lynching site. Crab-apple trees are analogous to African-Americans; they populate and racialize the landscape: “[m]ost of the country beyond Vagermound Common was bunched with crab-apple trees, posing crookedly, like tired old Negroes against the sky” (7–8). They seem to follow Big Mat like ancestral guardians: “[a]gainst the dark sky the darker crab-apple trees kept pace with him as he walked” (16). The nighttime landscape resembles a color-blind society, an insight suggested by Melody: “[a]t night the hills ain’t red no more. There ain’t no crab-apple trees squat in the hills, no more land to hoe in the red-hot sun—white the same as black” (11). That in daytime the crab apple trees “squat in the hills” is significant: it suggests that they are hiding from a lynch mob: “[h]iding in the red-clay hills was something always in the backs of their heads. It was something to be thought of along with bloodhound dogs and lynching” (35). Nature at night offers refuge and cover from racial antagonisms that appear naturally embedded in the daytime landscape. This scene, then, reveals the brothers’—and by extension, all black sharecroppers’—fraught relation to the pastoral.

This ambiguous pastoral scene is disrupted by a series of traumas that eventually render the pastoral condition unlivable for African-Americans. For example, Big Mat’s wife Hattie, a human analog to the barren and eroded land, has miscarried six children six springs in a row, leaving the couple childless. While Hattie’s miscarriages appear “natural,” Attaway hints that

they most likely have an economic origin: the constant references to the family's chronic hunger and diet of white pork, molasses, and saltwater cornbread imply that Hattie suffers from malnutrition. This suggests an ontological link between human and nonhuman forms of failed reproduction (i.e., childbirth and land cultivation). Also, the novel ties infertility to a naturalized masculine as well as feminine identity, portraying Big Mat as a Job-like figure suffering from a double "castration": his simultaneous inability to escape an emasculating economic system and to "harvest" children. When Big Mat travels north, Hattie stays behind with the land, as though she were permanently rooted to it, forgotten by the brothers as they struggle to adjust to northern life.

Through a flashback, the narrative recounts the novel's primal, traumatic scene: the mother's death at the plow:

She had dropped dead between the gaping handles of the plow. The lines had been double looped under her arms, so she was dragged through the damp, rocky clay by a mule trained never to balk in the middle of a row. The mule dragged her in. The rocks in the red hills are sharp. She didn't look like their maw anymore. (7)

The sharecropping system, which forces the mother to help labor the fields, and soil erosion, which leaves the ground hard and rocky, conspire to amplify the trauma of her death. Dragged across this eroded, rocky terrain, her body is mutilated beyond recognition.

Although the mother's bodily mutilation may seem an unfortunate "natural" accident, soil erosion itself is a byproduct of an economy that exploits and destroys the ecosystem. In *Twelve Million Black Voices*, Wright attributes soil erosion to rampant deforestation:

We ... watch the men with axes come through ... and whack down the pine, oak, ash, elm, and hickory trees, leaving the land denuded as far as the eye can see. And then rain comes in leaden sheets to slat and sour at the earth until it washes away rich layers of top soil, until it leaves the land defenseless, until all vegetation is gone and nothing remains to absorb the moisture and hinder the violent spreading floods of early spring. (1941: 78)

Poor farming methods were also a culprit in soil erosion; the widely practiced one-crop (usually cotton or tobacco) system, as opposed to the crop rotation system advocated by agricultural scientist George Washington Carver at the

Tuskegee Institute (discussed in Chapter 1), quickly depleted soil nutrients. Environmental historian Albert E. Cowdrey states: “Any system which covers too many fields with the same plant falls afoul of the ecological principle which states that the simplest systems are apt to be the most unstable” (1996: 79). Big Mat complains about this erosion to Mr. Johnston, the white landlord: “[w]ind and rain comin’ outen the heavens ever’ season, takin’ the good dirt down to the bottoms. Last season over the big hill the plow don’t go six inches in the dirt afore it strike hard rock” (14). Johnston faults nature rather than the system from which he profits, but, fearing his tenants will migrate north for better work, he decides to replace the mule Mat killed in an angry outburst after his mother’s death (15). When he goes to retrieve the promised mule, Big Mat lashes out at Johnston’s “poor white” riding boss for insulting his dead mother. A recruiting agent or “jackleg” from the north offers the Moss brothers a convenient escape from the lynch mob that will inevitably come after Big Mat; the jackleg arranges for them a free train ride to the steel mills of western Pennsylvania (31). Originating in racism and poor environmental conditions, trauma and its aftermath catalyzes the brothers’ move to the north.

Attaway focalizes the subsequent descriptions of Allegheny County’s polluted industrial landscape—everywhere marked by human traces—through the agrarian eyes of the Moss brothers. It is in these northern scenes that parallels to Tansley’s ecosystem concept become more apparent. Immediately upon their arrival, the brothers wander about their new home, an unnamed steel mill town along the Monongahela River that reminds them of an “*ugly, smoking hell out of a backwoods preacher’s sermon*” (45; emphasis in original). They see the land as the victim of a giant agricultural machine:

A giant might have planted his foot on the heel of a great shovel and split the bare hills. Half buried in the earth where the great shovel had trenched were the mills. The mills were as big as creation when the new men had ridden by on the freight. From the bunkhouse they were just so much scrap iron, scattered carelessly, smoking lazily ... None of this was good to the eyes of men accustomed to the pattern of fields. (43)

Mixing shock and awe, the lyrically beautiful and the industrially damned, this passage draws parallels and differences between micro-agricultural and

macro-industrial modes of production. The image of the giant's "great shovel" conflates a farming tool that would be familiar to the Moss brothers with the awesome power of dynamite to "split" the hills as a farmer would furrow a field. When seen from up close, the mills appear to be steel-producing monsters; from a distance, they shrink to mere bits of litter or "scrap iron," suggesting that their power and size are not so great compared with the vaster landscape. This image of a wounded earth also echoes a poetic conceit used by John Milton in his description of Pandemonium in *Paradise Lost*: "Soon had his [Mammon's] crew / Opened into the hill a spacious wound / And digged out ribs of gold" (1674: 1833). By linking the industrial environment with the Christian hell, Attaway suggests that torment of the material landscape is also a kind of spiritual torment. This objective-subjective, material-spiritual dialectic is mediated by aesthetics: the eyesore landscape assaults the brothers' sense of what nature is, and thus disturbs their own inner nature or *habitus*. Veteran steelworkers use the slang term "green men" to designate these fresh-eyed proletarians, easily spotted because they are not yet habituated to their surroundings.

Like the land, the rivers are also polluted. Attaway describes the Monongahela River where it converges with the Allegheny River to form the Ohio: "[i]n back of [the Moss brothers] ran a dirty-as-a-catfish-hole river with a beautiful name: the Monongahela. Its banks were lined with mountains of red ore, yellow limestone and black coke" (43). Echoing T. S. Eliot's lament for the trashy Thames River in *The Waste Land* (1922), Attaway envisions the Monongahela under the strain of industrial waste; its beautiful, iambic Native American name serves as a distant reminder of its preindustrial past. To amplify and anthropomorphize the river's horrors, Attaway sets the riverbank as the scene of a violent sexual assault. A gang of boys, as if playing a game, rape a ten-year-old girl they call "ol' Betty": "[t]wisting and turning, a furious little figure [Betty] was dragged away to the tall weeds up the riverbank. The weeds tossed violently and then trembled for a little time" (99). While this scene typifies the naturalist novel (with people reduced to animal-like behavior by their brutal environment), it also connects ecological damage to sexual violence. Like most of the working-class immigrants in the area, Betty is probably Slavic. Her image condenses the simultaneous exploitation of a feminized immigrant workforce and a feminized nature.

It also places her on a sort of assembly line that mechanizes the sexual act itself.

Just as steel production requires violence to the landscape and rivers, so too does it maim and terrorize the steelworkers. Even though the workers operate the machines, they are still, like the land, tormented by their violence. After the brothers' initial contact with the landscape, Attaway proceeds to connect their aesthetic experience with the labor experience. Still absorbing their new environment, the brothers listen to the testimony of mill workers. Attaway structures these accounts according to the verse-chorus pattern of a work song, as the workers' attitudes collectively speak in a refrain: "[w]hat men in their right minds would leave off tending green growing things to tend iron monsters?" (44; emphasis in original). Individual accounts of violence on the job separate these refrains. A worker recounts how one non-English-speaking Slavic immigrant could not understand shouted warnings of an impending accident, leaving him with a "chest like a scrambled egg" (44). Another calls one machine a "skull buster," because it involves dropping an eight-ton steel ball on scrap metal, sending shrapnel flying everywhere and often wounding or even killing workers unfortunate enough to stand in its deadly path (45). One black worker, Bo, warns the brothers to be careful because the employers like to put green men on the "hot jobs before they know enough to keep alive" (52). "Hot jobs" refers to those working the Bessemer furnaces, the most dangerous jobs in the mill. These tales of machinic violence and terror reinforce the literal meaning of the novel's title: steel cannot be made without the crucial ingredient of human blood.

For the brothers, life off the job proves as potentially violent and disabling as life on the job. The division between work and home is blurred, not just because of the close proximity between housing and the mills, but also because of the seepage of industrial pollutants into the living space that this proximity enables. The accounts of polluted slums imply the interconnectedness of ecosystemic processes. The air is polluted by the massive amounts of burning coal; Chinatown complains, "[a]ll this smoke and stuff in the air! How a man gonna breathe?" (46). The workers do not care whether they work the night or day shift, for the dense smoke blocks the sunlight: "[t]hey did not like the taste of sooty air. They missed the sun" (54). The town's infrastructure is almost nonexistent: in one enclave there is only one water pump for

fifty families (47); people urinate in the streets because the outhouses smell too bad (51); feral dogs and rats scurry around “Mex Town” (69); and kids toss around “kerosene-soaked balls of waste” for sport (152).

Garbage heaps are one of the novel’s strongest ecological motifs: they block the makeshift dirt roads, forcing pedestrians to scramble over them; they segregate Slavic from black enclaves by imposing physical barriers. There is no system for domestic waste removal. The brothers have two significant encounters with a garbage heap, notable for their place in the narrative. The first encounter occurs when Chinatown and Melody get lost while exploring their new neighborhood. Hoping to pinpoint their position, Chinatown climbs the heap and attracts the attention of some Slavic immigrants: an “old Slav bent like a burned weed out of the window . . .”

With eyes a snow-washed blue, he looked contempt at Chinatown. Then he wrinkled his nose and spat” (49). This contempt turns to hatred near the end of the novel when the all-white union prepares to combat black strikebreakers. As Melody passes from an increasingly hostile Slavic enclave to his home, he encounters the heap again:

He had known that the big pile of ashes and garbage would be in his path, but now it seemed to hop suddenly in front of him. He was too tired to change direction and walk around it ... He stepped into the soft stuff around the edges of the mound and struggled to the top. The brittle ashes broke under his feet ... A tin can left a burning streak across one of his ankles. (211–12)

Melody climbs the heap under the gaze of the Slavs. It is as though the boiling racial hostility is embodied in the uncanny agency of the trash heap as it “hops” in his path; the tin can that cuts his ankle appears as a weapon-like extension of the Slavic gaze. If the heap symbolizes the “waste” that Melody’s life is becoming, it is a symbol that also literally embodies the racial barriers that prevent the brothers from assimilating to the union and joining the strikers.

As suggested in the Mosses’ initial encounter with the industrial landscape, each brother’s response to his new environment dramatizes the lived subjectivity of the steel mill ecosystem. Sickened and tormented by the relentless heat on the “hot jobs,” Melody no longer feels the strength, let alone the inspiration, to play the blues: he is worn down by the strange new “rhythms of the

machinery play[ing] through his body” (80). When he does have the time and energy to play, he strums “quick chords” and adopts a “strange kind of playing for him, but it was right for that new place” (62). While he does occasionally succeed in translating the rhythms of his new environment into music, this “new music” is “nothing like the blues that spread fanwise from the banks of the Mississippi” (63). While the rhythms of the steel mill work to undermine the slower tempo of country blues, twelve-hour shifts eventually leave him too tired to even play; thus Melody loses his ability to emotionally heal himself and those around him with music. Out of a subconscious impulse, Melody smashes his right hand, his “‘picking’ hand,” in one of the machines (127). Attaway suggests that this “accident” is intentional, as Melody is tormented by his failing blues: “[h]e had been thinking of the guitar, knowing it could never pluck away the craving that was in him . . . The last three days of picking at his guitar had wearied him. Yet he knew he would not be able to let the music box alone” (128). Melody’s brother Chinatown is similarly affected by work in the mills. After he is blinded by a major blast furnace explosion, Chinatown is, like Melody, emotionally defeated. Reduced to a state of helplessness, he depends on Melody and a Mexican prostitute, Anna, for constant emotional and physical consolation.

While Melody and Chinatown are physically and emotionally destroyed by their encounter with the machines, Big Mat thrives in his new environment. The classic Marxist contest of worker versus machine runs aground in Mat’s perfect functioning as a steel worker. The other workers’ attitudes toward the Bessemer reflect Marx’s dictum about mechanized labor: “the instrument of labor, when it takes the form of a machine, immediately becomes a competitor of the worker himself” (1867: 557). When the typical new migrant first encounters the large-scale machines, his attitude is one of despair at the impossibility of his ever matching the labor-power of the machines. By contrast, Big Mat identifies more with the machines than with his fellow white workers, for they allow him to flourish in a way denied him by Jim Crow: “[i]n competition with white men, he would prove himself.” While many workers faint from the heat, Big Mat “proved to be a natural hot-job man,” finding his “natural” rhythm in a world of machines and performing at twice the speed of any other worker (Attaway 1941: 78). In direct contrast to Melody, Big Mat’s muscles and body achieve a rhythmic coordination with the machines,

expressed in metaphors of musical and natural growth: “[h]is muscles were glad to feel the growing weight of the steel. The work was nothing. Without labor his body would shrivel and be a weed. His body was happy. This was a good place for a big black man to be . . .”

Mat’s muscles sang” (80). This musical metaphor, which indicates Mat’s success—expressing the harmony with machines—inverts the parallel narrative of Melody’s failed blues. This inversion sets the destructive potential contained within Mat’s identification with the machines against the creative potential of the blues in Melody’s identification with the southern soil. On this level, one can read Attaway’s novel as a *bildungsroman* of a mechanized subject, of a man becoming machine and thus becoming a destroyer of the ecosystem and, eventually, himself.

As embodied in Big Mat, this link between machinic and racial violence becomes more pronounced in the novel’s climactic strike scene. As the all-white union plans to strike and picket against the mill owners’ brutal policies, Big Mat is deputized and hired to help suppress the white workers. In the historical 1919 strike, black deputies served a particularly useful function for the mill owners as strikebreakers and promoters of racial discord. According to the testimony of an organizer for United Mine Workers, black deputies “started a reign of terror in the town . . . Men were jostled along the street at the points of pistols, and men were struck down and shot down” (qtd. in Dickerson 1986: 91). Through Big Mat and free indirect discourse, Attaway imagines the subjective state of these black deputies. While assisting some other deputies to corner a group of strikers, Big Mat relishes the terror he inspires: “[t]he absolute terror in these people made him feel like flinging himself on their backs and dragging them to the ground with his teeth” (215). The authority that comes with being a deputy heals Big Mat’s “ruptured ego,” for it gives him a “sense of becoming whole again” and completes the self-realization that began with his superior performance on the hot-jobs (212). The thought of being an authority figure also fuels Big Mat’s fantasies of avenging himself on whites: “[a]ll of his old hatreds came back and added flame to his feeling . . . He was the law. After all, what did right or wrong matter in the case? . . . He was a boss, a boss over whites” (196–7). With scathing irony, Big Mat’s anger and resentment toward whites makes him the perfect instrument of terror, played by the very powers that oppress him. Once the strike begins and the furnaces

start to cool down because there are not enough workers to keep them burning, Big Mat single-handedly tries to keep the machines functioning, as he “rush[es] madly about the yards, knowing that only his will would keep a fatal crack from their big, brittle insides” (213). This impossible effort shows the extent to which Big Mat has himself become a machine. Only as he dies, after a Slavic striker delivers a blow to his head with a pickax, does Big Mat glimpse the reality that in siding with the mill owners and in becoming a machine, he has become an agent of oppression.

Smothers and Aldo Leopold: Toward an Ecological Ethic

While Big Mat lacks the critical awareness to evaluate and challenge his immediate environment, Smothers, a relatively minor character, opens a space for ecological and ideological critique. Because of Smothers, *Blood on the Forge* in many ways exceeds the scope of essayist and environmentalist Aldo Leopold’s more well-known articulation of a land ethic. The main tenets of Leopold’s land ethic evolved throughout the course of the 1930s, particularly in three key published lectures, “The Conservation Ethic” (1933), “Land Pathology” (1935), and “A Biotic View of the Land” (1939). These lectures were substantially revised and sutured into “The Land Ethic,” his most influential work and the final essay of his 1949 book *A Sand County Almanac*. Worster claims that the book’s famous concluding essay would become “the single most concise expression of the new environmental philosophy” that emerged in the 1960s and 1970s (1977: 284). Ultimately, Smothers is a sort of Tiresian black environmentalist who anticipates the trajectory of Leopold’s thought by arguing for the ethical relation between human and nonhuman. But they differ in three crucial ways. First, Attaway approaches such an ethic from the perspective of anticapitalist critique rather than conservationism, which leads to a more human-centered focus that strongly correlates worker and public health with land health. Second, the novel criticizes an entire network of productive relations that are more global in scope than is Leopold’s preoccupation with certain regions in the United States. Third, Attaway’s ethic is based on “feeling” or affective relations to the earth, rather than the more legalistic basis for Leopold’s ethic.

Along with Thoreau and Muir, Aldo Leopold occupies a central place in ecocriticism's canon of American environmentalist writers. He worked as a forester for the United States Forest Service in New Mexico from 1909 to 1928, founded the preservationist Wilderness Society in 1924, and developed the game management profession, for which he received its first professorship at the University of Wisconsin at Madison in 1933. A theory wrung from practical experience, Leopold's land ethic received its first test run over a decade earlier in "The Conservation Ethic," a lecture delivered in 1933 and later published in the *Journal of Forestry* (Meine 1988: 302). Leopold's purpose was to seize the vanguard of the conservation movement and add philosophical teeth to its calls for land-use reform measures (Meine 1988: 303). Drawing attention to the interdependency of human and environmental history, Leopold finds it strange that "[t]here is yet no ethic dealing with man's relationships to land and to the non-human animals and plants which grow upon it. Land, like Odysseus' slave-girls, is still property" (1933: 182). He cites numerous inefficient uses of land across the American Midwest and Southwest, all showing how "unforeseen ecological reactions" can "condition, circumscribe, delimit, and warp all enterprises, both economic and cultural, that pertain to land" (1933: 185). The ethic he then proposes amounts to the extension of rational planning to nature in order to realize a vision of "controlled wild culture" (1933: 190–1). Using musical metaphors later echoed by Attaway, he calls for the "harmonious integration" of economics and aesthetics, business and culture, in a new orientation toward land that treats it as "not only a food-factory but an instrument for self-expression, on which each can play music of his own choosing" (1933: 191). By advocating a conservation ethic, Leopold aims to change minds first; politics and economics will follow.

Leopold's 1935 lecture "Land Pathology" again argues for an integrated economic–aesthetic land-use facilitated by public–private partnerships, with higher education serving as intermediary (213). Though in this essay he uses the phrase "land ethic" for the first time, "land pathology" is the central concept: "[r]egarding society and land collectively as an organism, that organism has suddenly developed pathological symptoms, i.e. self-accelerating rather than self-compensating departures from normal functioning" (1935: 217). The "machine age" is to blame for launching the "self-accelerating" destruction of the land—accelerating because temporality of the ecosystem's

self-replenishing cycles is thrown out of joint. A later address delivered in 1939, “A Biotic View of the Land” shows Leopold taking up Tansley’s ecosystem concept for the first time (Flader and Calicott 1991: 7). He considers organic and inorganic parts of an environment systemically organized into a “biotic pyramid” that facilitates the flow and conversion of energy. The biotic pyramid is a visualization of the ecosystem’s metabolism, a structure in which land is “not merely soil; it is a fountain of energy flowing through a circuit of soils, plants, and animals” (Leopold 1939: 268). Leopold characterizes the technological interruption of this flow as “biotic violence,” against which conservationists must promote a “nonviolent land use” (1939: 270).

In his final mature formulation of the land ethic in 1949, Leopold challenges profit-driven conservation, the kind promoted in Washington’s *Working with the Hands* which advocates conservation on economic rather than ethical grounds. Leopold’s argument depends on the premise that “the individual is a member of a community of interdependent parts” that must cooperate in order to survive (1949: 239). Human beings must participate in the “biotic community” as citizens rather than conquerors, and take individual responsibility for the “health” of the land (1949: 240). Reflecting scientific ecology’s 1930s and 1940s turn toward systems theory, thermodynamics, and physics, Leopold argues that the biotic community forms an intricate and delicate “energy circuit,” and human violence to this circuit has “effects more comprehensive than is intended or foreseen” (1949: 255). Though not a philosopher, Leopold basically extends a Kantian ethic to the entire field of the living, arguing that the “land”—soil, water, plants, and animals—should be treated as an end-in-itself. In ecocritical parlance, the land ethic is now understood as a form of ecocentric rather than anthropocentric thinking, one that places environmental concerns on par with human ones.

As articulated via Smothers, the ecological worldview of *Blood on the Forge* anticipates and further develops Leopold’s ethical vision. Smothers gives voice to the earth’s suffering, speaking as though the earth were itself an organic, living entity:

It’s wrong to tear up the ground and melt it up in the furnace. Ground don’t like it. It’s the hell-and-devil kind of work. Guy ain’t satisfied with usin’ the stuff that was put here for him to use—stuff of top of the earth. Now he got to git busy and melt up the ground itself. Ground don’t like it, I tells you.

Now they'll be folks laugh when I say the ground got feelin'. But I knows what it is I'm talkin' about. (53–4)

Sounding like a fire-and-brimstone preacher, Smothers ascribes a kind of uncanny agency and affectivity to the “ground,” suggesting that it will eventually avenge itself against humans. His protest registers a radical shift in intensity from agricultural cultivation of the earth to the outright violence of industrial exploitation.³ Smothers’s poetic raptures about nature could also be an instance of the organic trope, but in this case the trope serves a purpose beyond asserting a black nationalist identity.

Part prophecies, part philosophical meditations, Smothers’s rants are, however, neither simply romantic nor pastoral anachronisms. Smothers’s reference to the earth’s “feeling” actually adds to the novel’s overall, distinctly materialist understanding of the relations among worker, earth, and machine. “Feeling” in this context cannot simply be explained as an anthropomorphism, for Smothers refrains from projecting human emotions onto the earth. Rather, Smothers’s use of the word in this context resembles Brian Massumi’s notion of “affect” (2002). Massumi draws a distinction between emotion and affect, defining the former as a reification and humanization of the later. “Emotions,” such as anger or jealousy, can be named and brought within the bounds of language and human experience; they are, as he says, a “subjective content, the sociolinguistic fixing of the quality of an experience which is from that point onward defined as personal” (2002: 28). By contrast, “affect” refers to a pre-personal intensity, felt but never entering consciousness or getting caught in linguistic shackles (2002: 36). This means that affect as intensity exceeds the domain of strictly human experience and arises out of the interface between bodies, human or nonhuman (2002: 25). Because “affect” applies to all beings, it forces us to reconceptualize the categories of the human and the nonhuman as forming an ontological continuum, much like Tansley’s ecosystem concept.

Smothers’s sense for the earth’s feeling reveals his heightened, almost scientific sensitivity to the material process of steel production, a multistep process of mining, melting, and manipulating iron to produce an alloy. When asked how he knows what the ground feels, Smothers responds: “[s]ame way I hears bridges talk in the wind” (64). Attuned to the slightest changes in the

affectivity of steel-making, Smothers repeatedly warns his coworkers about the destructive power of the machines and is able to anticipate a blast furnace explosion. Though his coworkers think that Smothers's prophecies are only half-mad, shrill rants, Attaway goes out of his way to invest him with a "strange dignity" and characterize him as a Tiresian speaker of truth. For example, one morning Smothers warns a group of Irish and Italian workers before they start the day's work on the blast furnaces: "[e]ver'body better be on the lookout. Steel liable to git somebody today. I got a deep feelin' in my bones" (145). Initially, the workers tease Smothers, but when he recounts his own tale of getting struck by a hot steel bar, leaving him permanently disabled, laughter fades to shocked silence. Smothers's prophecy does prove true when the blast furnace explodes, leaving fourteen men dead, including himself, and Chinatown blind. His feelings prove superior to the mill's "experts," none of whom could predict the accident. As the narrator comments: "[b]ut steel workers also felt the truth of Smothers' last words: steel just had to get somebody that day. There was no conflict between what Smothers had said and the facts" (160). By granting agency to the ground, Smothers sees that biotic violence leads to violence against the worker: ecological degradation can lead to industrial accidents, understood as the land avenging itself against humans.

This ethic differs from Leopold's in that it also serves as a form of ideology critique. To use the Marxist definition operative during Attaway's lifetime, ideology consists of the structure of human experience and practices as they are refracted through the actual, material conditions of the capitalist mode of production. Ideology is the social and psychic fragmentation that structures the Moss brothers' experience; this is a level of ideology that is not even beginning to become aware of itself as a way of experiencing. In the world of *Blood on the Forge*, these actually existing material conditions can extend to the interdependent relations within the ecosystem itself. Above all, Smothers's insight into these conditions grows out of a change in his material relation to his physical environment: the steel plant where he suffered a crippling injury years before. Through the enhanced perception acquired with his disabled body, Smothers unveils the dependence of all human bodies on the external, inorganic environment—an axiom of both Marx's materialist ontology and ecosystem ecology. The disabled body, in other words, shows

forth the real relation of all human bodies to what Marx calls the “second body” of nature: “[n]ature is man’s *inorganic* body—nature, that is, in so far as it is not itself the human body. Man *lives* on nature—means that nature is his *body*, with which he must remain in continuous intercourse if he is not to die” (1844: 74). Smothers is able to reveal the layers of mediation that conceal the real conditions of the steel worker’s existence. To suggest this mediation, he uses the terms “ground” and “steel” interchangeably, which not only establish the material consistency between the two substances, but also suggest that a land ethic is inseparable from the circulation of commodities made from the land. Steel is the ground given commodity form: mined iron is melted in the Bessemer converters, and then shaped for (in most cases) railroad tracks or structural components for skyscrapers or bridges. Stripped of mediation, steel—and the living the workers make from its manufacture—is intimately bound to the “heart of the earth”: “[a]ll the time I listen real hard and git scared when the iron blast holler to git loose, an’ them big redhead blooms screamin’ like the very heart o’ the earth caught between them rollers. It jest ain’t right” (53). Smothers’s intuitive “rightness,” then, condemns this particularly violent disruption of the material relations among interdependent parts of the ecosystem on which the capitalist mode of production, in reality, depends.

As suggested previously, the novel’s ecological ethic also takes the problem of commodity fetishism in an ecological direction. Again substituting spiritual metaphors for a material process, Smothers speaks of a “cuss o’ steel” or cursed steel (64). This “curse” suggests the material consistency obscured by the ground’s transformation into the commodity form: the steel is haunted by and infused with the ground, its true origin, which now appears to take on its own agency. This agency or “curse” is distinct from the imaginary agency that commodities in the marketplace seem to have; it is literally the volatility introduced by the ground’s chemical alteration, its being-toward-commodity. It refers to the ground’s surplus yet substantive counter-agency produced simultaneously alongside steel’s illusory agency as an exchangeable commodity used for railroad tracks, structural components, armaments, and the like. It is as though the commodity form is haunted by an earthly residue that makes itself felt unpredictably and in the future: the earth threatens to blast apart the commodity at any moment. In fact, the blast furnace explosion

is itself caused by a surplus byproduct, a residue left over from the production process: “[a] shelf of hot metal had built itself high up in the faulty furnace. When that shelf had broken the force of its fall had been explosive” (160). Just as the worker’s blood goes into the forge, so too does the earth’s: an industrial accident is here reframed as an ecological one. More precisely, the industrial accident is an unpredictable future event that has its origin in the past violence done to the land. To memorialize Smothers, his coworkers ritually turn the steel scraps from the accident into watch fobs, which they wear around their necks for luck (168). In so doing, the workers give the steel a ritual value that escapes the logic of exchange value; these scraps open up a space for resistance, insofar as they signify the workers’ communal bonding.

After the accident and Smothers’s death, this critique of steel-making is extended to a critique of biotic and racial violence on a more global scale. Perhaps so as to register a shift in the workers’ consciousness—with the watch fobs serving as material signifiers of that shift—the narration itself gains a heightened awareness of the connection between steel and the ground. On the narrative level, it seems that Smothers is ritually sacrificed for the sake of more direct commentary on steel production as a globally interdependent process:

The nearness of a farmer to his farm was easily understood. But no man was close to steel. It was shipped across endless tracks to all the world. On the consignment slips were Chicago, Los Angeles, New York, rails for South America, tin for Africa, tool steel for Europe. This hard metal held up the new world . . . Steel is born in the flames and sent out to live and grow old. It comes back to the flames and has a new birth. But no one man could calculate its beginning or end. It was old as the earth. It would end when the earth ended. It seemed deathless. (179–80)

This passage places steel within both the global economy and the global ecosystem. As an export, it moves from national—the three major US cities—to intercontinental distribution. Used primarily for railroad tracks and large buildings, steel literally serves as the material base for the “new” modern world. The apparent contradiction between steel’s “birth” in flames and its immortality is reconciled through its analogy to the earth. Insofar as steel is converted earth, the two substances are coterminous but not the same. Steel appears to the workers as part of the earth’s natural cycles, although it

is the product of a historically situated mode of production. That steel only “seemed deathless” becomes clear when the strike proves effective at halting production (213).

While steel goes out into the world, the world migrates to Allegheny Valley: European immigrants and southern black migrants turn the steel mills into a miniaturized global space, a space that combines moments of misrecognition and mutual recognition. Labor flows where raw materials are extracted from the earth, producing rifts among the various races and nationalities that make workers’ lives as volatile as the hot Bessemer furnaces. The collision of cultures, races, and subjectivities lead to violence analogous to biotic violence. Big Mat’s slaying of a Ukrainian immigrant during the labor strike is framed as a tragically ironic, global event: “[h]e had never been in the South. He was from across the sea. His village was in the Ukraine, nestling the Carpathian mountains. From that great distance he had come to be crushed by hands that had learned hate in a place that did not exist in his experience” (231). This discontinuity between the origin of anger and its release is contrasted by the novel’s final scene of mutual recognition between a blind Chinatown and a blind First World War veteran. Aboard a Pittsburgh-bound train, Melody and Chinatown sit across from the veteran: “Melody looked from the soldier to Chinatown. Two blind men facing one another, not knowing” (235). After bumming a cigarette from Chinatown, the veteran informs the brothers that before the war he was a steel worker. He claims to hear guns in the distance, “maybe a hundred miles” away, “cannon guns, bigger ’n a smokestack” (237). Whether or not the sound is actually real, to the soldier “it was like a big drum somewhere in the valley” (236). The imaginary sound seems to originate from both the steel mills and the distant European battlefields of the First World War. Again, steel manufactured for war armaments places it in a global context that also suggests a link between armed soldier and steel worker, between casualties of war and casualties of industrial accidents.

Conclusion

Attaway’s narrative ultimately suggests that, under industrial capitalism, the biotic violence done to the earth is reproduced at the ideological level as racial

discord, with labor serving as the mediating factor. Whether performed by animals, humans, or machines, labor is a material process that, in *Blood on the Forge*, divides the earth through the appropriation of natural resources; likewise, race divides labor through management's (e.g., Carnegie Steel's) divide-and-conquer policies of exploiting racial differences and resentments. In one of Smothers's speeches, steel appears to have the ability to affect worker subjectivity and amplify interracial conflict:

Steel want to git you. Onliest thing—it ain't gittin' you fast enough. So there trouble in the mills. Guys wants to fight each other—callin' folks scabs and wants to knock somebody in the head. Don't no body know why. I knows why. It's 'cause steel got to git more men than it been gittin'. (53)

On one level, this passage mystifies the true causes behind worker conflict. The violence Smothers speaks of is racial violence, not the mystical power of steel on workers' emotions. Scabs are black migrants shipped in by management to break strikes, for management's policy preys on white animosity toward African-Americans. On another level, however, it suggests that biotic and racial violence are linked through acceleration—"gittin' you fast enough." If negligence contributes to the blast furnace explosion, it is a negligence that accelerates production levels at the expense of worker safety. The more production accelerates the more resources must be extracted from the ecosystem, interrupting its self-replenishing cycles, and thus contributing to the destabilization of the system. The destructive logic of the profit motive eventually unhinges the whole production process, including its material substratum (the earth).

Of all the African-American environmental writing examined in this book, Attaway's novel is by some measure the darkest and most despairing in its depiction of how overwhelming systemic forces crush the worker and the land. Yet unlike Washington's *Up from Slavery* and *Working with the Hands*, in which ecological agencies and capitalism coexist alongside each other, *Blood on the Forge* advances an ethical orientation toward the earth that critiques industrial capitalism and demands an alternative to the system itself. *Blood on the Forge* shows that ecological crisis has already occurred along the color line in places such as Allegheny County.