THE ENVIRONMENTAL CONDITIONS OF THE WORKING CLASS

An Introduction to Selections from Frederick Engels's *The Condition of the Working Class in England in 1844*

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Both urban sociology in general and urban environmental justice studies began with Frederick Engels's seminal work The Condition of the Working Class in England in 1844. *Engels provided a walking tour of the environmental conditions in the manufacturing establishments and slums of the factory towns of England, together with a similar view of London. He addressed conditions of widespread pollution and helped lay the grounds for the development of social epidemiology. He connected this to his "Outlines of a Critique of Political Economy" that influenced his even more famous collaborator Karl Marx. For Engels,* The Condition of the Working Class in England in 1844 *was to be the first of a series of connected analyses of ecology that stretched through more than half a century and included* The Housing Question *and* Dialectics of Nature*, making him one of the most important but underappreciated contributors to the development of environmental thought.*

Keywords: *Engels; Marx; environment; industrial pollution; degradation; urban sociology*

Frederick Engels (1820-1895) is best known as Karl Marx's lifelong intellectual collaborator, one of the two founders of historical materialism. Engels's contributions, as he himself always emphasized, were second to those of Marx. But this did not prevent Engels from being one of history's most important social thinkers and making indispensable contributions in his own right. Engels, it is often said, was the first Marxist, in the sense that Engels's 1844 article (Marx & Engels, 1975b), "Outlines of a Critique of Political Economy," based on his experiences in Manchester in England, first articulated in outline form what was to emerge as the Marxist critique of political economy. Engels's article influenced Marx in his writing of the *Economic and Philosophical Manuscripts of 1844*. Moreover, Engels's "Outline" was soon followed by his 1845 classic, *The Condition of the Working Class in England in 1844* (Engels,

Organization & Environment, Vol. 19 No. 3, September 2006 375-388
DOI: 10.1177/1086026606292483

1892), in which he provided a scathing, ruthlessly documented portrayal of the environmental conditions of the working class in the factory towns of England. *The Condition of the Working Class in England* was the first of a number of crucial environmental works that Engels wrote during his career, also including his 1872 (Engels, 1975) *The Housing Question* and his posthumous (Engels, 1966) *Dialectics of Nature*.

When Moses Hess, the editor of the radical newspaper *Rheinische Zeitung*, met Frederick Engels in 1842, he commented that the 22-year-old Engels "was revolutionary to the core" (McLellan, 1978, pp. 20-21). At this point, Engels was thoroughly immersed in the political struggles of the day within Germany, writing various descriptive articles for newspapers, developing a critique of religion, and providing an analysis of the social conditions under industrial capitalism. However, the depth and breadth of his analysis was only emerging. In the coming years, Engels became a staunch historical materialist, using the dialectical method for understanding relationships throughout the social and natural world. He devoted himself to studying political economy, anthropology, geography, history, and natural science. Engels highlighted the dynamic, historical relationship between society and nature, outlined a devastating critique of bourgeois political economy, and situated the exploitation of nature and humans that accompanies capitalist development. Ecological insights can be found within many of his books, including *The Condition of the Working Class in England in 1844*, *The German Ideology* (written with Marx), *Dialectics of Nature*, and *Anti-Dühring*. His understanding of science and evolutionary theory, as well as his commitment to historical materialism and dialectics, contributed to the overall strength of his ecological thought, allowing him to assess how: (a) human civilization was dependent on the natural world, (b) nature was transformed through human labor, (c) the violation of natural laws undermined natural conditions, (d) ecological destruction caused social crises, (e) class relations influenced the social chances of different populations, and (f) an economic system premised on the expansion of capital ensured ceaseless environmental degradation. In Engels's work, we find a rich foundation for situating the social forces that are creating the degradation of the environmental conditions that we confront.

Engels is one of the most important socialist and ecological thinkers in human history. He was born in Barmen, Germany, in 1820 to a wealthy family who owned a bleaching and cotton-spinning business (Ilyichov et al., 1974; McLellan, 1978). Barmen was the most industrialized region of Germany and Engels's family prospered. Being forward thinking and ambitious, his father established a cotton-spinning business in Manchester—the industrial capital of the world. Although Engels was obsessed with reading literature, he was not allowed to finish school. Instead, he was forced to enter the family business. As a teenager, he was sent away in 1838 to continue his business training and apprenticeship in Bremen, where he worked as a clerk. Here, Engels became worldlier in his understanding of literature, philosophy, history, and economics. Independently, he set himself to reading as much as possible, contributing to his affinity for radical politics. Given his family's position and the rising industrialization of Germany, Engels witnessed the misery, poverty, and exploitation of workers (Mayer, 1936). He started to publish "vivid descriptions of that city's [Barmen] social life . . . with some biting criticism of social conditions" (McLellan, 1978, pp. 15-18). Even these early writings, such as "Letters from Wuppertal," include an awareness of how the productive organization of human society affected the natural world (Marx & Engels,

1975a): "The purple waves of the narrow river flow sometimes swiftly, sometimes sluggishly between smoky factory buildings and yarn-strewn bleaching-yards. Its bright red colour, however, is due not to some bloody battle . . . but simply and solely to the numerous dye-works using Turkey red" (p. 7).

After describing the city of Barmen, Engels depicts the condition and exploitation of the working class, noting that the factory system is largely responsible for the problems that exist within the city and the troubles confronted by the population (Marx & Engels, 1975a): "Work in low rooms where people breathe in more coal fumes and dust than oxygen—and in the majority of cases beginning already at the age of six—is bound to deprive them of all strength and joy in life" (p. 9).

In 1841, Engels moved to Berlin to do his military service (Mayer, 1936; McLellan, 1978). While there, he deepened his study of philosophy and audited lectures at the university. He studied Hegel's philosophy and joined the Young Hegelians, given their interest in dialectics and negation and their devotion to formulating a critique of religion and politics. He read Feuerbach's (1881) *Essence of Christianity*, which promoted a materialist and humanist position, arguing that humans created God.

Whereas Feuerbach's argument resonated with emerging radicals within Germany, it remained a contemplative exercise in the realm of Hegelian dialectics that did not engage earthly matters. Still, the government attempted to stymie the rising radicalism in Berlin by bringing in Friedrich Schelling to lecture at the university. Engels was in attendance at these lectures where Schelling dismissed the progressive movements and the new developments in philosophy. In response, Engels wrote several papers attacking Schelling's mysticism, his blind obedience and devotion to the monarch, and his dismissal of reason and science. Engels saw Schelling as a parrot justifying "the reactionary order in Germany" (Ilyichov et al., 1974, pp. 28-29). In "Schelling and Revelation," Engels argued that Schelling was attempting "to smuggle belief in dogma, sentimental mysticism, gnostic fantasy into the free science of thinking" in order to separate reason, experience, and sensation (Marx & Engels, 1975a, p. 201). Engels objected to this position, arguing for their importance in the creation of knowledge in relation to the material world. Engels's commitment to materialism started to become evident, but its full development was in the making.

After a year in the military, Engels was sent to Manchester to assist in the business operations of his father's firm, where he stayed until 1844. During this time, Engels came into his own, as he forged ahead in learning political economy, deepening his commitment to socialism, studying utopian writers such as Charles Fourier and Robert Owen, writing articles for continental newspapers, and investigating the polarization of wealth within society. His time in Manchester was one of intense activity (Ilyichov et al., 1974; Marcus, 1985; Mayer, 1936; McLellan, 1978). After work at the firm, Engels devoted his remaining hours and energy to documenting and studying the class divisions within the industrial capital of the world, which later culminated in the book, *The Condition of the Working Class in England in 1844* (more will be said later about this particular work). At this time, he also wrote "Outlines of a Critique of Political Economy" for the *Rheinische Zeitung*, which Marx helped edit. Engels examined the role of economic forces in the development of the modern world, as classes were divided and pitted against each other. The accumulation of wealth, under capitalism, necessitated the impoverishment and exploitation of much of humanity (Marx &

Engels, 1975b). Shortly thereafter, when Engels left Manchester to return home, he stopped in Paris, where he spent time with Marx—the second time they had met—and began his lifelong relationship and collaboration, engaged in an exhaustive critique of political economy and the promotion of socialism. Their endeavor was sealed, as they drafted their first joint work, *The Holy Family*, which was a critique of the Young Hegelians, who had reduced history to a string of ideas that simply unfolded in the realm of ideas, separated from material reality. Marx and Engels (1975c), while praising the dialectical approach, dismembered this obsession with endless abstraction, arguing that material reality is the basis for ideas and that people make history.

Engels soon finished writing *The Condition of the Working Class* and moved to Brussels to join Marx. The next several years involved a period of groundbreaking work in philosophy and political economy and intense political ferment, as they were directly involved in revolutionary struggles. Together, Marx and Engels wrote *The German Ideology*, which served as a critique of utopian socialism and post-Hegelian philosophy. Here, Marx and Engels provided an extensive discussion of historical materialism—the materialist conception of history. Humans are dependent on the material world for the basis of their survival. The actions of humans create history, as they interact with the natural world and organize their labor to meet their physical needs (Marx & Engels, 1991). Human history was a succession of productive relationships. Marx and Engels traced the productive developments of humans from precapitalist society to capitalist society, highlighting how property relationships and relations of production affected the organization of societies along class lines. Each society produced particular contradictions, which over time created the conditions for possible transformation in the social order. This analysis highlighted the long history of humans, the fundamental relationship between humanity and nature, the organization of society, and the position of humans as historical actors within the material world. Historical materialism served as the foundation for all of their work.

After the revolutionary insurgency on the continent was suppressed, Engels and Marx eventually made their way to Great Britain, separately, where they continued their work together, each working diligently to further their critique of political economy. Marx resided in London and Engels in Manchester, where he worked for his father's firm from 1850 until he was able to retire 20 years later. During this time, both remained committed to studying political economy, natural science, and history, recognizing the importance of the dialectical relationship of these realms in both natural and social history (Burkett, 1999; Foster, 2000; Griese & Pawelzig, 1995).

Engels (1966, 1969), along with Marx, promoted a materialist conception of nature and history (Foster, 2000). This approach was rooted in their commitment to historical materialism and dialectics. The power of this position is evident in Engels's coevolutionary understanding of the relationship between humans and nature. In *Dialectics of Nature*, Engels (1966) describes how the Italians cut down the trees on the slopes of the Alps only to destroy the dairy industry, deprive mountain springs of needed water, and cause flooding on the plains (p. 180). The conditions of the environment were negatively affected by capitalist operations, causing additional strife to the human population and radical transformations in the natural world. Engels (1966) warned,

> Let us not . . . flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is

> true, in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first. The people who . . . destroyed the forests to obtain cultivable land, never dreamed that by removing along with the forests the collecting centres and reservoirs of moisture they were laying the basis for the present forlorn state of those countries. . . . Thus at every step we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature—but that we, with flesh, blood and brain, belong to nature, and exist in its midst. (p. 180)

Engels highlighted the fact that human society is dependent on the ability of nature to regenerate. Marx (1977, 1991) illustrated similar relationships in his discussions of capitalist agriculture, which continually depleted the soil of needed nutrients and created periodic soil crises, which were only met by the importation of guano and, later, the production of artificial fertilizers (also see Foster, 2000; Foster & Clark, 2003; Foster & Magdoff, 2000). Such despoliation of the land was unavoidable, given that the drive for accumulation is first and foremost the defining characteristic of capitalism (Burkett, 1999). Thus, to avoid the environmental degradation that is inherent within the operations of capitalism, society must organize itself under a new economic system that provides the means to regulate the transformative actions of humans in a way that does not violate "the laws of nature" (Burkett, 1996, p. 78). Engels's ecological insights stem from his examination of the dialectic between society and nature, his attention to natural processes, and his understanding of capitalism as an economic system. At the same time, Engels's analysis is theoretically and historically informed, yielding an understanding of changes through time.

As noted above, when Engels first lived in Manchester, in 1842, in his early 20s, he embarked on an exhaustive study of the working classes of England. Manchester was the center of the industrial revolution and industrial capitalism. Manchester and the surrounding urban area had a population of more than 400,000 people and was located northwest of London (Marcus, 1985). Great Britain had an extensive network of colonies around the world that provided the needed raw materials for the textile industry. As part of their empire, the British helped establish the slave trade, which provided the human labor necessary for the agricultural production of cotton and other goods in the Americas (Davidson, 1980). The British dominated the global textile trade with regard to spinning and weaving. Industrialized production of cloth in England led to the deindustrialization of India, which had been a leader in the manufacture of fine cloth (Melotti, 1970). British imperialism enforced these relationships and conditions, not to mention it helped guarantee access to the needed raw materials, given that cotton was not grown in Great Britain. Plus, cotton was a central component of industrial production (Magdoff, 1978). Many of the early technological innovations involved the spinning process. Once spinning and weaving became centralized in factories, cotton was one of the first industries mechanized (Marcus, 1985). In Manchester, cotton was the dominant industry.

The concentration of agricultural production undercut the ability of small farmers to compete in the global market. The countryside was depopulated as people who lacked access to land sought employment in the growing, industrialized cities—such as Manchester. The landscape of the cities was being transformed radically, turned into a center of pollution, worlds away from the open air of the country. Those who visited Manchester were horrified by the site of a forest of chimneys, spewing clouds of black smoke that blocked out the sky, only to

descend to the earth with the rain to cover everything in a grimy paste (Mantoux, 1961). Charles Dickens (1908) described the smoke pollution as a "plague of smoke, [which] obscured the light, and made foul the melancholy air" in a ceaseless progression of "black vomit, blasting all things living or inanimate, shutting out the face of day, and closing in on all these horrors with a dense dark cloud" (p. 327). From this soot-filled world emerged the products that were distributed around the world. Taken back by his visit to Manchester, Alexis de Tocqueville (1958) struggled to express the boundless contradictions:

> From this foul drain the greatest stream of human industry flows out to fertilise the whole world. From this filthy sewer pure gold flows. Here humanity attains its most complete development and its most brutish; here civilisation works its miracles, and civilised man is turned back almost into a savage. (pp. 107-108)

Engels was not as forgiving in his account of the conditions being created, especially when the wealth produced only served the enrichment of the bourgeoisie.

These were turbulent times, given the expansion of industrial capital, the growing population, the mechanization of factories, the attempts to organize trade unions, the dire conditions confronted by the working class, and international trade. The Chartists and Owenites were struggling for the creation of a new society. The New Poor Law punished the poor. Amidst these events, conflicts, and movements, Engels sought to describe the social and environmental conditions confronting the new industrial age. He explained how the organization of the political economy produced such conditions, knowing that capitalism was an expansionary system that would threaten to transform production and the environment in other regions of the world. Although Engels was not the first to describe the industrialized cities of England, he did produce a unique piece of work because he attempted to deal with the working class as a whole and he provided a general analysis of the evolutionary development of capitalism (Hobsbawm, 1984). In this, *The Condition of the Working Class* was not simply a survey. It was a systematic, historical study of class relationships and material conditions under industrial capitalism in England. It remains a pioneering work in anthropology, urban sociology, and social medicine. (Engels wrote the book in German. Florence Kelley translated it into English. Selections from *The Condition of the Working Class in England in 1844* are reprinted in this issue.)

When Engels was not working at the firm, he devoted himself to gathering firsthand knowledge of the experiences of working people, in their everyday lives, their working environments, their homes, and their struggles. He walked the streets at all hours, day and night, weekday and weekend (Marcus, 1985; McLellan, 1978). On some of his visits with working-class families, Engels was accompanied by his partner—until she died in 1863—Mary Burns. She was an Irish working-class woman, and she was able to facilitate conversations and gain access to the households of Irish immigrants. Engels complemented his observations and interviews with information from government statistics and publications and medical reports. The result of Engels's efforts was a searing account of the conditions generated by the development of industrial capitalism. Although vast amounts of wealth were generated, the world of the workers was harsh, contaminated, dangerous, and alienating. Whether at work or at home in the city, the population confronted a system that was degrading the environment and their health and shortening their lives. Part of the strength of Engels's work was his

ability to understand how the forces of production influence the evolving conditions of workers and the environment. Through engaging Engels, we gain an understanding of a system that generates endless pollution, that poisons the population at work and in the community, and that ensures that the poor suffer the most severe forms of environmental degradation.

Whereas the countryside was being emptied of its population, technological advances in the industrial centers were also contributing to the pool of people in need of work. The development of modern industry, under the influence of capitalism, involves the domination of "hand-work" by "machine-work." The steam engine increased the ability of capital to reduce humans to the position of tending to machines (Engels, 1892; Foster, 1994). At the same time, it allowed for the scale of production to increase, and it expanded the exploitation of nature by capital, as "every energy was concentrated in the effort to exploit this power in all directions, and to exploit it in the interest of individual inventors and manufactures; and the demand for machinery, fuel, and materials" redoubled (Engels, 1892, p. 11). The expansion of capital increased the division of labor within society, but the position of labor was always tenuous, threatened by further technological developments. Technological innovation within factories served as a means to cheapen labor costs and to increase production, given that the pursuit of profit was first and foremost the goal of capital. In the process, skilled labor was increasingly displaced, losing control over the tools of production (Engels, 1892; Marx, 1977; Wallis, 2006). In the cotton-printing industry, workers were crushed by the adoption of new machines that could print many colors at once. Only one worker was required for a job that used to employ more than 200 "block printers" (Engels, 1892, p. 194). Workers were forced to compete against machines that never tired (Engels, 1892). Children were employed to tend to machines, further suppressing the wages.

Tending machines in the factories reduced human activity and stifled human ingenuity, diminishing the vitality of workers. Engels (1892) notes that "nothing is more terrible than being constrained to do some one thing every day from morning until night against one's will" (p. 118). It is not the love of work that forces people to do this work, but the need for money to buy the means of survival—food, clothing, and housing. Under these conditions, the

> worker's activity is reduced to some paltry, purely mechanical manipulation, repeated minute after minute, unchanged year after year. . . . The worker's activity is made easy, muscular effort is saved, but the work itself becomes unmeaning and monotonous to the last degree. It offers no field for mental activity, and claims just enough of his attention to keep him from thinking of anything else. And a sentence to such work, to work which takes his whole time for itself, leaving him scarcely time to eat and sleep, none for physical exercise in the open air, or the enjoyment of Nature, much less for mental activity, how can such a sentence help degrading a human being to the level of a brute? (p. 119)

Engels is protesting against the devastation leveled against humans, as they are forced to spend the most productive, creative hours of their lives engaged in a task that diminishes the very qualities that make humans unique. Under capitalism, workers are forced to labor at a tireless machine for the enrichment of the owners, while the body and mind are degraded, stifling further human development.

Mechanization helped suppress wages, placing workers in competition with each other, and against machines, for any available jobs. The size of the reserve

army of labor, a concept that Engels gave systematic expression to for the first time, depended on the business cycle, so during economic downturns, the ranks of the unemployed swelled. Cities became filled with a surplus population as a result of the desire of capital to increase its profits. Wages were kept at the subsistence rate, ensuring that the working population remained in poverty. Those unfortunate enough not to find employment were ground down and left to starve. To ensure misery, Elizabethan Poor Laws were reformed on Malthusian principles beginning with the New Poor Law of 1834 to further punish the destitute.

The concentration and centralization of capital intensified these conditions. "The division of labour, the application of water and especially steam, and the application of machinery," Engels explained, "are the three great levers with which manufacture" has been able to establish its dominance over the social order (Engels, 1892, pp. 20-21). Monopoly firms were able to dominate the market, mass-producing goods through mechanized processes. Home production of goods for markets was undermined. Each sphere of the social world was increasingly brought within the realm of the market for the satisfaction of human needs, such as food, clothing, housing, recreation, and entertainment (Braverman, 1998; Melotti, 1970). To the capitalist, Engels argued, humans are simply hands within the capitalist machinery, providing the grist for the mill of capital accumulation.

The conditions of human and environmental degradation extended from the factory to the home. In the factories, workers labored in poisoned environments and in ways that caused innumerable health problems. Engels specified that a partial "list of diseases engendered purely by the hateful money greed of the manufactures" would include "women made unfit for child-bearing, children deformed, men enfeebled, limbs crushed, whole generations wrecked, afflicted with disease and infirmity, purely to fill the purses of the bourgeoisie" (Engels, 1892, pp. 166-167). And this is just the beginning of his condemnation.

Recognizing the specificity of different types of work, he detailed the various ailments that were suffered by workers. "The atmosphere of the factories is," Engels (1892) related, "at once damp and warm, unusually warmer than is necessary, and, when the ventilation is not *very* good, impure, heavy, deficient in oxygen, filled with dust and the smell of the machine oil, which almost everywhere smears the floor, sinks into it, and becomes rancid" (pp. 155-157). The "barbarous exploitation" in the mills involved working "thirty to forty hours at a stretch, several times a week, letting them get a couple of hours sleep only," while standing in place, tending to the operation of machines (pp. 152-154). The consequence of this type of work involved the curvature of the spine, the bowing of the leg bones, and bent knees. Doctors confirmed the universal occurrence of these ailments among mill workers. Women suffered pelvis deformities from protracted work. Working as a winder generally led to eye problems, such as diminished eyesight, cataracts, and often blindness. Girls working as dressmakers labored in rooms with "foul air," in "almost total exclusion from fresh air," only to experience skeletal deformities and troubles with vision, sometimes blindness (pp. 209-210). All of these ailments and situations created the conditions that shortened workers' lives.

Engels (1892) explained that "men wear out very early in consequence of the conditions under which they live and work. Most of them are unfit for work at forty years, a few hold out to forty-five, almost none to fifty years of age" (pp. 159-160). Operatives in Manchester, universally, appeared to be 10 to 15 years older than what they were, compared with the wealthy, who continued to look quite young.

Different types of work involved specific dangers and exposure to particular substances. Engels (1892) warned that exposure to dust and air contaminants had an "especially injurious effect" (p. 163). In

> cotton and flax-spinning mills, the air is filled with fibrous dust, which produces chest affections, especially among workers in the carding and combing-rooms. . . . The most common effects of this breathing of dust are blood-spitting, hard, noisy breathing, pains in the chest, coughs, sleeplessness—in short, all the symptoms of asthma ending in the worst cases in consumption. (p. 163)

Working as a bleacher within a textile plant exposed one to injurious gas such as chlorine. The second most important English industry after textiles was metalwares, which included making such items as knives, nails, locks, and so on. The most dangerous job here was working as a grinder, which "when done with a dry stone, entails certain early death" (pp. 198-205). In the process of grinding metal goods, sharp, metal dust particles filled the air and were inhaled by workers. Grinder's asthma inflicted workers with a shortness of breath, coughing, and spitting of blood, until consumption of the lungs finally brought death. Engels, using medical reports, noted that the grinders who worked at dry stones had an average life of 35 years, and those using wet stones, 45 years. Glassblowers suffered similar chest affections. Potters, especially those who dipped the items, faced extreme danger, given that they were exposed to "great quantities of lead, and often of arsenic" (p. 206). The clothing of these workers was saturated with these dangerous and poisonous materials and often resulted in exposing family members at home to the associated dangers of these toxins. Exposure led to stomach and intestine disorders, epilepsy, paralysis, and extreme pain.

At the heart of the new industrial order was coal to fuel the machinery. The mining industry employed both children and adults. As to be expected, medical reports at the time indicated that (Engels, 1892)

> the inhalation of an atmosphere containing little oxygen, and mixed with dust and the smoke of blasting powder, such as prevails in the mines, seriously affects the lungs, disturbs the action of the heart, and diminishes the activity of the digestive organs. (p. 242)

Workers were also exposed to carbonic acid gas and sulphur in large quantities. Engels described how miners got "black spittle" disease when the lungs were saturated with coal particles. This disease was extremely debilitating as the miners had trouble breathing, coughed up black mucus, and had extreme headaches. Those miners who were quite young when they started working underground experienced physical deformities in their spines. Miners met an early death, after toiling years underground. Given the drive to accumulate capital, "the profit-greed of mine owners which prevents the use of ventilators is therefore responsible for the fact that this working-men's disease exists at all" (p. 247). Ventilators helped clear the mines of dangerous gases and introduced fresh air into the shafts. But technological innovations are employed by capital to reduce labor costs and to increase production, not to serve human needs, unless it is deemed profitable or there is enormous social pressure that forces such protection. The world of the workers was filled with toxic substances and dangerous conditions. Their class position ensured that they would endure a disproportionate amount of suffering associated with the distressed environments in which they lived.

The degraded environment extended from the workplace to the community at large. Low wages and a shortage of employment kept much of the population in a state of poverty. Engels's description of Manchester, as well as other cities, highlights that there were variations in the living conditions between different sections of town, given differences in class position and occupation. Exposure to dangerous materials and conditions varied along class lines, perpetuating the social inequalities of the system. Engels walked through the streets of Manchester, indicating how one section differed from another. At the same time, he remarked that the city lacked social planning, which created additional environmental and health problems. The exception to the lack of planning involved class dynamics. Engels indicated that the bourgeoisie lived in the outer regions of the city, where they received fresh country air. The shortest routes were established so these folks could travel to work without noticing the "grimy misery" of the working-class districts (p. 46). In addition, the city was constructed in a way

> that a person may live in it for years, and go in and out daily without coming into contact with a working-people's quarter or even with workers, that is, so long as he confines himself to his business or to pleasure walks. . . . [because] the working-people's quarters are sharply separated from the sections of the city reserved for the middle-class. (p. 45)

The bourgeoisie did not build homes to the east or the northeast of Manchester, because for 10 to 11 months of the year, the "wind drives the smoke of all the factories hither, and that the working-people alone may breathe" (p. 59).

An economic system focused on profit ignores externalities, such as pollution. On the whole, the environmental conditions of the working class in England were grim. The sky was darkened by smoke spewing forth from the factory chimneys. "A dark-coloured body of water," Engels (1892) pointed out, "which leaves the beholder in doubt whether it is a brook or a long string of stagnant puddles, flows through the town and contributes its share to the total pollution of the air, by no means pure without it" (p. 43). Whereas the factories of England were renowned for air pollution, they poisoned the land and water, as they released toxins directly into the environment. Engels described the condition of the environment in the shadow of several factories built alongside a river:

> At the bottom flows, or rather stagnates, the Irk, a narrow, coal-black, foul-smelling stream, full of débris and refuse, which it deposits on the shallower right bank. In dry weather, a long string of the most disgusting, blackish-green, slime pools are left standing on this bank, from the depths of which bubbles of miasmatic gas constantly arise and give forth a stench unendurable even on the bridge forty or fifty feet above the surface of the stream. But besides this, the stream itself is checked every few paces by high weirs, behind which slime and refuse accumulate and rot in thick masses. Above the bridge are tanneries, bonemills, and gasworks, from which all drains and refuse find their way into the Irk, which receives further the contents of all the neighbouring sewers and privies. (pp. 49-50)

The air and water pollution from the factories joined with the dire conditions of poverty confronted by the working class in producing a life-threatening environment.

Engels (1892, 1975) contended that the unemployment, overcrowding, dilapidated buildings, and squalor found in big cities were directly tied to the capitalist

mode of production. He escorted readers through the various working-class districts in Manchester, describing the streets, homes, and people. Among the poorest residents were Irish immigrants. They lived in sections of the city where landlords had crammed as many homes together as possible, in no particular order, simply to increase their profit from rent (Engels, 1892). The homes were damp and lacked any repairs, given the disregard of the landlords. A doorless privy existed in the court for the residents. Everyone in the district had to pass through the standing pools of human waste whenever they went anywhere. Many of the working-class districts lacked gutters and drainage, so pools of debris, refuse, and offal accumulated in the alleys, streets, and courts of the neighborhoods. Complicating matters was the fact that many families raised pigs within their districts, but the organization of these areas prevented the drainage of animal waste. As a consequence, these animals simply contributed to the state of social distress. The lack of planning as far as the organization of dwellings contributed to the problem, given that the courts within the districts were closed on all sides, so no ventilation was possible. Waste and refuse rotted and turned putrid, and the smoke from chimneys was trapped in the courts, darkening the surroundings even more. Engels indicated that there was no clean water available for residents to clean their homes, their neighborhood, and themselves.

The insides of the homes corresponded to the outside conditions, given that people were poor and lacked basic resources, such as clean water, sewers, and bathrooms. The walls were stained with coal-smoke, given the poor ventilation of the houses. Some homes sat just lower than the streets and flooded with the filthy waste that accumulated in the courts. These homes were constantly damp. "In a word," Engels (1892) indicated, "we must confess that in the working-men's dwellings of Manchester, no cleanliness, no convenience, and consequently no comfortable family life is possible" (p. 63).

The environmental conditions of the working class, in their neighborhoods, added to the health problems confronted by the population, as disease and pollution were constants. To make matters worse, poverty wages prevented families from obtaining the food that they needed for proper nutrition. The working class was sold adulterated foods, such as cocoa mixed with dirt, which further compromised their health, making them even more vulnerable to the ailments associated with their working conditions. Working-class children were vulnerable to diseases, such as scrofula, that developed as a result of food that was of poor quality. Given the state of poverty, children often were half-starved right when they need nutritious food the most, leading to the development of rachitis. Parents were not able to afford doctors, thus limiting access to needed medical care. Social inequalities deeply and intimately affected the lives of workers, as they suffered infectious diseases and skeletal deformities. Their immediate environment was created by the development of industrial capital and the class structure inherent to a system based on class exploitation for the accumulation of capital.

The conclusion of Engels's (1892) systematic study and analysis of the conditions of the working class was that those in power, who profited off of the misery and suffering of workers and who knew that these conditions were the consequence of such a social system, were collectively guilty of murder:

> When society places hundreds of proletarians in such a position that they inevitably meet a too early and an unnatural death, one which is quite as much

> a death by violence as that by the sword or bullet; when it deprives thousands of the necessaries of life, places them under conditions in which they *cannot* live—forces them, through the strong arm of the law, to remain in such conditions until that death ensues which is the inevitable consequence—knows that these thousands of victims must perish, and yet permits these conditions to remain, its deed is murder just as surely as the deed of the single individual; disguised, malicious murder, murder against which none can defend himself, which does not seem what it is, because no man sees the murderer, because the death of the victim seems a natural one, since the offence is more one of omission than of commission. But murder it remains. (pp. 95-96)

Through government documents, medical reports, and personal observation, Engels analyzed the conditions confronted by the working class in England. He documented the social inequalities forced on workers. The working class, whether at work or home, was knowingly exposed to poisonous, degraded, and polluted environments. The operations of capitalism helped create the class dynamics that sustained the exploitation of the working class and the degradation of nature and society.

Not just in Manchester and the other factory towns, but also in London, the working class was led to an early grave (Engels, 1892):

> London can never be so pure, so rich in oxygen, as the air of the country . . . because the method of building cities in itself impedes ventilation. The carbonic acid gas, engendered by respiration and fire, remains in the streets by reason of its specific gravity, and the chief air current passes over the roofs of the city. The lungs of the inhabitants fail to receive the due supply of oxygen, and the consequence is mental and physical lassitude and low vitality. . . . And if life in large cities is, in itself, injurious to health, how great must be the harmful influence of an abnormal atmosphere in the working-people's quarters, where, as we have seen, everything combines to poison the air. (pp. 96-97)

Engels (1892) went on to describe the waste that was decomposing on the streets and the lack of ventilation, given the construction of buildings. Lung disease and illness were the result of these conditions. The working class was "deprived of all means of cleanliness, of water itself, since pipes are laid only when paid for, and the rivers so polluted that they are useless for such purposes" (p. 97). Given the general deterioration of environmental conditions in the community and the dangers confronted at work, the working classes remained in constant danger to the exploits of capitalism. Using mortality statistics, Engels confirmed his general assessment that the working class "age prematurely, and die early," given that they are consistently deprived of the necessities of life (p. 105). Just as it has been confirmed today, class remains the most important indicator of health, as mortality rates are inversely related to social class (Waitzkin, 1983).

Engels charged that "the English bourgeoisie has but one choice, either to continue its rule under the unanswerable charge of murder and in spite of this charge, or to abdicate in favour of the labouring-class. Hitherto it has chosen the former course" (p. 109). Throughout his life, he continued to insist—for example, in his 1872 classic *The Housing Question* (Engels, 1975)—that only the abolition of the capitalist economic system offered the possibility for the creation of a rationally organized form of social production, which could give birth to the creation of sustainable cities that ensured the health of the environment and humans. *The Condition of the Working Class* served as Engels's "critique of the inhumanity of

capitalism" (Hobsbawm, 1984, p. 16), given that a system where profit operated as both "the end and the rule of conduct" necessitates that "certain human needs are bound to be neglected" (Marcus, 1984, p. 202). His work influenced Rudolf Virchow, a pioneer in social medicine, and social reformers around the world (Clark & Foster, 2006; Kelley, 1914; Waitzkin, 1983). Hobsbawm (1984) declared that *The Condition of the Working Class* is "by far the best single book on the working class of the period" and that it remains "an indispensable work and a landmark in the fight for the emancipation of humanity" (p. 17).

Although reductions in air and water pollution in the wealthier nations were achieved through struggle, and work environments were made safer, we must remember that these improvements can easily be taken away without constant vigilance on the part of people. As Engels would assert, an economic system that values profit over all else remains. Thus, an attack on environmental protection, especially insofar as this mainly protects the health of the working class, is always in the offing, so long as the rapacious system continues to exist, such as is the case today with the rollback of numerous environmental laws and protections. Plus, the constant expansion of capital perpetuates ecological havoc, as ecosystem after ecosystem is destroyed. In this, Engels's ecological insights help us understand the dynamics of the capitalist system as it continues to degrade the global environmental conditions of life. At the same time, he serves as an important reminder that humans are active agents in the creation of history. The changing of the environmental conditions for the longevity of human society and for the earth itself depends on us.

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