
The Town–Country Antithesis and the Environment: A Sociological Critique of a “Real Utopian” Project

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Abstract

Current sociological interest in “real utopias” demands a critical evaluation of potential academic contributions to the subject. The following is a sociological critique of the real utopian project of abolishing the antithesis between town and country. The analysis uncovers a fundamental dilemma in theorizing how to transform this antithesis. On one hand, social and natural scientists have acknowledged that modern urbanization and the urban–rural divide contribute to the creation of a rift in the relationship between humans and the natural environment. On the other hand, modern cities, based on arguments about the efficiency of urban density, are defended by a wide variety of scholars. Nevertheless, in turning to a socioecological framework of analysis based on the work of Marx and Engels and metabolic rift theory, this dilemma can be resolved. This framework emphasizes that modern cities are the result of interdependent development, which is expressed through the antithesis between town and country. This antithesis is the intervening mechanism in which the metabolic rift is spatially observed and carried out. That the ecological rift is now planetary demands a real utopian project in which dramatically different social and spatial relations are theorized.

Keywords

metabolic rift, urbanization, town–country antithesis, utopia, environmental sociology, Marx, Engels, interdependent development, capitalism

Introduction: A “Real Utopian” Project

William Morris’s (1970) late-19th-century novel *News From Nowhere* presented a utopian society in contrast to the machine-dominated, urbanized futures envisioned by previous and subsequent dystopian and utopian authors (e.g., Edward Bellamy’s *Looking Backward*; Clark, 2003; Foster, 1998). An example of how Morris’s vision differs can first be seen in the fact that in *News From Nowhere* the English Houses of Parliament had been turned into “a storage place for manure” (Morris, 1970, p. 26). This “Dung Market” became an essential supply of nutrients for maintaining agricultural soil fertility in a society where the antithesis between town and country had been

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abolished. In this alternative England, the big cities of the past, and their slums, no longer existed. Utopian England “is now a garden, where nothing is wasted and nothing is spoilt, with the necessary dwellings, sheds, and workshops scattered up and down the country, all trim and neat and pretty” (Morris, 1970, p. 61). The antagonistic divide between town and country, characteristic of capitalism, had been radically transformed in Morris’s novel.

In this way, *News From Nowhere* presents a utopian society in line with the revolutionary thinking of Marx and Engels (Clark, 2003; Foster, 1998). Both Marx and Engels, in various places, highlighted the need to abolish the divide between town and country (Burkett, 1999; Foster, 1999). They also linked this particular project to the ecological project of restoring the soil-nutrient cycle. Consequently, *News From Nowhere* has an environmental insight and serves as a “real utopian” inspiration for the present environmental sociological analysis of urbanization and the antithesis between town and country. To call this a “real utopian” inspiration signifies that the transformation of the rural–urban antithesis would be “a utopia based in the existing world” (Burawoy, 2005, p. 325), that is, a revolutionary project that addresses, in the context of the current article, modern socioecological problems. Engels (1935) acknowledged this “real utopian” dialectic in discussing the abolition of the modern town–country divide. He wrote, “The abolition of the antithesis between town and country is no more and no less utopian than the abolition of the antithesis between capitalists and wage workers” (p. 95). Indeed, according to Marx and Engels, the urban–rural divide is a basic, yet dynamic, characteristic of capitalism. Therefore, as we will see, to engage in such a discussion is to engage in a rigorous critique of modern conceptions of capitalist development. On one hand, this discussion challenges widespread assumptions in which cities and urban processes are said to express positive socioecological forces (e.g., efficiency). On the other hand, this critique provides an opportunity to discuss a real utopian project, that is, an alternative to modern nature–society relations, in a time when human activities are overstepping planetary boundaries and threatening the biodiversity of life on Earth (Rockström et al., 2009; Vitousek, Mooney, Lubchenco, & Melillo, 1997).

Indeed, the socioecological dimensions and implications of the antithesis between town and country have not yet been fully examined. From an environmental sociological perspective, this examination started with Marx’s theory of metabolic rift elaborated by Foster (1999).¹ Metabolic rift theory proposes that capitalist production degrades “the original sources of all wealth—the soil and the worker” (as cited in Foster, 1999, p. 379). Yet in developing this theory, Marx focused on a specific set of interdependent environmental problems: soil degradation in the countryside and pollution in the city. Through the notion of a metabolic rift, Marx linked these two problems together. More than any other social system, capitalism concentrates people in the city, thereby separating human labor from the land. The food and fiber necessary to sustain this urban population is exported from the countryside. As these nutrients are removed from rural lands, soil fertility is undermined. At the same time, as the food and fiber are consumed in the city, these nutrients accumulate as waste and pollute the waterways. This is the basic framework of the metabolic rift theory as it was originally developed.

Although capitalist production is the fundamental driving force in this theory, there is an interdependent, intervening mechanism through which the rift is spatially observed and carried out. This intervening mechanism is the antithesis between town and country. As Morris (1970) implied in his description of a utopian England, the rational regulation of the soil-nutrient cycle requires that society “discourage centralization all we can” (p. 57). Although his ideas were presented in a utopian novel, Morris’s general notion was in agreement with Marx’s argument. Modern urbanization, Marx noted, “concentrates the historical motive force of society” while “it disturbs the metabolic interaction between man and the earth” (as cited in Foster, 1999, p. 379). The modern world has experienced urbanization on an unprecedented scale, generating negative qualitative changes in the relationship between nature and society. Any attempt to resolve modern

environmental problems, which include, but are not limited to, the rift in the soil–nutrient cycle, must present a critique of the socioecological dimensions of urbanization and the antithesis between town and country.

Marx and Engels provide the most fruitful ground on which to develop such a critique. Nevertheless, as mentioned above, no scholarly research has fully examined the socioecology of the rural–urban divide. Furthermore, a variety of social scientists studying urbanization have ignored the antithesis between town and country, or have argued that it no longer exists, failing to recognize its role in the creation of the metabolic rift. The present article fills these gaps, providing an environmental sociological analysis of the urban–rural divide, thereby extending the discussion started with Foster (1999) and Burkett (1999). Before discussing the contributions that can be made based on the general framework laid out by Marx and Engels, it is important to identify the relevant gaps and shortcomings in much social science research on urbanization and the environment. These gaps and shortcomings highlight a dilemma in theorizing how to resolve the modern town–country antithesis. As such, this article is a critique of a “real utopian” project, a concept currently being examined by sociologists (e.g., Burawoy, 2005; Wright, 2010).²

The Conceptual Hegemony of Cities and the Ecological Footprint

Although sociologists have developed thorough environmental critiques of economic growth (e.g., the treadmill of production theory, Schnaiberg, 1980), modern urbanization remains largely unexamined in the subdiscipline of environmental sociology (see, Clement, 2010 for a review).³ Outside environmental sociology, urbanization and urban density are strongly defended by a variety of scholars (e.g., Jacobs, 1961); as such it represents a conceptually unchallenged process of modern development. Indeed, there is a growing literature criticizing the ecological footprint concept (Rees & Wackernagel, 1996) on the basis that the implications of such a concept “would be to discourage the concentration of people and their activities which, among others, means a strong plea against cities” (van den Bergh & Grazi, 2010, p. 4844). The ecological footprint concept is being criticized for its “anti-urbanism” (Newman, 2006, p. 286). This literature frames its argument in the language of efficiency. For instance, Fiala (2008) argues, “People live in cities, even large sprawling ones, in large part because they are more efficient than rural living” (p. 520). Grazi, van den Bergh, and Rietveld (2007) also attack the footprint concept on the grounds of urban efficiency, which they define in terms of the positive agglomeration effects for firms. Urban density, in part, decreases the space in which economic activity occurs, creating economies of scale that reduce transaction and communication costs. These authors conclude that the positive externalities of agglomeration for firms are an “indispensable part of life” (p. 152) and that the ecological footprint concept does not consider such benefits.

The positive environmental evaluation of urbanization transcends disciplines, being expressed by both social and natural scientists. For instance, in the journal *Nature*, Bettencourt and West (2010) argue, based on the work of Dodman (2009), that “most large, developed cities are ‘greener’ than their national average in terms of per capita carbon emissions” (p. 912), meanwhile, they clarify that cities in the developing world may not express similar environmental efficiencies and are emitting much carbon dioxide per capita. Davis (2006), a social scientist, also characterizes cities in the developing world in this way. He writes, “The chaotic form of so many Third World cities . . . annuls much of the environmental efficiency of city life” (p. 129). The implication here, as Bettencourt and West make explicit, is that First World cities are environmentally efficient whereas Third World cities are not. In describing First World cities as efficient, Bettencourt, West, and Davis ignore serious discussion of the ecological footprint of these cities (Folke, Jansson, Larsson, & Costanza, 1997; Rees & Wackernagel, 1996). The ecological footprint highlights the

fact that cities import a vast quantity of material produced by ecosystems outside the urban area itself and that cities rely on these ecosystems to absorb and assimilate urban-generated pollution. Indeed, Folke et al. (1997) directly state, "Cities need productive ecosystems to exist" (p. 171). The ecological footprint expresses ecosystem appropriation in terms of the planet's surface area. For example, although using different measurement criteria, it has been estimated that London consumes 120 times its land area, Vancouver, BC about 200 times, and Baltic cities between 565 and 1,130 times the area of the cities themselves. In ecological terms, describing any modern city as "sustainable," for example, Vancouver, British Columbia, is shortsighted. Indeed, the designation of sustainability to an urban region, as Rees and Wackernagel (1996) clarify, "depends on imports of ecologically significant goods and services whose production requires an area elsewhere on Earth vastly larger than the internal area of the region itself" (p. 234). This is the discussion that proponents of urban efficiency ignore.

It is important to note that Davis (2006) is an otherwise critical scholar of cities. Nevertheless, he still endorses the efficiency argument, writing that "urban density can translate into greater efficiencies in land, energy, and resource use" (p. 134). That Davis would make such a claim is evidence that the ecological benefits of urban density are often accepted at face value.⁴ Or rather, the contemporary notion of urbanization and the environmental impacts of cities are seldom subject to serious scrutiny. On this basis, I argue that cities, in terms of theorizing modern society–nature relations, are conceptually hegemonic. One way in which this conceptual hegemony can be challenged is by acknowledging that the environmental impacts of urbanization are socially and historically contingent. It is misleading, or not sensitive to sociohistorical context, to argue that either "cities in the abstract are the solution to the global environmental crisis" (Davis, 2006, p. 134) or "all cities constitute an antithesis to the land" (Bookchin, 1974, p. 30). As Mumford (1961) makes clear, very little could be said about the socioecological relations of "all cities" or "cities in the abstract." Whether or not urbanization is a sustainable process depends on the sociohistorical context. The ecological footprint is one tool that can help evaluate urban sustainability. Again, modern cities have an ecological footprint that extends well beyond urban boundaries (Folke et al., 1997; Rees & Wackernagel, 1996). To be aware of a modern city's footprint, at the very least, means that we cannot readily accept any automatic connection between cities and sustainability today. Therefore, the point is not to propose a transhistorical socioecology of cities but to situate the environmental evaluation of urban areas within the relevant sociohistorical context of analysis.⁵

Indeed, the modern context of capitalism must be considered when looking at the growth in the literature criticizing the ecological footprint. Considering this context, we can provide an alternative explanation for the growing critique of the ecological footprint. The alternative explanation suggests that there is an argument implicit in this literature, which has little to do with an expressed concern about "social welfare," as Grazi et al. (2007) describe the benefits of agglomeration and trade to firms. Rather, according to Amin (2009), the ecological footprint expresses "the *use value* of the planet's resources" (pp. 19–20). Based on Amin's analysis, the footprint is defined in positive terms, as a measure of our relationship to the planet. In fact, as Harvey (1982) points out, use value fundamentally represents humanity's connection to the environment, that is, use value is defined as the "appropriation of nature by human beings in order to satisfy their wants and needs" (p. 5). The ecological footprint is a use value because it is a measure of society's appropriation of natural resources. However, Amin takes his analysis one step further to highlight the "revolutionary import" of ecological footprint accounting "since socialism is defined in terms of a society founded on use value and not on exchange value" (p. 20). Therefore, a focus on the ecological footprint implies a fundamental critique of a socioeconomic system predominantly geared toward the maximization of exchange value. By not engaging in the discussion of use value and exchange value, Rees and Wackernagel (1996) never comprehended that the ecological footprint

can challenge the very nature of, and present an alternative to, capitalist society. Therefore, if we read Amin (2009) alongside the work of researchers such as Fiala (2008), Grazi et al. (2007), and van den Bergh and Grazi (2010), the incompatibility between the ecological footprint concept and our support for modern urbanization becomes clearer.

The footprint concept presents a basic critique of modern urbanization. At the very minimum, it demands that researchers not dismiss the socioecological contradictions of cities; it demands that researchers question the automatic connection between cities and sustainability today. With the footprint concept, modern cities are no longer conceptually sacred. Accordingly, the incompatibility between cities and the footprint has little to do with "social welfare" or a vague notion of efficiency. Rather, this incompatibility has more to do with the tension between use value and exchange value (Logan & Molotch, 1987). If it has anything to do with efficiency, it is efficiency in the sense of maximizing exchange value. Various authors (e.g., Burkett, 1999; Harvey, 1982; Logan & Molotch, 1987) have shown how urbanization is crucial for the maximization of exchange value (i.e., the circulation of capital). Even with the rise of monopoly capital and suburban sprawl, urban density (e.g., the downtown central business district) has become an efficient spatial form for corporations to organize their control over the market and maximize exchange value (Ashton, 1984; Gordon, 1984; Logan & Molotch, 1987). Contemporary suburban sprawl does not provide evidence contradicting the importance of urban density to exchange value. This point is missed by proponents of sustainable cities, such as Newman and Kenworthy (1999), who highlight the environmental benefits of increasing urban density without seriously considering the historical connections between density and economic growth. As Anderson (1976) argued, "Decentralization, outside of urban sprawl, is not profitable" (p. 190).

Clearly, critical social scientists such as Davis (2006) have illuminated the socioecological dimensions of the struggle between use value and exchange value. Nevertheless, the implication in his work that cities in the developed world are environmentally efficient indicates the subtlety and pervasive preference of an exchange value approach, rather than a use value approach, in environmental studies of urbanization. Furthermore, considering Davis's other work, his stance on the environmental efficiency of cities ironically expresses a unidimensional view of urban development, in which First World cities are presented as phenomena independent of the development of the Third World and the global natural environment. Indeed, much of the literature addressed above fails to appreciate the interdependent nature of urban development. By not looking at the way cities develop interdependently with rural areas and the natural environment, scholars, other than Davis, support unidimensional urban concepts. This is especially the case with academic research encouraging proposals to increase urban density (e.g., Dodman, 2009; Newman, 2006). However, density and sprawl, rural areas and urban areas, develop interdependently (e.g., Cronon, 1992). One must examine the interdependent development (Brookfield, 1975) of cities to get a better understanding of the socioecological dimensions of urbanization, and the antithesis between town and country.

The Material Interdependencies of Urban Development

Unsurprisingly, the original developers of the ecological footprint concept were aware of the socioecological interdependencies of urban development. In a theoretical elaboration and empirical demonstration of the urban footprint, Rees and Wackernagel (1996) write that "rural lands and ecosystem functions are being exploited more intensely than ever in the service of newly urbanized human populations" (p. 236). Therefore, to talk about the development of sustainable cities (e.g., to talk about the need to increase the density of cities) without mentioning cities' broader ecological impacts on rural lands is shortsighted. Rather, they argue, "Regardless of local land use and environmental policies, a prerequisite for sustainable cities is sustainable use of the global

hinterland” (p. 236). From their point of view, sustainable urbanization is not possible without sustainable rural development. The two processes are interdependent. Nevertheless, as Amin (2009) points out, the intellectual tradition in which Rees and Wackernagel (1996) developed the footprint concept precluded a broader political economic critique of modern society and urbanization, making their research vulnerable to social scientists such as Fiala (2008). All the same, critics of the ecological footprint exhibit an even more limited perspective when they argue that people live in cities because they are more efficient than rural areas. To argue that people move to and remain in cities because they are efficient ignores the diversity of sociological and historical forces that drive urbanization and perpetuate urbanism. As will be shown, urbanization and urbanism are interdependent with rural development.

Many critical social scientists have examined the drivers of rural and urban settlement change (e.g., Araghi, 1995; Logan & Molotch, 1987). It is important to briefly review their work to demonstrate the material interdependencies of urban development. A major transformation that has characterized the modern world is a process of urban development in the face of rural underdevelopment. In the second half of the 20th century, Araghi (1995) terms this process “global depeasantization” or “deruralization.” This process expressed geographical and temporal variability, moving at different paces in different places and times. Nonetheless, there was a general trend as “an increasing number of people who were involved in agriculture with direct access to the production of their means of subsistence became rapidly and massively concentrated in urban locations” (p. 338). According to Araghi, this pace quickened in the last quarter of the 20th century when neoliberal economic policies were spread around the world, undermining a variety of state supports for peasant-oriented economic activities. Araghi (2000) identifies the general, immediate outcome of such policies: “labor intensive local agricultures are pitted against globally organized agro-industrial corporations” (p. 151). As a result of this power imbalance, peasants are ultimately displaced out of rural areas and are helping drive urban growth.

Consequently, the “draw” to the city for these migrants has little to do with the intrinsic efficiency of city life. Indeed, life in Third World cities during the second half of the 20th century became increasingly defined as precarious (Amin, 2003). Many urban workers have little bargaining power and make very little money, exacerbating the unhealthy slum conditions of Third World cities (Davis, 2006; Rice, 2008). Amin (2003) argues that the development of a precarious urban existence is tied to the displacement of rural peasant populations. He explains,

Pauperization in the urban popular classes is closely linked to the developments which victimize third world peasant societies. The submission of these societies to the demands of capitalist market expansion supports new forms of social polarization which exclude a growing proportion of farmers from access to use of the land. These peasants who have been impoverished or become landless feed—even more than population growth—the migration to the shantytowns. (p. 8)

Again, the point to clarify is that the pauperization of Third World cities is a development interdependent with the emergence of neoliberal restructuring and global agro-industrial corporations. These corporations have outproduced the world’s poorest farmers, reducing food prices and undermining rural livelihoods, making survival in the countryside less of a possibility.

However, a narrow focus on Third World cities might neglect the fact that First World cities also underwent, and continue to experience, interdependent development. Ashton (1984) argues that the early history of urbanization in the United States was not driven simply by rational actors seeking out the efficiency of city life. “Doubtless some were attracted by the excitement of city life or the promise of better wages. But,” Ashton (1984) writes, “many had no choice. Declining soil fertility east of the Mississippi and the lack of free land in the west pushed farmers off the land,

as did expanding urban land use” (p. 56). As in the developing world (Shandra, London, & Williamson, 2003), the degradation of rural environments contributed to America’s urban migration. Indeed, the development of modern cities in the late 19th and early 20th centuries, in terms of better urban living conditions, proceeded, in part, because these cities had access to hinterlands, first in the United States and then in the Third World. Agriculture in the United States provided the calories necessary for early urban development in Europe. Bagchi (2005) observes, “Non-European lands made a substantial contribution to the improvement of nutrition and the disease environment in Europe. The first element of this contribution was the introduction of new crops from the Americas” (p. 85). American agriculture was feeding the growing urban population in Europe. In general, the exploitation of peripheral hinterlands around the world made urban development in the core nations possible. In this sense, the “efficiency” of urban living was not automatic; it was socially constructed through the transport of agricultural goods to European and then American cities.

The global hinterlands produced the food needed to sustain the urban residents in Europe and America, contributing in part to the increase in life expectancy in those regions. In fact, the history of urban living conditions, in terms of life expectancy, challenges any notion that modern cities automatically conferred advantages to their residents. Bagchi (2005) writes, “Until about 1750, London was a net killer of its residents . . .” (p. 104). Early urban environments were, relative to rural environments, deadlier places for humans to live. Humphrey, Lewis, and Buttel (2002) demonstrate this disparity in England, writing, “By 1830 residents of British industrial cities could expect to live, on average, twenty-nine years, while the national average life expectancy was forty-one. One paid a truly grave price for the higher wages of these early industrial cities” (p. 81). In the United States, the urban mortality transition was a long process; it was not until 1940 that urban residents lived longer than rural residents in America (Haines, 2001). As a result, to say that cities produce “social welfare” is to neglect the interdependent and unhealthy history of urban development.

Apart from the production of food in the countryside, there are other social forces that facilitate and perpetuate urbanism. In *News From Nowhere*, Morris describes the way in which the antithesis between town and country was transformed in his alternative England. He describes how, in the early phases of the formation of his utopian society, its urban populations quickly migrated to the countryside. Morris (1970) writes, “People flocked into the country villages, and, so to say, flung themselves upon the freed land like a wild beast upon his prey . . .” (p. 61). In Morris’s fictional vision, people fled the alienating cities for the freedom of the country. Nevertheless, in acknowledging that this utopian development is fictional, one must not forget that there are various mechanisms in place that push people out of rural areas, as discussed above, and restrict the migration of people out of modern cities. With respect to the latter, Harvey (1982) writes that “land ownership and rent, for example, prevent labourers from going back to the land and so escaping from the clutches of capital” (pp. 381–382). There are other sociological theories that indicate how political economic power disproportionately supports (e.g., urban growth machine, Logan & Molotch, 1987) and is channeled into urban areas (e.g., urban bias theory, London & Smith, 1988), thereby perpetuating urbanism.

The conceptual inviolability of urbanization, in terms of theorizing society–nature relations, stems in large part from the discourse of the efficiency of agglomeration. Nevertheless, the forces that drive urbanization and perpetuate urbanism have little to do with efficiency, unless efficiency is defined in terms of the benefits to firms, that is, exchange value. In terms of use value, measured by the ecological footprint (Amin, 2009), cities are not efficient. Furthermore, a brief history of urbanization, discussed above, demonstrates the limitations of using the efficiency of agglomeration to explain the growth and permanence of cities. This history, instead of pointing to the positive benefits of agglomeration, suggests that an environmental sociological theory of urbanization

would be better served by the notion of interdependent development. Indeed, a process of interdependent development forms the conceptual core not only of the ecological footprint but also the antithesis between town and country, which is the intervening mechanism in metabolic rift theory.

The Antithesis Between Town and Country

Although scholars agree that urbanization is a dominant feature of the modern world, there is less agreement about the contemporary relevance of the town–country divide. For instance, Araghi (1995) argues that “the continuing process of international industrialization of world agriculture has caused the progressive blurring of the traditional distinction between urban and rural phenomena based on the exclusive concentration of agricultural productive activities in the latter” (p. 354). The proposition that the town–country division of labor has blurred is also expressed by geographers Harvey (1985) and Smith (2008). Smith (2008) writes,

The separation of town and country today still occurs in some form but should be seen as a relic from the origins of capitalism. To speak of it today as still central to the determination of the general division of labor, as is all too commonly done, is to read Marx uncritically and to fossilize the rural-urban dichotomy. (p. 149)

Harvey (1985) also argues that the city–country dichotomy is no longer evident in the division of labor, but it is evident “within the realms of ideology” (p. 15). According to Araghi, Harvey, and Smith, the notion of the antithesis between town and country can be challenged because both peasants and urban workers are now under the command of capital. For that reason, the rural–urban divide can no longer serve as a “fundamental conceptual tool for analysis” (Harvey, 1985, p. 15).

For many of these authors, the agricultural–industrial division of labor is the central defining characteristic of the urban–rural divide. Yet the agricultural–industrial division of labor was even more blurry in precapitalist societies than it is in advanced capitalist societies, as these authors argue. The countryside before the ascent of capitalism was not “an exclusively agricultural milieu” (Merrington, 1975, p. 72). As Williams (1973) argues, the transition to capitalism created the ruralized images and practices of the countryside that often figure prominently in modern discussions of agriculture and the countryside.⁶ Merrington (1975) explains, “From being a centre of all kinds of production, an autonomous primary sector that incorporates the whole of social production, the country becomes ‘agriculture’, i.e., a separate industry for food and raw materials . . .” (p. 72). Katznelson (1992) makes a similar argument, writing,

The high proportion of industrial workers who had lived and worked in rural areas in 1800 almost disappeared during the nineteenth century. As a result, the divide between city and country grew more stark, a change of great economic and social consequence. (p. 202)

The point made by Merrington and Katznelson may seem similar to Smith and Harvey who also argue that the urban–rural divide is evident during the *transition* to capitalism. Nevertheless, Katznelson does not argue, like Harvey and Smith, that the antagonism between town and country is no longer relevant in advanced capitalist societies.

Yet Katznelson, like Harvey and Smith, examines the town–country antithesis in terms of the division of labor. In this way, these three authors agree that “the division of labor is the fundamental concept and not the rural–urban dichotomy” (Harvey, 1982, p. 72). Katznelson (1992) explains this position,

For both Marx and Engels, the opposition of town and country was epiphenomenal; urban and spatial forces have no independent standing within their treatment of the division of

labour, because the split between the town and the countryside is the direct, unmediated result of the imperatives of the division of labour, understood at the level of the mode of production. (p. 33)

Again, the divergence between these authors can be seen in who is arguing for or against the continued relevance of urban–rural divide. Harvey and Smith argue against its continued relevance, whereas Katznelson suggests that capitalism developed this opposition to an unprecedented level. Williams (1973) makes this point, too, stating,

The division and opposition of city and country, industry and agriculture, in their modern forms, are the critical culmination of the division and specialisation of labour which, though it did not begin with capitalism, was developed under it to an extraordinary and transforming degree. (p. 304)

A focus on the agricultural–industrial division of labor is certainly indispensable in an analysis of the town–country divide, as seen in the brief passage in *The Communist Manifesto* (Foster, 2009, pp. 213–232). However, it is not, as Harvey (1985) suggests, the only dimension that Marx and Engels discussed. Burkett (1999) makes this point clear, demonstrating evidence that Marx and Engels, for example, also considered the division between town and country to be a global process separating core from periphery. Furthermore, although changes in the division of labor are complex, and although much urban capital is employed by agro-industrial corporations, there is the inescapable fact that modern food and fiber production depend on large amounts of land unavailable in urban settings. The dependence of modern agriculture on historically unprecedented expanses of land is a socioecological expression of the opposition between town and country under capitalism. Any argument that challenges the antithesis between town and country with the observation that the division of labor has blurred, and that industry has penetrated agriculture, cannot ignore the significant biogeochemical requirements (e.g., land area and soil) of modern food and fiber production. When we recognize these requirements, it becomes clear that the antithesis between town and country is still relevant for a socioecological analysis. Indeed, it was in these terms that Marx and Engels incorporated an ecological dimension into an analysis of the urban–rural divide (Burkett, 1999; Foster, 1999). For Marx and Engels, the movement of people to cities required the transport of agricultural goods from rural areas, ultimately creating a problem of soil fertility in the countryside. This particular ecological dimension of the opposition between city and country (i.e., the issue of soil fertility) is still an obstacle to the development of a sustainable soil-nutrient cycle (Mancus, 2007), and it constitutes the foundation of Foster’s metabolic rift theory. Nevertheless, the socioecological implications of the urban–rural antithesis are evident in more than the single, yet critical, issue of soil fertility. To develop the full potential of metabolic rift theory, we first need a focused environmental sociological analysis of urbanization and the opposition between town and country. Comments made by Engels (1935) in *The Housing Question*, especially, help with this.

Engel’s Socioecology and the Town–Country Antithesis

An appreciation of the antithesis between town and country facilitates an ecological critique of capitalist society. Indeed, Moore (2003) writes that “the rural-urban dialectic [is] the overarching ecogeographical framework of the modern world” (p. 358); Moore (2011) comments that the town–country antithesis is one of “modernity’s greatest contradictions” (p. 113). Nevertheless, both Smith (2008) and Harvey (1996), who have challenged the notion of the town–country divide, also make ambivalent statements regarding the current global ecological crisis. Smith, for instance, proposes that capitalism expresses a historically unique “unity with nature” (p. 81), that is,

capitalism “ardently defies the inherited separation of nature and society” (p. 7). Although he acknowledges the potential for human society to transform the environment on a global scale, Smith, like Harvey, downplays the fact that humans are dangerously altering biogeochemical cycles (e.g., carbon and nitrogen cycles), crossing planetary boundaries, and threatening the reproduction of much life on Earth (Rockström et al., 2009; Vitousek et al., 1997). Therefore, it is theoretically confusing to suggest that capitalism is in “unity with nature” in light of the severity of modern anthropogenic environmental problems. The metabolic rift offers a more theoretically consistent analysis of capitalism’s impact on the natural world. It proposes that modern society is undermining natural biogeochemical cycles, generating negative consequences for humans and the environment.

Metabolic rift theory has been used to analyze a variety of anthropogenic environmental problems. Nevertheless, the antithesis between town and country has largely been sidelined in subsequent developments of the theory (e.g., Clark & York, 2005; Clement, 2009). Marx and Engels had made this division a central concept in their analysis of the rift in the soil-nutrient cycle. Therefore, it is necessary to return to the work of Marx and Engels to develop a general framework for an environmental sociological analysis of urbanization and the antagonism between town and country. As Foster (1999) has demonstrated, Marx illuminated the interdependency between issues of soil fertility and the concentration of wastes in cities. In *The Communist Manifesto*, Marx and Engels made the abolition of the town–country distinction 1 of 10 measures a socialist revolution should take (Foster, 2009, pp. 213–232). Nevertheless, Engels (1935) in *The Housing Question* took this analysis one step further, encouraging us to see that cities are not just containers of population. Industrial capitalist cities express particular urban processes that contribute to the metabolic rift. These processes include not only the concentration of population but also the formation of fixed capital and the emergence of a highly unequal market for housing. Therefore, Engels brings the issue of urban social justice into the ecological analysis of the town–country antithesis, presenting a critical socioecological approach to urbanization and the rural–urban divide.

Engels (1935) thoroughly develops this insight in *The Housing Question*, which was written as a critique of the liberal bourgeois approach to the urban housing shortage in the 1870s. According to Engels, a fundamental problem with the liberal approach to the housing question has to do with its inability to deal with the antithesis between town and country. The reformist solution, Engels writes,

has come to grief owing to the *antithesis of town and country*. And with this we have arrived at the kernel of the problem. The housing question can only be solved when society has been sufficiently transformed for a start to be made towards abolishing the antithesis between town and country, which has been brought to an extreme point by present-day capitalist society. Far from being able to abolish this antithesis, capitalist society on the contrary is compelled to intensify it day by day. . . . (p. 54)

Engels was expressing the view, noted above, that the rural–urban divide was, under capitalism, developed “to an extraordinary and transforming degree” (Williams, 1973, p. 304). More important, Engels acknowledges that the housing shortage was a clear result of the concentration of people in industrial urban areas under capitalism. In capitalist industrial cities, separate markets emerged for labor and housing (Gordon, 1984; Katznelson, 1992). With a separate market for housing, Katznelson (1992) writes, residential communities “came more and more to be shaped by speculation and the strategies of builders and landlords, and stratified by income and styles of life” (p. 222). The control of housing by builders and landlords changed the nature of residential inequality in the city, raising it to a whole new level (Gordon, 1984). Differential housing qualities, housing shortages, slum conditions, and spatial segregation based on class all intensified with the

emergence of the housing market in industrial capitalist cities. According to Engels, the basic force underlying these apparent changes was the antagonistic division between town and country under capitalism. This division produced rural out-migration, which was contributing to the development of an exploitable population in the city. In this sense, the housing question developed interdependently with the modern rural–urban divide.

We can begin to see how Engels's insight adds another dimension to the metabolic rift. The very process that was degrading soil fertility in the countryside was also underlying a fundamental social justice issue of modern cities: the unequal housing market. In *News From Nowhere*, Morris had resolved the issues of housing supply and soil fertility in his utopian society through the transformation of the town–country divide. Engels, as quoted in the introduction, spoke directly about the utopian element in theorizing such a transformation. In the same quote, he continues to argue,

From day to day [the abolition of the antithesis between town and country] is become more and more a practical demand of both industrial and agricultural production. No one has demanded this more energetically then [*sic*] Liebig in his writings on the chemistry of agriculture, in which his first demand has always been that man shall give back to the land what he takes from it, and in which he proves that only the existence of the towns, and in particular the big towns, prevents this. (p. 95)

For Engels, the socioecological implications of the town–country divide necessitate its abolition. This was an idea only briefly touched on in *The Communist Manifesto* (Foster, 2009). Here Engels makes it clear that workers have inadequate housing, the urban environment is polluted, and soil fertility is being undermined all through the same basic force. In Engels's framework, all these issues are interdependent with the separation between town and country, which is the intervening mechanism in metabolic rift theory.

By opening up the opportunity to bring social justice into metabolic rift theory, Engels's analysis facilitates an examination of the contemporary notion of *environmental justice*. Clark and Foster (2006) have already made the argument that Engels was concerned about justice and urban environmental issues in *The Condition of the Working Class in England in 1844*. Again, according to Engels, cities are not just containers of environmental injustice; urbanization and urban processes are forces that perpetuate injustice. An analysis of the antithesis between town and country exposes the role that modern cities play in doing this. The development of a housing market, as mentioned above, resulted in spatial segregation within the city, based on class. But, modern cities are also centers of production. In that way, urban industrial capitalism is largely defined by the presence of fixed assets, or fixed capital (e.g., buildings, factories, electrical power generation). According to Harvey (1982), fixed capital helps absorb overaccumulated capital; therefore, the built environment as fixed capital is crucial for the circulation of capital in general. Power plants, factories, warehouses, and so on, are geared toward the expansion of economic production, which requires increasing amounts of natural resources (Schnaiberg, 1980). In the city, these resources are consumed and turned into urban waste and pollution. Nevertheless, there is residential segregation in the city. Therefore, when pollution is moved by weather patterns, it disproportionately affects different urban residents. As a result, there is “a tendency for better housing to be built to the west, and housing for the working class to the east, which, most frequently, lay downwind of the new factory districts” (Katznelson, 1992, p. 200). Based on this environmental sociological dynamic, we can see how social justice is tied to environmental justice, both of which are the result of unique urban processes under capitalism.

As Marx made clear, the antithesis between town and country resulted in a surplus population in the cities. But the urban connection to the metabolic rift does not stop there. The housing and labor markets are tied to the antithesis between town and country. Not only did rural migrants

help populate the city with surplus labor but also the urban population, in the transition to the industrial city, experienced the separation between residence and workplace (Burkett, 1999; Katznelson, 1992). With the rise of the industrial city, an increasing proportion of urban residents depending on their labor had to start walking to work in the factories (Katznelson, 1992). The development of the housing market was not only tied to the antithesis between town and country but also to the separation between residence and workplace. Consequently, in Engels's framework, a socioecological analysis of urbanization and the antithesis between town and country emphasizes not only the agricultural–industrial division of labor but also the alienation of labor (Braverman, 1975), both in the factory and in the house. At the root of this historical transformation is the interdependent relationship between environment and society. In this framework, we can see how the following forces are all interdependent under capitalism: the separation between town and country, the depletion of soil fertility, the formation of fixed capital in the cities, urban pollution, the separation of residence and workplace, residential segregation, and environmental injustice.

An examination of such an array of forces requires multiple empirical projects, representing an effort that cannot be achieved in a single article. Therefore, a brief analysis of the rifts in the carbon and nitrogen cycles can begin to highlight the socioecological relevance of the antithesis between town and country. This particular project demonstrates one way in which we can extend the discussion started by Foster (1999) and Burkett (1999) and pay greater attention to how urbanization and urban processes contribute to the metabolic rift.

Urbanization and the Carbon and Nitrogen Cycles

Metabolic rift theory has been used to analyze both the carbon (Clark & York, 2005) and nitrogen cycles (Mancus, 2007). These projects have incorporated material processes of nature into sociological literature, bringing to light the precarious connections between modern social and natural systems. All the same, urbanization and the antagonistic division between town and country were not central concepts in these studies. This is understandable, given that, as Clark and York (2005) acknowledge, “the essence of a metabolic rift is the rupture or interruption of a natural system” (p. 400). Clark and York only open up the possibility that, and do not go on to explain how, new metabolic rifts (e.g., in the carbon cycle) emerged from the separation of people from the land. One implication of their argument is that the division between town and country is most applicable to an analysis of the rift in the soil–nutrient cycle, rather than the carbon cycle, which they examine.

Likewise, Mancus (2007) only mentions in passing the relevance of the urban–rural divide to a study of the nitrogen cycle. He points out the analytical limits of focusing on population growth as the source of our dependency on inorganic nitrogen fertilizer. To deal with this dependency, and to restore the soil–nutrient cycle, Mancus argues, population-related measures (e.g., controlling population growth) “are important first steps, but are insufficient for addressing the problem of global nitrogen accumulation” (p. 270). The implication of Mancus's argument is that a focus on population, and shifts in population from rural to urban areas, may lose sight of the sociological context in which this growth and these shifts happen. Consequently, what we see in the work of Clark and York, and Mancus is the recognition that capitalist society is the sociohistorical context in which the metabolic rift is theorized and capitalist production is the fundamental driving force behind this rift. In this way, these authors accept, but do not develop, the idea that the antagonistic division between town and country is an important intervening mechanism in the formation of rifts in the carbon and nitrogen cycles.

To develop this idea, attention must be given to natural scientists studying the relationship between urbanization and the carbon and nitrogen cycles (e.g., Grimm et al., 2008; Imhoff et al., 2004; Kaye, Groffman, Grimm, Baker, & Pouyat, 2006; Pataki et al., 2006; Paul & Meyer, 2001).

Although these authors do not provide a sociological understanding of these cycles, they nevertheless demonstrate the extent to which modern human activities are disrupting them. Indeed, as Foster, Clark, and York (2010) point out, natural scientists are the primary actors sounding the alarm in discussions about the environmental impact of human activities. For instance, because of human activities, the carbon and nitrogen cycles represent two biogeochemical processes that have already crossed their planetary boundaries (Rockström et al., 2009), “constituting an extreme ‘rift’ in the planetary system” (Foster et al., 2010, p. 15). Consequently, it is important to *briefly* examine how urbanization and the urban–rural divide contribute to the historical ruptures in these two natural cycles.

The Carbon Cycle

Climate change is the most discussed and most urgent, but not the only, expression of the rift in the carbon cycle. Modern urbanization generates carbon dioxide, both directly and indirectly (Pataki et al., 2006). Directly, because of the fact that industry and transportation are concentrated in urban areas, “cities are point sources of CO₂ and other greenhouse gases” (Grimm et al., 2008, p. 757). In the United States, Parshall et al. (2010) find that American urban areas are responsible for up to 86% of all fossil fuel use by buildings and industry; they also consume up to 77% of total transportation fossil fuel.⁷ However, their data do not include “emissions associated with imported energy such as electricity” (p. 4772), which they point out accounts for 40% of all direct energy consumption in the United States. About half of electricity generated in the United States comes from coal, and, as other studies have pointed out, urbanization increases the demand for energy (e.g., Clement & Schultz, in press; York, 2008). Thus, regardless of the definition being used, “the exclusion of electricity understates total urban demand” of energy and production of carbon emissions (Parshall et al., 2010, p. 4772).

Urbanization not only directly contributes CO₂ through the concentration of fossil-fuel intensive activities, such as industry and transportation but also indirectly produces carbon dioxide through the consumption of coal-based electricity generated elsewhere. Furthermore, cities directly and indirectly contribute to the rift in the carbon cycle through changes in land use. For instance, urban population growth drives deforestation in tropical countries, a process that releases greenhouse gases (DeFries et al., 2010). Deforestation not only releases stores of carbon but also destroys sinks for carbon uptake, which also threatens biodiversity as there is less net primary productivity (NPP), or fuel for, and food from, plants. While urbanization drives deforestation directly in tropical countries, the international demand for agricultural products (e.g., beef and soybeans) can be seen as an indirect driver of deforestation in these countries.

The consequences of land-use changes for the carbon cycle are also evident not just in tropical nations. Although urbanized land area represents a small fraction of total terrestrial area, cities occupy a disproportionately greater space of arable land (Imhoff et al., 2004). This means, as mentioned above, urbanization reduces NPP, that is, the conversion of carbon into fuel for plants (and often ultimately food for humans). For the United States, Imhoff et al. (2004) estimate the reduction of NPP because of urban land use to be about 1.6%. Because urbanization in the United States is happening on fertile agricultural land, this means that agricultural production is negatively affected. “In terms of actual human food,” Imhoff et al. (2004) write, “the reduction of NPP from agricultural lands equates to food products capable of satisfying the caloric needs of 16.5 million people or about 6% of the US population” (p. 442). In conclusion, urbanization drives land-use changes, through the processes of deforestation and the transformation of fertile lands into the built environment of cities. These processes destabilize the carbon cycle and contribute to global warming. Directly and indirectly, Grimm et al. (2008) estimate that 78% of global carbon emissions are attributed to cities.

The Nitrogen Cycle

Like the rift in the carbon cycle, urbanization's impact on the nitrogen cycle is both direct and indirect. This involves not only the effect of agriculture on soils in rural areas producing food for urban residents but also the accumulation of nitrogen compounds in the climate (both local and global), in urban areas and in aquatic ecosystems connected to cities (Rockström et al., 2009; Vitousek et al., 1997). Therefore, the urban connection to the rift in the nitrogen cycle is more complex than the scientists of Marx and Engels's time could have imagined.⁸ Indeed, the current complexity of the relationship between urbanization and the nitrogen cycle has, in part, led some scientists to ask if modern cities have a distinct biogeochemistry because of the unprecedented accumulation of nutrients in urban areas (Kaye et al., 2006). Human waste and landscaping practices concentrate much reactive nitrogen in cities (Kaye et al., 2006), which has a negative effect on aquatic ecosystems in and downstream from cities (Paul & Meyer, 2001). Furthermore, with respect to the climate, the combustion of fossil-fuels in cities results in nitrogen oxides (NO_x), thereby contributing to urban smog. Urban fossil-fuel combustion also produces nitrous oxide (N_2O) which is a potent greenhouse gas.

Nevertheless, modern agriculture, mostly through its dependency on inorganic nitrogen fertilizer (Mancus, 2007), is the primary driver of the rift in the nitrogen cycle. This process continues to introduce much new reactive nitrogen into the environment, "polluting waterways and the coastal zone, accumulating in land systems and adding a number of gases to the atmosphere" (Rockström et al., 2009). Agricultural soil management (e.g., the use of inorganic nitrogen fertilizer) is the single biggest source of anthropogenic N_2O , a greenhouse gas. Soil management also releases much reactive nitrogen into rivers and streams, contributing to eutrophication in bodies of water downstream from agricultural zones, ultimately threatening aquatic biodiversity as oxygen is removed from the environment (e.g., the dead zone in Gulf of Mexico, Dybas, 2005). The point to emphasize is that, while modern agriculture is a rural practice, urbanization is a direct and indirect driver of the rupture in the nitrogen cycle. Humans are separated from agricultural production through the antithesis between town and country, the socioecological consequences of which, in terms of the nitrogen cycle, are multiple and far reaching.

Conclusion: The Urban Challenge to a "Real Utopian" Project

The present article continued the discussion started by Foster (1999) and more directly incorporated urbanization, urban processes, and the antithesis between town and country into the metabolic rift theory. To do this, however, required first an examination of how academics argue that cities express positive economic and ecological forces in terms of efficiency (e.g., Bettencourt & West, 2010; Davis, 2006). We considered the sociohistorical context of capitalism to better understand this positive environmental evaluation of cities and provide an alternative explanation for the rise in literature criticizing the ecological footprint concept (e.g., Fiala, 2008; van den Bergh & Grazi, 2010). Indeed, the environmental relations, and even the prevalence and permanence, of cities are historically contingent. Therefore, from an environmental sociological perspective, arguments for or against urbanization and urbanism must be framed within a particular sociohistorical context.

In his far-reaching history of urbanization, Lewis Mumford (1961) stressed the importance of sociohistorical context, perhaps, more than any other urban scholar examining environmental issues. In considering the environmental problems of modern cities, Mumford (1961) also wrote, "Who would hope seriously for a solution to any of our urban problems by a return to a more primitive technological or social basis?" (p. 431). Into the present, this argument against antiprimitivism has been shared by others who have also observed the failures of urbanization with respect to pollution and environmental sustainability. "There is no question that most cities are now

heading in many wrong directions. They are not sustainable . . .,” Newman and Kenworthy (1999) write, “But to suggest that sustainability means the systematic dismantling of cities is neither realistic nor does it have an historical or theoretically sensible basis to it. The urban adventure,” they assert, “needs to be grasped and pursued, not denied” (p. 17). In their antiprimitivism, there is a superficial similarity between Mumford and proponents of dense, sustainable cities, such as Newman and Kenworthy. Nevertheless, the latter authors cite Mumford as antiurban (Newman & Kenworthy, 1999, p. 137), thereby demonstrating a meaningful difference between their analysis and Mumford’s historical approach. Saying the systematic dismantling of cities does not have an historical basis while also calling Mumford antiurban reveals the limitations of their analysis. Mumford expresses antiprimitivism while arguing that the “systematic dismantling of cities” not only has a historical basis but would also be a revolutionary project to address the socioecological problems of cities.

The limitations evident in Newman and Kenworthy’s (1999) analysis stem from the fact that cities have not been subject to serious scrutiny. Consequently, the conceptual hegemony of modern cities presents a dilemma in which cities are seen as both the source of and solution to environmental problems. This situation does not encourage academics to theorize how to restore the metabolic rifts in, for example, the carbon and nitrogen cycles. This theoretical dilemma is inescapable in the context of the exchange value approach to environmental studies of urbanization where arguments of the efficiency of agglomeration prevail (e.g., Grazi et al., 2007). Meanwhile, a focus on the use value of the planet’s resources, measured in terms of the ecological footprint (Amin, 2009), for example, provides an escape out of this conceptual enigma. But this escape is not gradual or incremental; it constitutes a rupture in and break from traditional thinking about cities. This escape requires a fundamental critique of a society oriented around the accumulation of capital. In modern times, urbanization and the built environment represent an important secondary circuit for the absorption of capital and continued economic expansion (Burkett, 1999; Harvey, 1982; Logan & Molotch, 1987). The escape out of the exchange value dilemma entails a critical examination of modern cities and the urban–rural divide.

Indeed, theorizing the dispersal of population and the abolition of the town–country antithesis is incomprehensible in academic literature, even when authors, such as Newman and Kenworthy (1999), acknowledge that modern cities are not sustainable. Other examples of the conceptual hegemony of cities were referenced above in the body of the text (e.g., Jacobs, 1961). For the conclusion, it is enlightening to consider an extreme case found in Charles Perrow’s (2007) *The Next Catastrophe*. On one hand, Perrow clearly makes the alarming argument that high urban densities increase the vulnerability of modern society to natural and human-induced disasters. On the other hand, nevertheless, he writes, “depopulating New York City is not an option” (Perrow, 2007, p. 68). While population concentration in urban areas, according to Perrow, is one of three root sources of vulnerability for modern society, he does not even allow for the possibility of dispersing the population of New York City, the most densely settled city in the United States. The tension between urban density as a source of vulnerability and urban density as an unquestionable social–spatial fact is not adequately resolved in his book. Instead, Perrow writes, “Many spatial dependencies are so thoroughly built into our constructed environment that little can be done about them” (p. 298). According to Perrow, there is nothing we can directly do about this particular root source of vulnerability. Rather than presenting a fundamental critique of modern cities, Perrow prefers, as I described above, a gradual approach to theorizing a solution to the socioecological problems of cities. This gradual approach, however, does not allow us to escape from the conceptual dilemma in which cities are seen as both the source of and the solution to modern society’s environmental problems.

In light of the conceptual hegemony of modern cities, it is not surprising that one of the more focused socioecological analyses of the town–country antithesis was accomplished in *News From Nowhere* (Morris, 1970), a utopian novel written over a century ago (Clark, 2003; Foster, 1998).

Theorizing the transformation of the urban–rural divide seems to require a degree of utopian thinking (see also, Ebenezer Howard’s [1902] *The Garden Cities of To-morrow*). Without utopian thinking, it appears that social scientists, such as Perrow, find no use in theorizing radically different spatial relations because “little can be done about them.” But, as Marx and Engels recognized, and as some social scientists would later (e.g., Burkett, 1999; Clark, 2003; Foster, 1999; Harvey, 1982; Mancus, 2007; Smith, 2008), spatial relations are interrelated with social relations. To understand spatial relations, we must examine social relations, and vice versa. Marx and Engels incorporated this sociospatial analysis into their own vision of communism, arguing for “a gradual abolition of the distinction between town and country, by a more equable distribution of population over the country” (as cited in Foster, 2009, p. 221). In *The Housing Question*, Engels (1935) further developed this insight. He argued that a theory of transformation in spatial relations (e.g., the abolition of the town–country antithesis) requires a theory of transformation in social relations (e.g., the abolition of capitalism); the former being “no more and no less utopian” than the latter.

I conclude by addressing the urban challenges of envisioning a “real utopia.” Indeed, due to the conceptual hegemony of modern cities, any theory about abolishing the town–country divide has been effectively framed as utopian in the pejorative sense, as an irrational dream disconnected from practical circumstances (Burawoy, 2005; Wright, 2010). But the planetary boundaries being crossed in the carbon and nitrogen cycles (Rockström et al., 2009), and the entire ecological rift now confronting modern human society (Foster et al., 2010), require a dramatically different understanding of socioecological relations, that is, a utopian analysis in the positive sense (Burawoy, 2005; Wright, 2010). With the framework of metabolic rift theory, an interdependent understanding of urban development encourages a positive “real utopian” theory of socioecological relations. Again, the ecological footprint concept, an example of interdependent development (Brookfield, 1975), is an important part of this project as it highlights the use value of the planet’s resources (Amin, 2009). Furthermore, as the above analysis emphasized, the footprint concept presents a challenge to modern urbanization and the antithesis between town and country. This means, against the wishes of many social and natural scientists, “a strong plea against cities” (van den Bergh & Grazi, 2010, p. 4844), a healthy dose of “anti-urbanism” (Newman, 2006, p. 286), and lively discussion about “the systematic dismantling of cities” (Newman & Kenworthy, 1999, p. 17). To avoid this discussion, of course, would not provide a utopian frame of analysis. In fact, in the context of capitalist society, the socioecological consequences of urbanization are threatening the sustainability of human society. In this sense, modern urbanization is crossing planetary boundaries, and pushing the modern world not toward a real utopia but toward a *real dystopian* future.

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Notes

1. Burkett (1999) also provides a helpful discussion of Marx and Engels’s ecological analysis of the antithesis between town and country under capitalism. Nevertheless, unlike Foster, Burkett does not develop a systematic theory that recognizes the antithesis as a central concept.
2. The theme of the American Sociological Association 2012 Annual Meeting is “Real Utopias: Emancipatory Projects, Institutional Designs, Possible Futures.”
3. In this section, I am arguing that sociologists have not critically examined the socioecological relations of modern cities. Nevertheless, I am aware that there are examples in which sociologists have directly,

but briefly, theorized the negative environmental impacts of urbanization (e.g., Anderson, 1976) and population density (e.g., Catton, 1980). Meanwhile, there are numerous examples of urbanization being used as an independent variable in regression models to examine the sociological drivers of environmental degradation (e.g., Jorgenson, Rice, & Clark, 2010; York, 2008).

4. Davis is not the only critical urban scholar who makes this environmental argument. For instance, Sassen and Dotan (in press) write, "While there is a debate and the variability of cities makes it difficult to generalize, it is most likely the case that cities are more efficient and cause less collateral environmental damage per-capita than suburbs or rural areas."
5. Traditional human-ecological studies of society–nature relations fail to appreciate the sociohistorical context (York & Mancus, 2009). For instance, even though Catton (1980) distinguishes between population pressure and density, he likens the environmental effects of a growing human population to air pressure being increased either through adding more air molecules or through the heating of the air molecules already in place. For Catton, urbanization is represented by the latter. As such, he is proposing a trans-historical environmental analysis of urbanization.
6. The social construction of rural and urban is also discussed in Cronon's (1992) environmental history of Chicago. In the same tone as Williams (1973), Cronon (1992) writes, "Chicago had become 'urban,' spawning belching smokestacks and crowded streets, at the same time that the lands around it became 'rural,' yielding not grass and red-winged blackbirds but wheat, corn, and hogs" (p. 7). Nevertheless, in terms of the rural–urban divide, Cronon's analysis is similar to that of Smith and Harvey, highlighting how urban and rural residents express distinct moral economies. Furthermore, despite the uneven socioecological impacts of Chicago's growth detailed by Cronon, he ultimately prefers to see the relationship between town and country in functionalist terms, as a synergistic unity. For Cronon, the social–psychological dimensions of the rural–urban divide are antagonistic, whereas the material dimensions are not antagonistic. This is similar to how other urban historians have described the *medieval* rural–urban divide as a "synergism" (Katznelson, 1992, p. 163; see also Bookchin, 1974, and Mumford, 1961).
7. Parshall et al. (2010) provide a wide range of estimates of urban fossil fuel use, depending on the definition of "urban" being used. American cities consume anywhere between 37% and 86% of all fossil fuel use by buildings and industry; they also consume between 37% and 77% of total transportation fossil fuel. These authors prefer the urban definition provided by Isserman (2005), which is based on "county character." According to Isserman's typology, 60% of the U. S. population lives in urban and mixed-urban counties. This is much less than the 78% living in urban counties according to the U.S. Census Bureau, or the 83% living in metropolitan counties according to the U. S. Department of Agriculture. Isserman's typology generates the lowest estimates of carbon emissions from urban counties, the 37% estimates noted above.
8. Schneider and McMichael (2010) acknowledge that modern soil science has advanced considerably since Marx and Engels's time. Nevertheless, they use more recent scientific knowledge to argue that Marx's concept of metabolic rift is flawed. In making this argument, however, Schneider and McMichael understate the scientific validity of Marx's original understanding of the soil–nutrient cycle, thereby misrepresenting the connection between the rift in the soil–nutrient cycle and the antithesis between town and country. For example, they write,

For Marx to be correct that the capitalist town–country division of labour caused soil depletion because humans were separated from the soil, humanure would have to have been the most important material for maintaining fertility in pre-industrial or precapitalist agriculture. (Schneider & McMichael, 2010, p. 471)

Consequently, the argument made by Schneider and McMichael is a "red herring," diverting attention away from the facts that (a) precapitalist agriculture fundamentally relied on the recycling of humanure (e.g., Harvey, 1996; Mumford, 1961) and (b) the town–country division is still a primary cause of the rift in the soil–nutrient cycle (Magdoff, 2011).

References

- Amin, S. (2003). World poverty, pauperization, & capital accumulation. *Monthly Review*, 55, 1-9.
- Amin, S. (2009). Capitalism and the ecological footprint. *Monthly Review*, 61, 19-22.
- Anderson, C. H. (1976). *The sociology of survival: Social problems of growth*. Homewood, IL: Dorsey Press.
- Araghi, F. A. (1995). Global depeasantization, 1945-1990. *Sociological Quarterly*, 36, 337-368.
- Araghi, F. A. (2000). The great global enclosure of our times: Peasants and the agrarian question at the end of the twentieth century. In F. Magdoff, J. B. Foster, & F. H. Buttel (Eds.), *Hungry for profit: The agribusiness threat to farmers, food, and the environment* (pp. 145-160). New York, NY: Monthly Review Press.
- Ashton, P. J. (1984). Urbanization and the dynamics of suburban development under capitalism. In W. K. Tabb & L. Sawers (Eds.), *Marxism and the metropolis: New perspectives in urban political economy* (2nd ed., pp. 54-81). New York, NY: Oxford University Press.
- Bagchi, A. K. (2005). *Perilous passage: Mankind and the ascendancy of capital*. Lanham, MD: Rowman & Littlefield.
- Bettencourt, L., & West, G. (2010). A unified theory of urban living. *Nature*, 467, 912-913.
- Bookchin, M. (1974). *The limits of the city*. New York, NY: Harper & Row.
- Braverman, H. (1975). *Labor and monopoly capital: The degradation of work in the twentieth century*. New York, NY: Monthly Review Press.
- Brookfield, H. C. (1975). *Interdependent development*. Pittsburgh, PA: University of Pittsburgh Press.
- Burawoy, M. (2005). The critical turn to public sociology. *Critical Sociology*, 31, 313-326.
- Burkett, P. (1999). *Marx and nature: A red and green perspective*. New York, NY: St. Martin's Press.
- Catton, W. R., Jr. (1980). *Overshoot: The ecological basis of revolutionary change*. Urbana: University of Illinois Press.
- Clark, B. (2003). Ebenezer Howard and the marriage of town and country: An introduction to Howard's *Garden Cities of Tomorrow* (Selections). *Organization & Environment*, 16, 87-97.
- Clark, B., & Foster, J. B. (2006). 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*. *Organization & Environment*, 19, 375-388.
- Clark, B., & York, R. (2005). Carbon metabolism: Global capitalism, climate change, and the biospheric rift. *Theory and Society*, 34, 391-428.
- Clement, M. T. (2009). A basic accounting of variation in municipal solid waste generation at the county-level in Texas, 2006: Groundwork for applying metabolic-rift theory to waste generation. *Rural Sociology*, 74, 412-429.
- Clement, M. T. (2010). Urbanization and the natural environment: An environmental sociological overview and synthesis. *Organization & Environment*, 23, 291-314.
- Clement, M. T., & Schultz, J. (in press). Political economy, ecological modernization and energy use: A panel analysis of state-level energy use in the United States of America, 1960-1990. *Sociological Forum*.
- Cronon, W. (1992). *Nature's metropolis: Chicago and the great West*. New York, NY: Norton.
- Davis, M. (2006). *Planet of slums*. London, England: Verso.
- DeFries, R. S., Rudel, T., Uriarte, M., & Hansen, M. (2010). Deforestation driven by urban population growth and agricultural trade in the twenty-first century. *Nature Geoscience*, 3, 178-181.
- Dodman, D. (2009). Blaming cities for climate change? An analysis of urban greenhouse gas emissions inventories. *Environment & Urbanization*, 21, 185-201.
- Dybas, C. L. (2005). Dead zones spreading in world oceans. *BioScience*, 55, 552-557.
- Engels, F. (1935). *The housing question*. New York, NY: International Publishers.
- Fiala, N. (2008). Measuring sustainability: Why the ecological footprint is bad economics and bad environmental science. *Ecological Economics*, 67, 519-525.
- Folke, C., Jansson, Å., Larsson, J., & Costanza, R. (1997). Ecosystem appropriation by cities. *Ambio*, 26, 167-172.

- Foster, J. B. (1998). William Morris's letters on Epping Forest: An introduction. *Organization & Environment*, 11, 90-92.
- Foster, J. B. (1999). Marx's theory of metabolic rift: Classical foundations for environmental sociology. *American Journal of Sociology*, 105, 366-405.
- Foster, J. B. (2009). *The ecological revolution: Making peace with the planet*. New York, NY: Monthly Review Press.
- Foster, J. B., Clark, B., & York, R. (2010). *The ecological rift: Capitalism's war on the planet*. New York, NY: Monthly Review Press.
- Gordon, D. M. (1984). Capitalist development and the history of American cities. In W. K. Tabb & L. Sawers (Eds.), *Marxism and the metropolis: New perspectives in urban political economy* (pp. 21-53). New York, NY: Oxford University Press.
- Grazi, F., van den Bergh, J. C. J. M., & Rietveld, P. (2007). Spatial welfare economics versus ecological footprint: Modeling agglomeration, externalities and trade. *Environmental & Resource Economics*, 38, 135-153.
- Grimm, N. B., Faeth, S. H., Golubiewski, N. E., Redman, C. L., Wu, J., Bai, X., & Briggs, J. M. (2008). Global change and the ecology of cities. *Science*, 319, 756-760.
- Haines, M. R. (2001). The urban mortality transition in the United States, 1800-1940. *Annales de Démographie Historique*, 1, 33-64.
- Harvey, D. (1982). *The limits to capital*. Chicago, IL: University of Chicago Press.
- Harvey, D. (1985). *The urbanization of capital: Studies in the history and theory of capitalist urbanization*. Baltimore, MD: Johns Hopkins University Press.
- Harvey, D. (1996). *Justice, nature, & the geography of difference*. Oxford, England: Blackwell.
- Howard, E. (1902). *Garden cities of to-morrow*. London, England: Swan Sonnenschein.
- Humphrey, C. R., Lewis, T. L., & Buttel, F. H. (2002). *Environment, energy, and society: A new synthesis*. Belmont, CA: Wadsworth Thomson Learning.
- Imhoff, M. L., Bounoua, L., DeFries, R., Lawrence, W. T., Stutzer, D., Tucker, C. J., & Ricketts, T. (2004). The consequences of urban land transformation on net primary productivity in the United States. *Remote Sensing of Environment*, 89, 434-443.
- Isserman, A. M. (2005). In the national interest: Defining rural and urban correctly in research and public policy. *International Regional Science Review*, 28, 465-499.
- Jacobs, J. (1961). *The death and life of great American cities*. New York, NY: Random House.
- Jorgenson, A. K., Rice, J., & Clark, B. (2010). Cities, slums, and energy consumption in less-developed countries, 1990-2005. *Organization & Environment*, 23, 189-204.
- Katznelson, I. (1992). *Marxism and the city*. Oxford, England: Clarendon Press.
- Kaye, J. P., Groffman, P. M., Grimm, N. B., Baker, L. A., & Pouyat, R. V. (2006). A distinct urban biogeochemistry? *Trends in Ecology & Evolution*, 21, 192-199.
- Logan, J. R., & Molotch, H. L. (1987). *Urban fortunes: The political economy of place*. Berkeley: University of California Press.
- London, B., & Smith, D. A. (1988). Urban bias, dependence, and economic stagnation in noncore nations. *American Sociological Review*, 53, 454-463.
- Magdoff, F. (2011). Ecological civilization. *Monthly Review*, 62, 1-25.
- Mancus, P. (2007). Nitrogen fertilizer dependency and its contradictions: A theoretical exploration of social-ecological metabolism. *Rural Sociology*, 72, 269-288.
- Merrington, J. (1975). Town and country in the transition to capitalism. *New Left Review*, 93, 71-92.
- Moore, J. W. (2003). The *Modern World-System* as environmental history? Ecology and the rise of capitalism. *Theory and Society*, 32, 307-377.
- Moore, J. W. (2011). Ecology, capital, and the nature of our times: Accumulation & crisis in the capitalist world-ecology. *Journal of World-Systems Research*, XVII, 107-146.
- Morris, W. (1970). *News from nowhere*. London, England: Routledge & Kegan Paul.

- Mumford, L. (1961). *The city in history: Its origins, its transformations, and its prospects*. New York, NY: Harcourt, Brace & World.
- Newman, P. (2006). The environmental impact of cities. *Environment & Urbanization*, 18, 275-295.
- Newman, P., & Kenworthy, J. R. (1999). *Sustainability and cities: Overcoming automobile dependence*. Washington, DC: Island Press.
- Parshall, L., Gurney, K., Hammer, S. A., Mendoza, D., Zhou, Y., & Geethakumar, S. (2010). Modeling energy consumption and CO2 emissions at the urban scale: Methodological challenges and insights from the United States. *Energy Policy*, 38, 4765-4782.
- Pataki, D. E., Alig, R. J., Fung, A. S., Golubiewski, E., Kennedy, C. A., McPherson, E. G., . . . Romero Lankao, P. (2006). Urban ecosystems and the North American carbon cycle. *Global Change Biology*, 12, 2092-2102.
- Paul, M. J., & Meyer, J. L. (2001). Streams in the urban landscape. *Annual Review of Ecology and Systematics*, 32, 333-365.
- Perrow, C. (2007). *The next catastrophe: Reducing our vulnerabilities to natural, industrial, and terrorist disasters*. Princeton, NJ: Princeton University Press.
- Rees, W. E., & Wackernagel, M. (1996). Urban ecological footprints: Why cities cannot be sustainable and why they are a key to sustainability. *Environmental Impact Assessment Review*, 16, 223-248.
- Rice, J. (2008). The urbanization of poverty and urban slum prevalence: The impact of the built environment on population-level patterns of social well-being in the less developed countries. In J. J. Kronenfeld (Ed.), *Research in the sociology of health care: Vol.26. Care for major health problems and population health concerns: Impacts on patients, providers, and policy* (pp. 205-234). Amsterdam, Netherlands: Elsevier.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., III, Lambin, E. F., . . . Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461, 472-475.
- Sassen, S., & Dotan, N. (in press). Delegating, not returning, to the biosphere: How to use the multi-scalar and ecological properties of cities. *Global Environmental Change*.
- Schnaiberg, A. (1980). *The environment: From surplus to scarcity*. New York, NY: Oxford University Press.
- Schneider, M., & McMichael, P. (2010). Deepening, and repairing, the metabolic rift. *Journal of Peasant Studies*, 37, 461-484.
- Shandra, J., London, B., & Williamson, J. B. (2003). Environmental degradation, environmental sustainability, and overurbanization in the developing world: A quantitative, cross-national analysis. *Sociological Perspectives*, 46, 309-329.
- Smith, N. (2008). *Uneven development: Nature, capital, and the production of space*. Athens: University of Georgia Press.
- van den Bergh, J., & Grazi, F. (2010). On the policy relevance of ecological footprints. *Environmental Science & Technology*, 44, 4843-4844.
- Vitousek, P. M., Mooney, H. A., Lubchenco, J., & Melillo, J. M. (1997). Human domination of Earth's ecosystems. *Science*, 277, 494-499.
- Williams, R. (1973). *The country and the city*. London: The Hogarth Press.
- Wright, E. O. (2010). *Envisioning real utopias*. London, England: Verso.
- York, R. (2008). De-carbonization in former soviet republics, 1992-2000: The ecological consequences of de-modernization. *Social Problems*, 55, 370-390.
- York, R., & Mancus, P. (2009). Critical human ecology: Historical materialism and natural laws. *Sociological Theory*, 27, 122-149.

Bio

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