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## Beneath and Beyond the Sustainable City

In Charlotte, North Carolina, commuters zip along a sparkling new light rail system into a booming downtown district.

In Sacramento, California, construction workers hammer away at the next generation of green buildings.

And in New York City, rush-hour commuters pedal across popular bike paths that have spread like kudzu across the metropolis.

Those snapshots from cities across America offer a glimpse of the future.

John Blake, CNN

In what has been proclaimed as the rise of an urban age by many scholars, journalists and politicians, cities are often described as harbingers of a better, more sustainable, and socially just future. Urbanists, encouraged in their craft by this euphoria, watch in amazement as the post-industrial city triumphs over nature, this time *with* nature (Farr). Bicycle urbanism, salvaged factories-turned-condominiums, and green rooftop gardens are presented to us by urban planners and designers as symptoms of a better city; one in which a green urbanism can be reconciled with the exigencies of economic growth and social justice. As I will suggest in this essay, this optimism is misplaced.

The hopes for cities to solve the social, environmental, and economic problems of the early twenty-first century loom particularly large over discourses on urban sustainability. On a rapidly urbanizing planet, it is argued, the global challenge of creating a more sustainable kind of living can best be tackled in cities and by urban actors (e.g., Brown and Dixon; *Urban Century Initiative*). US lifestyle and planning, traditionally centered on the car and the highway, have come under harsh criticism. In their stead, designers propose plans for walkable, dense and

livable cities in which changes to urban design, more efficient infrastructures and progress in information technologies hold the promise of a truly sustainable urbanism (Farr; Massengale and Dover; Speck).

Besides the widespread notion of an emerging urban era, this focus on cities can be explained by the common assumption that these are the points of origin of environmental destruction and climate change as well as the best-suited locales for their potential contestation (James). Unsustainable processes of industrialization, congestion, and sprawling spatial living arrangements are associated with processes of urbanization—as are the seemingly more sustainable counterstrategies: downtown revitalization, green urbanism, and smart city projects (Townsend; Montgomery; TED Conferences). In the specific context of the United States local governance has also been regarded, in a much longer tradition, as a particularly democratic political form to hedge against an overly interventionist state and to tap into the creativity of the local populace (Vormann and Lammert). Where else to start the green revolution than in the city?

In this dynamic debate about sustainable cities, two broader paradigms have become dominant among academics and practitioners. One camp emphasizes the need for technological improvements to design better and more efficient cities. Adherents of this school of thought assume that urban competition and commercial exchange foster scientific innovation and technological progress which, in turn, will help reduce greenhouse emissions and increase efficiency. Others, by contrast, highlight that cities need to build better spaces for human interaction. Planning greener, more dense, and more livable cities will contribute to a better social life—one that happens to also be more sustainable. As I would like to argue, both these views—which I call the *triumphant city* and the *beautiful city* lines of argumentation—are short-sighted. As I will show, both debates are not as new as it may seem and their historical precedents do not bode well for a more sustainable urban future.

Definitions of sustainability commonly consist of an environmental, a social, and an economic component. Sustainable development is seen as that overlapping political space, where these three elements are in equilibrium. This implies more generally that the objective of environmental friendliness needs to be complemented by concerns for social justice and economic growth. Even measured against its own principles,

this mainstream normative horizon is not accounted for in current discussions about urban sustainability.

This essay formulates an immanent critique of existing discourses on urban sustainability, and provides a third analytical perspective—beyond the triumphant and the beautiful city—that seeks to shed light on problematic blind spots in these debates. Whereas urban planners and designers in the United States put their hopes for a sustainable city in technological innovation and a renewal of the public realm, these approaches are based on a two-dimensional account of sustainability that either ignores social relations altogether or shrinks them down to immediate face-to-face interactions in the city. Instead, I propose to address questions of urban sustainability through the lens of infrastructure, thereby shifting the focus to social relations that transcend, but at the same time are necessary to sustain urban agglomerations.

I will make this argument in three steps. In the two subsequent sections, I will present and critique the logic of existing urban sustainability discourses. I point out historical parallels to the early-twentieth-century city-beautiful and city-efficient movements, which worked along similar argumentative lines and which came with similar shortcomings. These debates, too, focused on efficiency and aesthetics—and they also lost social questions out of sight. In the third section, I suggest a third dimension to sustainability discourses. In taking an infrastructural perspective to urban sustainability discourses, I argue, we can shed light on the benefits and costs of sustainable urban development and repoliticize debates about urban sustainability.

### The Triumphant City: Making the City More Efficient

One school of commentators in today's debates on urban sustainability expects cities to be the places for positive change to happen because of their potential for innovation and efficiency increases. As is argued in this debate—which I call the *triumphant city* debate in reference to what is perhaps the most well-known publication in this context: Edward Glaeser's book *Triumph of the City* (2011)—, one of the key features of cities are agglomeration effects. Cities are sites where politicians, entrepreneurs, and researchers meet and closely interact. For that reason, cities are seen as the sites where innovations are made; innovations that

are supposed to help us lead more efficient and productive lives and that render our societies more sustainable, or so the argument goes.

This line of argumentation is not at all as new as it might seem at first glance. Its *locus classicus* is Adam Smith's oft-cited book *The Wealth of Nations*. For Smith, too, spatial proximity and close interaction were the keys to social progress. In *The Wealth of Nations*, Smith argues that the division of labor, the "extent of the market," determined the degree of labor specialization and thereby the advancement of society (Smith 21). In cities, where transportation and communication is safe and cheap, markets can extend, labor can specialize, and productivity is increased (21-22). Commercial exchange, in turn, also produces "improvements of art and industry" and "cultivation" (23). In short, in facilitating interaction between merchants—the predecessors of today's entrepreneur, that Smith saw as the real agents of wealth and economic growth (Blyth 107)—cities are the nodal points of social progress.

This eighteenth-century view of urban progress was complicit in provoking nineteenth-century urban crisis. It was embedded in the thought and rhetoric of the enlightenment era and part of a larger political argument for markets and for "capitalism before its triumph" (Hirschmann). It was expounded and repeated by liberal commentators in the course of the nineteenth century in order to legitimate the expansion of markets into all spheres of life and, more precisely, to give meaning to the social upheavals produced by the industrial revolution. In the United States, these first iterations of the triumphant city argument took a new turn around the close of the twentieth century, when the dust raised by the industrial revolution began to settle. US cities at the time provided a perfect illustration of what Karl Polanyi later described as the dangers of "disembedded" markets: Commodifying the environment, labor, and capital—thereby turning them into "fictitious" commodities—undermined social cohesion and endangered social reproduction (Polanyi 76).

The central goal of state and private actors in late nineteenth-century cities was to increase the competitiveness of their city—with little consideration for the social effects of their actions. This pronounced orientation toward the market and a lack of regulatory institutions on the local scale boosted urban growth and had drastic social and environmental repercussions. In addition to rampant inequalities, freewheeling market rule led to environmental degradation. Moreover, the unprecedented

expansion of urban populations across existing jurisdictional boundaries led to a mismatch between political capacities and responsibilities (Brenner, “Decoding”). In short, at the beginning of the twentieth century it became obvious that the institutional apparatus to guide growth was severely lacking. Cities and municipal institutions needed to be reorganized and reformed to encompass and account for a new (territorial) organization of society.

Civic reactions that these multiple urban crises provoked anticipate some of today’s arguments a hundred years before the concept of the “sustainable city” became fashionable. Between 1900 and 1930, economic elites of Chicago and New York City—most affected by labor’s crisis of reproduction—attempted to develop growth plans for the entire metropolitan region. The Plan of Chicago (1909) and the “Regional Plan of New York and its Environs” (1929) bear witness to these attempts of creating more efficient cities by modernizing infrastructures and taking new approaches to urban growth on a regional scale (Fishman). While Smith’s argument had been one for the extension of markets to foster progress and improvement, the city-efficient movement was an attempt to hold on to this rationale in the light of a perfectly successful market— one so radically successful that it undermined its own conditions of possibility.

The *city-efficient movement* of the early twentieth century, a precursor of the *triumphant city* argument, then, can be regarded as part of a “double movement”—to stick with Polanyi’s terminology—to try and cope with the negative outgrowths of unfettered industrialization processes, without addressing its underlying dynamics. Urban economic and political elites in the two leading US cities of the time, New York City and Chicago, argued for a more efficient exploitation of resources. Based on Taylorist forms of scientific management, the adherents of the city-efficient movement called upon specialized technocrats and experts to guide economic growth and to do away with inefficient and wasteful practices. In developing the right types of technology and design, and in creating leaner public governance structures, they argued, urbanization processes could be optimized in a way to foster business and render cities even more competitive and productive.

Today’s debates about sustainability mobilize similar tropes of the efficient city. Again, these propositions are made against the backdrop of multiple crises. Over the course of the past thirty years, given a dras-

tic expansion of markets in all arenas of social life, inequalities have steadily increased, the environmental crisis has turned global, and jurisdictional problems are no longer limited to the boundaries of the city but extend to the regional, and, as we will see, even to the planetary scale. And again, economic and political elites—in and beyond the municipality—see cities not just as the sites where these crises unfold, but also where they can be tackled.

Echoing Adam Smith's thesis that cities were the hubs of civilizing progress, contemporary proponents of the *triumphant city* believe that exchange between elite actors and decision-makers will benefit from their physical proximity and urban dynamism—from the possibility of matching research with capital and business-friendly policies—to come up with and implement smart technology and share best practice models through inter-city networks and thereby find solutions to render cities more sustainable. In this vein, Bruce J. Katz and Jennifer Bradley believe that a "metropolitan revolution" will lead to the technological innovations necessary to meet the environmental challenges of the twenty-first century. Like them, Edward Glaeser believes that cities are—and have been since at least the renaissance—sites of "innovation explosions" (8). Letting the free market and innovative entrepreneurs take over urban development, this is the unequivocal subtext of this argument, will create a more efficient and thereby more sustainable city.

This hope in agglomeration effects is coupled with a firm belief in technological progress. Notably, big data analyses are supposed to improve resource allocation and diminish congestion in cities. Smart technology and a more accurate calculation of flows of humans and cargo are seen as a way to facilitate better land utilization and a more efficient use of scarce resources. Corporations such as Siemens or IBM, for instance, have pioneered the developments of telematics technologies to optimize urban processes. Anthony Townsend argues that this symbiosis between cities and information technologies has a long history that dates back to the ancient world and leads up to today's cyber-city-life. According to him, rather than effacing space and making cities obsolete—a fear and hope dominant through the post-Cold War 1990s—technology makes cities thrive. "The digital revolution didn't kill cities," Townsend argues: "In fact, cities everywhere are flourishing because new technologies make them even more valuable and effective as face-to-face gathering places" (7). Put differently, information technologies do not just

not destroy, they even improve city living—and have been doing so for centuries.

The pervasive emphasis on efficiency might ring a not so distant bell for those who have studied changing state-market relations and neoliberalism. Indeed, eulogies on big data and better design are sometimes simply placeholders for much older debates on the superiority of the market vis-à-vis the state. We hear, there, the echoes of arguments in favor of the efficient-market hypothesis, the critique of central planning, and the democratic nature of markets as they have been formulated in the liberal tradition. It is not surprising, then, that the political right weighs in on this debate. In a book praised by Rahm Emanuel, Newt Gingrich and other conservative pundits and politicians, Goldsmith and Crawford, for instance, see the digital revolution in cities as a way to reform the federal government's "layers of bureaucracy, inflexible rule applications, redundant multiple agency involvement in a single transaction, and tone deafness to citizens"(Goldsmith and Crawford 5). Today's digital instruments, they argue, "can collect, analyze, and share information so efficiently, these technologies push both government and its constituents to focus on results rather than compliance" (8).

Agglomeration effects, the market mechanism, and technological progress are the three pillars of the triumphant city debate—but the salutary role of technology is central to all of them. Evgeny Morozov has coined the term "technological solutionism" to describe the credulous outlook with which many discourses on social progress approach the potential of technological innovation. What he emphasizes is that technological solutionism offers solutions for problems that had not existed prior to their cure (Morozov). But there is a more dangerous aspect to the technophile vantage point as well and we see it most prominently in the triumphant city debate: technological solutionism obscures social relations and depoliticizes debates about social development. Similar to the city-efficient movement in the early twentieth century, it delegates technical questions to specialized experts and technocrats, thereby impoverishing public debate. Its moot point is its obsession with efficient technologies that leaves more deep-seated causes of unsustainable development such as economic and political inequalities or tendencies of urban splintering unaddressed.

## The Beautiful City: Hopes for a New Public Sphere

If the city-efficient movement was one reaction to the crisis of reproduction in US cities of the early twentieth century, it was not the only one. Its sole focus on efficiency and its lack of a reform perspective were indeed criticized by a second movement that gathered momentum around the turn of the century: the city-beautiful movement. Proponents of this movement equally sought to attenuate the miserable conditions of the urban labor force and to address the environmental crisis in the cities. They were inspired by the reform movement of the late nineteenth century and the garden city movement and sought both smaller scale urban arrangements under a regional institutional umbrella and the beautification of cities through the construction of parks, esplanades, and monumental buildings (Wilson).

Advocates of the city-beautiful movement held that this type of reform also had a political dimension. The beautification of cities would restore social peace and result in a more harmonious social order that would enhance the quality of life for urban residents. Arguably, one reason why this movement was able to leave an imprint in political decision-making—also on the above-mentioned plans for Chicago and New York City—was that it resonated with the interests of urban business elites. They, too, sought for strategies to reproduce the labor force and to pacify social relations. But it was precisely this convergence that made the potential political thrust of the city-beautiful movement vulnerable to cooptation. This is why both the city-efficient movement and the city-beautiful movement have come under attack for eliding actual social reform (Schönig).

A similar argument can be made for today's version of the city-beautiful movement. The paradigmatic site to make such an argument about depoliticized aesthetic development strategies in US cities is the post-industrial waterfront. In the US context, owed to historical patterns of colonial expansion along the rivers and coasts, waterfront revitalization has been more extensive than elsewhere (Tunbridge 88). By the 1000s, waterfront redevelopments became a "seemingly ubiquitous process in urban North America," granting it the status of a new planning paradigm (Sieber 120). Like the city-beautiful movement, architects and urban planners who pushed for waterfront redevelopments over the course of the past three decades have sold it as a countermovement

to the negative outgrowths of industrialization. Indeed, these developments are until today even understood by many as the complete reversal of industrialization: Where once manufacturing industries and shipyards soiled the ground and polluted air and water, today livable waterfront parks and esplanades seam the shorelines of New York City, Chicago, and Los Angeles (Vormann, *Cities*, ch. 5).

Waterfront developments have become a global tool to secure capital investments in inner-city neighborhoods and to attract a new clientele of residents and visitors to these formerly “abandoned” and “unsavoury, run-down and neglected areas” (Hoyle 14). As in the early twentieth century, the hope is that revitalized parkland will lead to civic virtues—a new public sphere. “These sites, being adjacent to water, now offer us unique opportunities,” argues Richard Marshall, former professor of Urban Design at the Harvard Design School in an essay about urban space-making on the water’s edge (Marshall 7). Concurring with Marshall’s assessment, and with the assessments of many other city planners and landscape architects, President of the Friends of Hudson River Park Albert K. Butzel concludes that “[a]fter one hundred fifty years, the waterfront has become the public’s domain again – and an extraordinary one” (5). In addition to being more visible and more representative of the city, Raymond Gastil even maintains that the post-industrial waterfront, as the “paradigmatic site for the future of public life”, forestalls developments to come; for him, it is an integral part of the “history of the future” (19; 192).

But these discourses of urban beautification and its civic virtues, like their early twentieth century antecedents, are incomplete and flawed. To be certain, one can argue that industrial waterfronts were highly polluted, that hiring practices on the docks of the 1950s and 1960s were corrupt, and that corruption on these sites had a tendency to breed crime (see Vormann, *Cities*, ch. 3 and 4). Yet, if we think that contemporary American global cities are more sustainable, less corrupt and less dangerous or, put differently, that the pathologies of the industrial city have been overcome we fall victim to a fallacy: even if the post-industrial waterfront were not only commercially successful, but also sustainable, equitable, and open, a perspective limited to the post-industrial waterfront—or to any other single space, for that matter—as a litmus test for the social development of the entire city (as which it is often presented in the urban sustainability debate) is still inadequate. We

have to move beyond and beneath existing sustainability discourses in order to grasp wider material processes that facilitate urban development, but that are much less sustainable than a focus limited to isolated, individual places might suggest. The debate about the open city constitutes a first step in this direction, even though it displays some of the weaknesses of the sustainable city debate.

## The Open City

The notion of the open city stands in the tradition of Jane Jacobs. It comes with the same potentials and pitfalls as her work. Jacobs's writings, too, have a socially emancipatory dimension on the level of the individual but restrict the analytical vision to individual places and people. Jacobs was an outspoken critic of the city beautiful movement, but her propositions were similarly vulnerable in this particular respect. For this reason, the perspective she took is easily absorbed in a market framework—even more so: it paves the way for unsustainable processes of marketization. I will show that the same danger exists for the open city.

For Jacobs, great cities are concentrated, diverse, and attuned to the real needs of their inhabitants (15). City-dwellers of great cities can enjoy public life and sidewalk safety. Great cities account for complexity and celebrate diversity. They face this complexity not with paternalistic central planning approaches but flexible solutions on the micro- scale. This is because of a “ubiquitous principle”—one that Smith would have described as the division of labor and others, simply, as the market—and that is “the need of cities for a most intricate and close-grained diversity of uses that give each other constant mutual support, both economically and socially” (14).

Indeed, “sprawling municipal government's separate administrative empires” (407) do not fail to deal appropriately with metropolitan complexity out of bad faith— “there is no villainy responsible for this situation” (407). With their organizational setup, they are simply incapable of managing a qualitatively new type of complexity. This is because

"[r]outine, ruthless, wasteful, oversimplified solutions for all manner of city physical needs (let alone social and economic needs) *have* to be devised by administrative systems which have lost the power to compre-

hend, to handle and to value an infinity of vital, unique, intricate and interlocked details." (408)

Jacobs dismantles the utopias of the garden city and the city-beautiful movement. But she replaces them with her own utopian vision; one that is not necessarily more emancipatory. Because planners, even if well-meaning, cannot know the "innate, functioning order" of a place, according to Jacobs, they need to let "diversity" reign supreme (14). Rather than getting in the way of the "spontaneous force of self-diversification", the "new aristocracy of altruistic planning experts" needs to step back. Planners need to yield to the forces of "self-diversification" which Jacobs sees as "possibly the greatest regenerative forces inherent in energetic American metropolitan economies" (289; 290).

To be sure, at her time, her caustic critique of displacement clearly followed a progressive impulse. She spoke up for a more democratic city. One not governed by self-interested officials following unquestioned, preconceived ideals of the "pseudoscience of city rebuilding and planning" in which the "dishonest mask of pretended order" was "achieved by ignoring or suppressing the real order that is struggling to exist and to be served" (13; 15). But at the same time, her influential writings paved the argumentative way for the neoliberalization of cities. Her staunch position against government planning, her belief in self-healing forces of diversification, and the focus on the micro-scale neighborhood are matched by the decentralizing tendencies of markets.

Not unlike Jacobs's understanding of urban complexity, the concept of the open city, too, understands cities as "system[s] in unstable evolution" (Sennett, "City" n. pag.). This emphasis on the becoming and on the processual nature of cities constitutes an attempt to overcome urban planning traditions dominated by overdetermined forms and closed systems, and is analogous to Jacobs's distinction between complexity and diversification. As Richard Sennett, this position's most articulate proponent, argues, "the closed system has paralysed urbanism, while the open system might free it" (Sennett, "Realm" n. pag.). Closed systems that serve only one specific function, in this logic, need to be opened up into multifunctional systems so as to unleash the potential for interaction, spontaneity, and the democratic use of public spaces. Open cities, in this sense, might be sustainable in a different way from what city-

efficient and city-beautiful proponents would suggest, as Sennett goes on to argue:

Buildings left incomplete, partially unprogrammed are structures which can truly be sustainable in time; the flexible building would help end the current wasteful cycle which marries construction and demolition. Asserting the value of incomplete built forms is a political act because it confronts the desire for fixity; it asserts, in steel, glass, and fiber-optic cable that the public realm is a process. (Sennett, "Realm" n. pag.)

This critique of dominant sustainability discourses highlights that the city is not a static thing. In contrast to triumphant city discourses, it shifts the focus from technology to questions of social justice and the public realm. Conceding more importance to social relations, the concept of the open city constitutes an attempt to uncover the conditions of possibility for spatial change to yield more emancipatory social outcomes. Nonetheless, the open city proposal has elective affinities with the beautiful city paradigm. Ultimately, like the beautiful city paradigm, it focuses on individual spaces and changes in the built environment as a reform strategy—and thereby tends to neglect social relations that transcend, but buttress the immediately local.

Whereas the notion of the open city constitutes a much-needed corrective for mainstream technological solutionism in that it critiques the internal contradictions of sustainability discourses, then, the focus on individual sites and projects similarly tends to limit the view from broader social relations that are much less sustainable. Moreover, I see a fundamental problem in the convergent notions of the open, evolutionary system, and the market as a tool for resource allocation. The open city can easily be coopted into market-led approaches, because it is mostly directed against central planning. Its critique of rigidity resonates with a plea for marketization. Consequently, the openness that such a regime would grant is not one of individuals on equal footing, meeting in a non-hegemonic space, but essentially skewed long before these individuals enter the public realm. Political systems of redistribution might indeed be more appropriate to address the urban challenges at stake here than any kind of urban design. Finally, and perhaps most problematically in the context of urban sustainability debates, the notion of an open system defers all political decision-making: to value the incomplete nature of urban processes opens up spaces for participation,

but if taken at face value it also bears the risk of relegating all political questions to the future or to other orders.

### Beneath and Beyond: The Infrastructural City

Cities are not algorithms. Urban sustainability debates are steeped in social relations and cannot be fully captured or improved by mathematical models. Neither will societies become more sustainable in the full (social, ecological and economic) sense of the term, if individual sites are beautified. So far, I have argued that both the triumphant city and the beautiful city debate miss the point. These lines of argumentation are mobilized in today's dominant urban sustainability debates as though they were innovations. But as I have shown, they have historical antecedents and, like them, they neglect an important dimension of sustainable development. By focusing on technological efficiency, urban design, and market-led private entrepreneurialism, these approaches lack a social dimension. The open city debate provides us with a helpful critique of dominant sustainability discourses but has its limitations because it, too, is readily compatible with marketization. Nonetheless, the open city debate has been productive in another way. It resonates with ongoing attempts to open up the debate of what a city really is and what, in turn, urban sustainability can mean. This can be the starting point for a new discussion that we already see forming in different contexts. As I would like to argue before coming to a conclusion, this new debate needs to go *beyond* and *beneath* existing urban sustainability discourses.

I am certainly not the first one to argue that cities are more than a dense agglomeration of people in one place. Saskia Sassen, for instance, builds on the process-based understanding of the open city to criticize "an 'urban focus' limited to individuals and households" and tendencies to "leave out global economic and ecological systems that are deeply involved, yet cannot be addressed at the level of households or many individual firms" (251). Her call for multi-scalar governance frameworks to address the ecological crisis through a "global regime centered in cities" is warranted and also echoes recently emerging research paradigms in urban political economy (255; 239). By this, I mean the debate on planetary urbanization (Brenner, "Theses"). Hillary Angelo and David Wachsmuth, for example, have very convincingly criticized the

perspectival shortcomings of methodological city-ism; that is, of limiting our urban (sustainability) analyses to the city-level. In an era where urbanization processes are no longer oriented toward the horizon of the city, but to the regional (Soja 679) and the planetary we need new analytical tools (Brenner, “Theory”; Brenner and Schmid). The same insight needs to be translated into our understanding of urban sustainability.

What I am proposing here is in line with this recent debate on planetary urbanization. The fact that cities are nodes of different types of flows—on which the city depends and which are facilitated in it—implies that we have to extend our notion of what a city is in order to conceptualize it as more than just a bounded entity. Debates on urban sustainability need to take these flows and metabolisms that go beyond the jurisdictional boundaries of the city into account.

Urban sustainability debates need a dimension that transcends local immediacy—a dimension that both triumphant city and beautiful city proposals lack. In this respect, I am very sympathetic to the idea of “blasting open” the container of the city as an analytical framework (Brenner, “Question”). But I see a methodological problem in doing so if this theoretical move is not qualified. The danger of reframing ‘urbanization’ as all processes related to the maintenance of cities is that this concept becomes indistinguishable from the old-fashioned notion of ‘civilization.’ To be fair, the moment of explosion—to use Henri Lefebvre’s term—is related to a moment of implosion: Cities and flows are not arbitrary but function according to specific spatial and social logics which stand in a dialectical relationship. But to harness the potential of this insight and to capture the precise social logics, which determine the dynamics of these moments, we need to be more specific. A debate on urban sustainability worthy of that name needs to go not just *beyond* but also *beneath* the city. What I am suggesting then, is that a perspective that turns our attention to the structures that enable social relations can help us link the two ‘moments’—of agglomeration and flow, of implosion and explosion—, by at the same time raising questions of social justice.

It might seem curious and perhaps overly specific to point our attention to infrastructures as an analytical solution to the methodological city-ism of dominant sustainability debates. But these structures are literally “the underlying foundation” and “basic framework” of social systems (Merriam-Webster, “infrastructure”). Infrastructures are physi-

cal, durable structures that create social patterns and that enable and constrain social processes (Angelo and Calhoun). Infrastructures are crystallized social relations, sunk costs, that create certain path dependencies for how cities and societies develop. As such, they are not just neutral technological assemblages, but both their emergence and their effects are political. In them are inscribed certain social power relations—and, in turn, they reproduce these relations. Two brief examples that address the beautiful city and the triumphal city's main tenets from an infrastructural perspective should help clarify the type of research program that I have in mind.

Post-industrial waterfronts in the United States might seem to validate the assumptions of the beautiful city proponents. If we restrict our field of vision to these spaces—as the beautiful city paradigm does—, it is true that they are more environmentally sustainable today than they had been only three or four decades ago. But this perspective ignores wider social processes that have made the post-industrial waterfront possible in the first place and that we can only grasp by shifting our view from the superficial spaces to their underlying infrastructures. The post-industrial waterfront has arisen as a utopian site from rearrangements in global production networks: Containerization and related technological and political innovations led to a spatial rearrangement of cities in which derelict old harbor sites could be redeveloped as utopian sites of a post-industrial era. At the same time that the post-industrial waterfront made its ascent as “paradigmatic site for the future of public life” (Gastil 19), the social and environmental costs of the new, post-Fordist goods-moving economy—shipping pollution from container vessels, diesel fumes from outdated port trucks, flexible working conditions for supply chain workers and other industries, to name but a few— have been externalized to the public and the environment (Vormann, *Cities*). The new infrastructural fix that enables production and consumption on a global scale is neither sustainable nor socially just (as I argue in more detail elsewhere) but it is the socio-technological pillar on which the beautiful city rests. On the post-industrial waterfront “the postmodern façade of cultural redevelopment” has become a veritable “carnival mask which covers the decline of everything else” (Featherstone 107).

An infrastructural perspective helps us understand how urban beautification is not only a question of making some places greener and more

sustainable than others: these places are part of a larger infrastructural fix in which costs are externalized and spatially relocated. A second example addresses a question which remains perhaps more implicit in the context of global logistics infrastructures. If we aim for more efficient flows to allocate resources within the city, we need to question the finality of that optimization: Efficiency for what and for whom? An infrastructural perspective, again, helps us to address related questions with a view to social relations.

Efficiency alone does not address questions of social justice. Urban infrastructures are subject to political struggle, although their technocratic appearance might suggest otherwise. What we tend to ignore if we only address questions of efficiency, is that technological innovations and infrastructural changes through the market mechanism “enroll some people and some places to premium status” and, more than that, these restructurings “often simultaneously work systematically to marginalize and exclude others from access to even basic services” (Graham and Marvin 288). For instance, high-speed rail connections between exurban airports and revitalized downtowns provide certain segments of the global middle-classes with seamless transportation, but exclude poorer populations in neighborhoods along the tracks from access. Stephen Graham and Simon Marvin’s work on splintering urbanism illustrates how the privatization of urban transportation infrastructure creates such “premium network spaces” that allow better off populations seamless mobility at the detriment of other marginalized and segregated segments of society. “Such ‘disfigured’ urban spaces thus tend to remain excluded and largely invisible within the contemporary metropolis, beyond the secured, well designed and carefully networked premium . spaces” (287). This means that we cannot simply argue, as the triumphant city discourse does, that entrepreneurial innovations in the market place will help us make cities more efficient and thereby more sustainable, without specifying who benefits and who loses.

Whereas the triumphant city debate focuses on technological efficiency gains and agglomeration economies, and the beautiful city planners call for greener urban design, both these lines of thinking narrow our perspective on urban sustainability to isolated sites. To take an infra-structural perspective means to shed light on how social processes are linked over different scales and spatial distances. By examining the infrastructures that are necessary for the production of (isolated)

postindustrial and seemingly more sustainable places in US cities, we can see how social and environmental costs are shifted to other places and externalized through mechanisms that cannot be captured by a mono-scalar and uni-spatial urban analysis. Ultimately, what this means is that what we tend to call a sustainable city today rests on systemic costs that are much less sustainable than refurbished industrial parks, remediated brownfields, and green waterfronts esplanades might suggest.

### Divide and Conquer

Not only were the city-efficient and city-beautiful movements of the early twentieth century not particularly successful: They also depoliticized debates about urban development. Leaving urban change to technocrats and experts distanced political decision-making from urban constituencies. The exclusive focus on the built form and the immediately local to create a better society—either through more efficiency or more beautiful spaces—did not and does not address larger social contexts. Both strategies are easily co-opted as governance instruments to divide and conquer. As I have suggested, an infrastructural perspective can re-politicize the debates about urban sustainability. Using infrastructure as an analytical lens helps us to overcome the fetish of the immediate and to pose the central question: who benefits and who loses from sustainable urban restructuring?

I have argued that two dominant lines of argumentation in debates about urban sustainability—the triumphant city and the beautiful city discourses—have problematic blind spots and are analytically skewed. These discourses, reproduced by powerful political actors and institutions, seem to offer new solutions to our global challenges of the twenty-first century. But they are not as new as they suggest. Like their historical antecedents, the city-beautiful and the city-efficient movement, these discourses are limited. If sustainability has an environmental, a social, and an economic component, current urban sustainability discourses fail to address these dimensions. They put too much hope in technological solutions for social problems, they focus on aesthetic questions without questioning underlying social relations, and they limit their analytical scope to proximate and direct social interaction.

Advocates of planetary urbanization, per contra, offer us ways to get beyond methodological city-ism and use an analytical framework that is more appropriate to capture urbanization processes in the current conjuncture. In this essay, I have argued that an infrastructural dimension extends our analytical grip and purchase. It offers us a new perspective that goes beyond and beneath existing debates on urban sustainability. This infrastructural prism can reveal the systemic conditions that defer costs from one set of places to other, less visible ones. The relocation of social and environmental costs is very much a political project, emanating from political decisions on various scales—and not, as current planning and design discourses tend to emphasize, the consequence of inexorable economic processes. In this sense, a more holistic approach to sustainable urban development is equally a political endeavor; one, that cannot fully fall back on technological and architectural improvement.

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