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Book review forum

Colin McFarlane, *Waste and the City: The Crisis of Sanitation and the Right to Citylife*, Verso, London, 2023, $29.95 (paperback), ISBN 9781839760549

Infrastructure, sanitation, and the splintering of modernity

Reviewed by: Matthew Gandy, *University of Cambridge, Cambridge, UK*
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In his new book *Waste and the city: The crisis of sanitation and the right to citylife* Colin McFarlane brings together many years of work on waste and sanitation, drawing in particular on his deep engagement with Indian cities, stretching back to his early experiences as a doctoral researcher over two decades ago. In certain ways, the book marks an elaboration of Henri Lefebvre's original call for the 'right to the city' (as implied in the sub-title) extended to the field of urban sanitation. Unlike Lefebvre, however, who had a poor grasp of gender-related inequalities in his work, McFarlane pivots his argument towards the specific risks faced by women and girls as a result of inadequate access to sanitation. Early in the book McFarlane states that: 'More than half of the global urban population is forced to live without safely managed sanitation' (p. 10). Yet crucially, McFarlane also notes that this is not only a challenge for the global South. Indeed, the growing scale of plumbing poverty experienced in Portland, San Francisco, and other cities is now a focus of sustained research (see Meehan et al., 2020).

McFarlane widens the scope of what we understand sanitation to be and how it connects with a myriad of other facets of urban life, including 'people, infrastructure and protest movements; animals, microbes and climate change; and institutions, land, and housing' (p. 8). This synoptic view enables McFarlane to engage with policy-oriented literature and also connect sanitation discourse to a series of wider themes. At one level the book is clearly a further elaboration of the limits to the 'modern infrastructural ideal' and builds on a range of earlier literature (see, for example, Furlong, 2014; Moss, 2008). McFarlane moves beyond the delineation of different modes of infrastructure delivery to explore the fragile constitution of modernity and of the modern state in particular. We contend with multiple situations where the state is absent, ineffectual or retreating from the realm of sanitation altogether. Indeed, the precise reasons for the global sanitation crisis are at root neither technical nor economic: intricate architectonic responses to the metabolic needs of the city clearly pre-date modernity and there is more than enough capital available to provide safe sanitation for all. In India, for example, some 46% of households lack access to an indoor toilet and 49% of the population must resort to open defecation yet the Indian Space Research Organization (ISRO) has just seen a major increase in funding (Bhattacharjee, 2025; Gattupalli, 2023).

The stubborn materiality of the global sanitation crisis highlights the glaring disconnect between

Corresponding author:
Matthew Gandy, Department of Geography, University of Cambridge, Downing Place, Cambridge, CB2 3EN, UK.
Email: mg107@cam.ac.uk

enduring forms of corporeal precarity and what McFarlane refers to as 'the seductive digitalized and automatised "smart city"' (p. 80). With the rise of artificial intelligence (AI) and new forms of algorithmic governmentality the corporeal-digital divide is likely to become even more apparent. Further transformations in the post-Fordist global economy, the emergence of increasingly bifurcated labour markets, and new patterns of geopolitical instability, including climate change induced migration, are all likely to add to the existing sanitation crisis.

In terms of advancing an analytical interface between theory and practice, McFarlane's term 'affirmative sanitation' (p. 14) is very useful. There may be a conceptual affinity with my related term 'affirmative biopolitics', especially in relation to fields such as biodiversity, landscape design, and public health (see Gandy, 2022). The word affirmative is being used here to emphasise a range of interventions that can assist with the protection of life and the creation of conditions within which life, both human and non-human, can flourish. McFarlane's definition of affirmative sanitation 'begins from the position that sanitation is a fundamental right and that it underpins the wider experience of living in the city' (p. 17). A conceptual dialogue between affirmative sanitation and affirmative biopolitics might offer an interesting slant on the wider affective and epidemiological dimensions to the multi-species city. A key theme emerging from McFarlane's book is the health impact of absent or dysfunctional sanitation infrastructure, ranging from kidney disorders to vector-borne disease. There are multiple sources of threat, including the spectre of sexual violence, that reveal how existing forms of social inequality are exacerbated by inadequate infrastructure.

How should we conceptualise the material and organisational dimensions to urban sanitation? McFarlane suggests that sanitation systems can be conceived as 'exoskeletons' (p. 28) in a conceptual formulation that aligns with ideas such as cyborg urbanisation within some of the earlier contributions to urban political ecology. The conception of sanitation as a system, or multiple intersecting systems, is intriguing here in terms of wider applications of systems thinking to the analysis of urban space that span engineering, ecology and diverse modes of governmentality.

As McFarlane notes, drawing on the work of Vinay Gidwani, the vulnerability of 'stigmatised waste workers' (p. 50) is especially pervasive where various kinds of 'dirty work' reinforce pre-existing corporeal, cultural and sensory hierarchies. In an Indian context, for example, these dynamics are heightened by the brutal intersections between class, caste and capitalist urbanisation (see Ranganathan, 2022). A key question is how authoritarian political formations can utilise existing forms of cultural difference, including stigmatised forms of corporeal differentiation, to mobilise wider ideological projects such as the persecution of Muslim minorities.

The history of urban sanitation works against teleological readings of modernity: we encounter complex and often overlapping transitions, within which we can delineate alternative modernities, sometimes only fleetingly, before the logic of capitalist urbanisation comes fully into play. A particular focus of anxiety in the nineteenth-century European city, for example, was disruption to the nitrogen cycle as human waste was increasingly flushed away in new plumbing systems rather than being redirected towards urban agricultural hinterlands for use as fertiliser. A new scientific field of 'urban chemistry' became aligned with early anxieties over 'metabolic rift' and fears about the environmental consequences of both urbanisation and capitalist agriculture. Even Joseph Bazalgette, as McFarlane point outs, who oversaw the transition to a modern integrated sewer system for London, worried about how the nitrogen cycle might be retained under modern engineering systems, though he could find no viable solution to this conundrum.

As McFarlane notes, cautioning against a narrowly technical reading of the sanitation crisis, a fuller appreciation of the diversity of potential options must connect with 'the wider ecology of conditions' (p. 72). This marks an interesting extension to the use of ecology as a metaphor, working in a different direction to either metabolic or organicist readings of urban space. 'Whatever else sanitation is', observes McFarlane, 'it is an ecological question. It takes shape at the intersection between different forms of life, from bacteria and viruses to rivers and forests' (p. 122). How should we relate cities to a wider set of ecological dynamics at a global scale? And what is the meaning of an ecological

imaginary in relation to urban infrastructure? Elsewhere McFarlane suggests that: 'Cities and urbanisation are the primary cause of the climate crisis and the sites where solutions will need to unfold' (p. 123). As the historian Chris Otter (2017) notes, however, we should be cautious in ascribing agency to the city as if it were an actor in its own right. Given that the main driver of the global environmental crisis is capital rather than urbanisation per se it is actually the second part of McFarlane's statement that aligns better with the overall argument of the book and the need to find traces of hope amidst the wider sanitation crisis.

Some of the specific examples discussed in the book are highly illuminating. One striking case is the failure of a communal eco-composting sanitation project in northern China, promoted by the Stockholm Environment Institute, that is indicative of the limits to what can be reasonably achieved in a densely populated urban neighbourhood. McFarlane quite righty asks: 'Why should poorer residents be expected to maintain eco-sanitation systems while richer neighbourhoods do not?' (p. 73). The negative aspects to schemes such as this, including smell, vermin and other problems, would never be tolerated in wealthy neighbourhoods, thereby exposing the implicit perpetuation of dual (or even multiple) forms of infrastructural citizenship. An implicit emphasis on dual infrastructure imaginaries, sometimes framed by a notional distinction between the networked city of the global North and the fragmented metropolis of the global South, can also obscure the role of violent rent seeking activities that seek to prevent the extension of municipal services to poorer neighbourhoods. I recall an interview I had with a senior water engineer in Lagos, back in the early 2000s, who explained to me that he would like to extend municipal supplies to the poorest neighbourhoods but he feared for the safety of his staff (see Gandy, 2006).

McFarlane notes that '… in cities almost everywhere, public provisioning is collapsing' (p. 75) which underlines the need to connect sanitation politics with infrastructure discourse in its wider (neoliberal) economic and political setting. Does an emphasis on small-scale, local or 'off grid' solutions risk diverting our analytical lens from crucial economic and political developments? Whilst some aspects of everyday infrastructure can be decentralised, or operate independently from the state, the provision of large-scale urban infrastructures for waste water (and flood control) pose a much greater challenge in terms cost, complexity and political legitimation. 'The history of the city', notes McFarlane, 'is caught up in this shift from the household to the city via the sewer' (p. 96) yet how the sewer connects to metropolitan space produces yet more complexities in this relationship. We encounter a contrast between aspects of infrastructure that form a routine aspect to visible choreographies of everyday life and other dimensions that remain largely unseen unless they become dramatically revealed through some form of systemic failure or disruption. McFarlane asks 'what kind of urban imagination is needed to think through the politics of the toilet, pipe, drain, tank, and sewer together?' (p. 118). In my view this would necessitate a multi-scalar political imaginary that can also grasp unseen aspects to infrastructure provision such as the complexities of finance or the impact of regulatory lacunae. The question then becomes very much an issue of whether infrastructure systems can be politically accountable. Furthermore, we contend with the fading of specific technological imaginaries that have been associated with utopian political projects, marked by the late-modern displacement of existing relations between politics and infrastructure.

There has been a reconfiguration of analytical frameworks in the face of the splintering of urban infrastructure. Earlier neo-Marxian insights into the double circulation of water and capital within the urban arena were a founding element in the 'first wave' of urban political ecology literature. But can urban political ecology still provide a novel conceptual bridge between capital and ecology in relation to the contemporary study of urban infrastructure? The 'ecological' aspects to urban political ecology remain underdeveloped and are marked by a degree of oscillation between material and metaphorical meanings (a phenomenon that we can also observe in relation to the related term metabolism). I wonder whether McFarlane's reference to a 'new urban ecology' (p. 124) signals an emerging urban condition, with a novel set of relational conditions, or points implicitly towards a new kind of analytical framework? Can ecological metaphors serve as historical leitmotifs as well as epistemological vantage

points? Or is any appeal to the ecological ultimately thwarted by a lack of engagement with structural determinants to urban inequality?

McFarlane asks how we should navigate 'between the singularity of the body and the multiplicity of the body-in-the-city?' (p. 136). This connects us to a longer history of the body and the human sensorium, including the complex transition from collective to private modes of human sanitation under modernity. And what of the body itself as a microbial multiplicity? McFarlane develops a microbial vantage point in relation to the epidemiological aspects to urban sanitation. 'Microbial urbanization', suggests McFarlane, 'is shaped by processes both in and beyond the city – from food webs, watercourses, seas, farms, and the migration of people, animals and birds to urban soil, water and atmospheres, peripheral urbanisation, global supply chains, and climate change' (p. 140). This observation connects the field of sanitation with multispecies urbanism, reminding us that the human body is an ecosystem in itself, comprising trillions of bacteria and other microorganisms. The human microbiome intersects with multiple fields of study including epidemiology, microbiology, molecular endocrinology and toxicology. Indeed, waste water samples taken from sanitation systems have increasingly become a focus of forensic analysis that links the sewer to the laboratory in order to track the incidence of disease, drug use and other phenomena within the urban arena.

Waste and the city is clearly aimed towards a wider audience beyond the academy. It is an exemplary demonstration of how a complex topic can be communicated to a broader range of readers, no doubt bolstered by the publisher Verso's commitment to promoting the role of books in public culture. Indeed, the writing of books, and the articulation of book-length arguments, must be a key element in geography's aspiration to contribute to wider fields of public concern. And it is precisely this kind of book, appearing with an independent publisher, that has been put at risk by recent attempts to interfere with the production of research outputs in the United Kingdom. It is to McFarlane's credit that he has simply ignored the trend towards more formulaic modes of academic publishing within the neo-liberal academy.

ORCID iD

Matthew Gandy https://orcid.org/0000-0002-8478-9808

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