

Natural Histories

“The same approaches must be applied to animals and to man. However, the human reaction to provocation by the milieu is diversified. Man can give several different solutions to a single problem posed by the milieu. The milieu proposes, without ever imposing, a solution. To be sure, in a given state of civilization and culture, the possibilities are not unlimited. But the fact of considering as an obstacle something that may later be seen as a means to action ultimately derives from the idea, the representation, that man (collective man, of course) builds himself out of his possibilities, his needs. In short, it results from what he represents to himself as desirable, which is inseparable from the ensemble of values.”

— Georges Canguilhem¹

What do we name when we name ‘infrastructure’? Most often, infrastructure is engaged with as a material substrate to transportation, communication and various other service-delivery systems that are largely structured around commercial exchange, human circulation and societal organisation.² ‘Infrastructures’ designate those sites of human making that are territorialised, that allow the human enterprise to evolve through various material and immaterial modes of connection and circulation. Yet thinking about infrastructure predominantly as an interconnected series of built and managed material components, from roads to shipping corridors and docks to transalpine tunnels, neglects the relational forms of analysis ‘infrastructure’ as a mode of engagement.³ What I would like to do here is speculate on the ‘what if’ that is starting to work against the predominant taken-for-granted invisibility of ‘infrastructure’ as a material organisational system grounded in and emerging out of a given environment.

This speculative work entails going beyond the widely held materialist bias in ways of thinking about infrastructures that would not only affect the means by which scholars and artists can approach them as objects of inquiry, but could also go some way towards reframing societal debates surrounding large-scale ecological systems-as-relations. This ‘materialist bias’ is not only reflected in the majority of the scholarly literature on what could be thought of as ‘conventional’ infrastructure, ranging from civil engineering to law, but is also an important element in framing the structural conditions and eventual outcomes of governmental policy debates, in that its definition and delimitation determines what can count as infrastructure in broad, politicising terms. By dividing ‘ecologies’ from ‘infrastructures’ and vice versa, the ‘nature-culture’ divide is perpetuated in the name of our usual categorisations of ‘materialist’ critique.

What if infrastructures could be approached as natural historical phenomena? To some degree, this approach to questions raised by the infrastructure-as-material substrate premise can be described as post-humanist. It is one with both a variable and malleable genealogy in critical inquiry, with Donna Haraway’s characterisation of ‘naturalcultural’ phenomena and the broader sorts of ‘boundary projects’ that feminist-empiricist perspectives can bring about and situate within non-reductionist accounts of the making of the ‘real’ world potentially offering one of its most comprehensive common grounds.⁴ Given environments, in this view, could then also produce modes of analysis that enact an ‘infrastructural relationality’ that brings questions of political ecology, biopolitics, environmental history and political economy to the fore in site-specific contexts of a *naturalised* infrastructure. This, in some obscure sense of cultural atmospherics (‘it’s in the air’), might in part address and account for the synchronic and diachronic approaches that are forging links across domains of infrastructural-relational inquiry. From the groundwork being laid in ‘animal studies’,⁵ to the institutionalisation and recurrence of biomedicine art, to even wider debates around ecological engineering and the question of climate science, all of these phenomena to some extent signal how, following Gregory Bateson, ‘[w]hat can be studied is always a relationship or an infinite regress of relationships. Never a “thing”’.⁶ In this sense, ‘infrastructure’ is a relation that can be traced. As Star and Ruhleder contend, ‘Infrastructure is something that emerges for people in practice, connected to activities and structures’,⁷ and as such it holds its own temporality forward as a ‘when’ as well as a ‘where’. It can emerge here or there, in both time and space.

Yet, the question remains, how to ‘do’ this analysis. How can we actually build the sorts of

infrastructures that can sustain equitable relationships and knowledge in our co-emerging worlds? This in part relies on recasting what can count as materialist critique. While this recasting arguably began with the originary tensions in Marx's elaboration of practical materialism, it is one that has been brought forward in current debates that surround materialist conceptions of various human and non-human agencies and artefacts. Whether in its 'thing theory' incarnations, or Bruno Latour's iterations of actor-network-theory, or other more biopolitical projects of post-humanist subject-object formations, the originally Marxist process of materialisation is today still both semantically unstable and critically changeable.⁸ John Frow remarks upon how 'Nature is now, for all intents and purposes, socialised, or at least Marx's whole interest is in the social world and its constant transformations of the natural: not matter in itself but matter transformed into the stuff of social interaction, and "known" to the extent that it is the object of human praxis.'⁹ It is with this 'new' nature in mind that Frow deems that a reorientation of conceptions of the material is in order, one that follows on a genealogy that originates with Foucault's understanding of the apparatus as an 'ontologically indifferent and open-ended'¹⁰ structure that can incorporate a contingent system of relations that can be constantly renewed and reformed as its structuring conditions change. It is important here to specify that 'infrastructure' and 'relation' do not name synonymous processes. Rather, thinking through the current materialist bias of infrastructure is to also think into being its ways of being addressed as socio-political forms of materialisation. In other words, this entails thinking about infrastructures from the ground up, and sedimenting their territorial reach through approaches that take into account the always already 'there' presences of historic animal ecosystems, indigenous forms of spatio-temporal precedence, and geological timelines as only the most fundamental dimensions of an infrastructural treatment of 'natures' that are co-shaped by human and non-human actors.

The temporalities that in mundane natural historical terms make material (or non-relational) infrastructure visible are such commonplaces as ageing road networks, slow commuting times, waiting times at international hub airports. In all of these, with their different senses of time becoming manifest, the inadequacies of given infrastructural systems are presented. And yet instrumental as opposed to 'heritage' infrastructures are rarely approached as object-systems worthy of preservation, either for examination, education or analysis. Elizabeth Grosz specifies how time, 'the very substance and matter of history', is integral to 'the indeterminate, the unfolding and emergence of the new', with the latter implicating a future that is open to any number of enduring pasts that change and allow new perspectives and futures to emerge; 'what counts as history, what is regarded as constituting the past, is that which is deemed to be of relevance to concerns of the present'.¹¹ How does one make infrastructure count in that historical calculus? If there will always be another history to be written and rewritten, then perhaps it can follow that there are past infrastructures to be reassembled through relational forms of historiography. If 'History is made an inexhaustible enterprise',¹² as Grosz claims, then such 'natural' infrastructural histories could be taken as becoming ecological in their writing.

This relational, infrastructural analysis could render environmental and 'naturalcultural' narratives, such as those surrounding the 'conservationist' preserve of national parks or urban redevelopment plans of 'improvement' and futural change, into more complex stories. Such stories tell of the co-emergence of these contested spaces with ongoing instances of at once global and site-specific networked resource dependency, commercial regimes of industrial production, distribution and consumption, and an evolving complex of radically contextual practices ranging across mass tourism, post-industrial economic repurposing and the circulation of finance capital. Whether through a 'preservationist' state-sanctioned 'natural', or a 'futurist' and forward-looking 'urban', thinking about the natural histories, both spatial and temporal, of infrastructure can start to create relational forms of analysis that not only make infrastructures visible, but also render their interpretive power malleable by extra-commercial ideologies and actors.

In addition to this baseline of infrastructural knowledge production, the site-specific locales of infrastructural evolution have to ask, following Georges Canguilhem: 'Could man make a nest better than a

bird, a web better than a spider?’¹³ And if Frow goes on to argue that we ‘[n]eed to propose ways of thinking a relationality without ontological divisions, in which “material” and “immaterial” elements interact on the same plane to form structures and in this process are at once constrained and formed by those interactions’,¹⁴ then it’s up to us, scholars and artists alike, to build discursive-materialist modes of knowing that not only start from the ground up, in both the senses of renewal and indigeneity, but acknowledge the inevitable, evolutive infrastructural proximities between knowledge and life, doing and living.

1 Georges Canguilhem, ‘The Living and Its Milieu’, *Knowledge of Life: Georges Canguilhem*, ed. Paola Marrati and Todd Meyers, trans. Stefanos Geroulanos and Daniela Ginsburg, Fordham University Press, New York, 2008, p.109.

2 This understanding of ‘infrastructure’ predominantly crosses the domains of civil engineering, urban and regional planning, government policy and, increasingly, science and technology policy that looks to facilitate the expansion of communication networks; see Brett Frischmann, *Infrastructure: The Social Value of Shared Resources*, Oxford University Press, Oxford and New York, 2012.

3 See Tom Jewett and Rob Kling, ‘The Dynamics of Computerization in a Social Science Research Team: A Case Study of Infrastructure, Strategies, and Skills’, in *Social Science Computer Review*, Issue 9, 1991, p.246–75; Geoffrey Bowker, ‘Information Mythology and Infrastructure’, *Information Acumen: The Understanding and Use of Knowledge in Modern Business*, ed. Lisa Bud-Frierman, Routledge, London, 1994, p.231–47; Susan Leigh Star and Karen Ruhleder, ‘Steps Toward an Ecology of Infrastructure: Design and Access for Large-Scale Information Spaces’, *Information Systems Research*, Vol. 7, No.1, Information Technology and Organizational Transformation, March, 1996, p.111–34.

4 Donna Haraway, ‘Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective’, *Feminist Studies*, Vol. 14, No. 3 (Autumn, 1988), p.575–99.

5 See Kari Weil, *Thinking Animals: Why Animal Studies Now?*, Columbia University Press, New York, 2012; Paul Waldau, *Animal Studies: An Introduction*, Oxford University Press, New York, 2013.

6 Cited in Star and Ruhleder, op. cit., p.112.

7 Ibid.

8 See Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith, Blackwell, Oxford and Cambridge, Mass., 1991; Arjun Appadurai, ed., *The Social Life of Things: Commodities in Cultural Perspective*, Cambridge University Press, Cambridge and New York, 1986; Bill Brown, ‘Thing Theory’, *Critical Inquiry*, Vol. 28, No. 1, Autumn, 2001, p.1–22; Dilip Gaonkar and Elizabeth Povinelli, ‘Technologies of Public Forms: Circulation, Transfiguration, Recognition’, *Public Culture*, 2003, Vol. 15, No. 3, p.385–97; Bill Brown, ed., *Things*, University of Chicago Press, Chicago, 2004; Bruno Latour and Peter Weibel, eds., *Making Things Public: Atmospheres of Democracy*, ZKM and MIT Press, Cambridge, 2005; Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford University Press, Oxford and New York, 2005.

9 John Frow, ‘Matter and Materialism: A Brief Pre-History of the Present’, *Material Powers: Cultural Studies, History, and the Material Turn*, ed. Tony Bennett and Patrick Joyce, Routledge, London and New York, 2010, p.30.

10 Ibid., p.34.

11 Elizabeth Grosz, ‘Histories of a Feminist Future’, *Signs*, Vol. 25, No. 4, Feminisms at a Millennium, Summer, 2000, p.1019.

12 Ibid., p.1021.

13 Canguilhem, op. cit., p.xviii.

14 Frow, op. cit., p.35.

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