

Crossing the Threshold of Concern: How Infrastructure Emerges as an Object of Security



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CROSSING THE THRESHOLD OF CONCERN: HOW INFRASTRUCTURE EMERGES AS AN OBJECT OF SECURITY

In this article I examine the way in which representations of the vulnerability of infrastructure reveal a particular understanding of the distinctive characteristics of contemporary, urban life. Infrastructure refers to the physical systems that provide power, remove waste, transport goods and bodies as well as facilitate the exchange of information and money: roads, rails, pipes, cables, and so on. While infrastructures often go unnoticed on a day-to-day basis, their interruption or absence threatens urbanised life. Infrastructure protection has thus become central to many states' security agendas. This article thus examines the way in which infrastructures are made the object of security. Broadly speaking – in the UK at least – infrastructure can be designated either national or critical. While the former refers to an infrastructure that underpins a spatially-located community, the latter indicates the connectivity that makes communication, data transfer and markets possible. In this article I ask how particular infrastructures become objects of such security concerns. I argue that we have affective relations with infrastructures such as roads or wires in which conceptions of spatial extent, community or connectivity are implicit. It is through these affective relations that we come to understand the potential loss of particular infrastructural objects as a vulnerability and thus make efforts to give them greater protection and security.

Introduction

Infrastructure has been described as the 'connective tissue that knits people, places, social institutions and the natural environment into coherent [...] relationships [...] the structural underpinnings of the public realm' (Muschamp, 1994). Broadly speaking, infrastructure comprises the systems that provide power, remove waste, transport goods and bodies as well as facilitate the exchange of information and money. Infrastructure thus refers to the physical systems that are the basis for contemporary urban life: roads, rails, pipes, cables, and so on. As such then, infrastructure is the 'invisible [...] background' necessary for sustaining a distinctively urban way of life (Graham and Marvin, 2001, p. 43). Of course, this does not mean that infrastructure is equally available to all. Indeed, it is unevenly distributed and increasingly privatised. However, whereas its presence, though crucial, is often invisible – it is simply that which makes things run – its absence blights lives and gives rise to a 'malevolent urbanism' (McFarlane, 2013). Infrastructure has thus become a defining characteristic of urban life.

It is no surprise then, that infrastructure protection has become central to many states' security agendas. Infrastructure protection has a long history that parallels the emergence of major public works (roads, utilities) and their centrality to the development of the modern state (Brown, 2006). Recently, infrastructure protection has been galvanised, however, by a series of events ranging from terrorist attacks (such as the Oklahoma bombing or 9/11) to natural disasters (such as Hurricane Katrina) and systematic failure (such as electricity blackouts). Infrastructure protection has thus emerged as a distinct, yet integral strand of security policy. For example, the 2015 UK National Risk Register (NRR) identifies infrastructure attacks or failures as prominent threats (Cabinet Office, 2015). As Figure 1 shows, widespread electricity failure is perceived to

be the joint second most significant threat after pandemic influenza in terms of impact. Indeed, after removing natural hazards from Figure 1, failure of the infrastructure of the electricity grid is the most significant threat. The danger of such a failure was highlighted by the US National Research Council's Committee on Enhancing the Robustness and Resilience of Future Electrical Transmission and Distribution in the United States to Terrorist Attack whose *Terrorism and the Electric Power Delivery System* report remarked that 'If [...] large extended outages were to occur during times of extreme weather, they could [...] result in hundreds or even thousands of deaths due to heat stress or extended exposure to extreme cold' (National Research Council, 2012, p. 1).

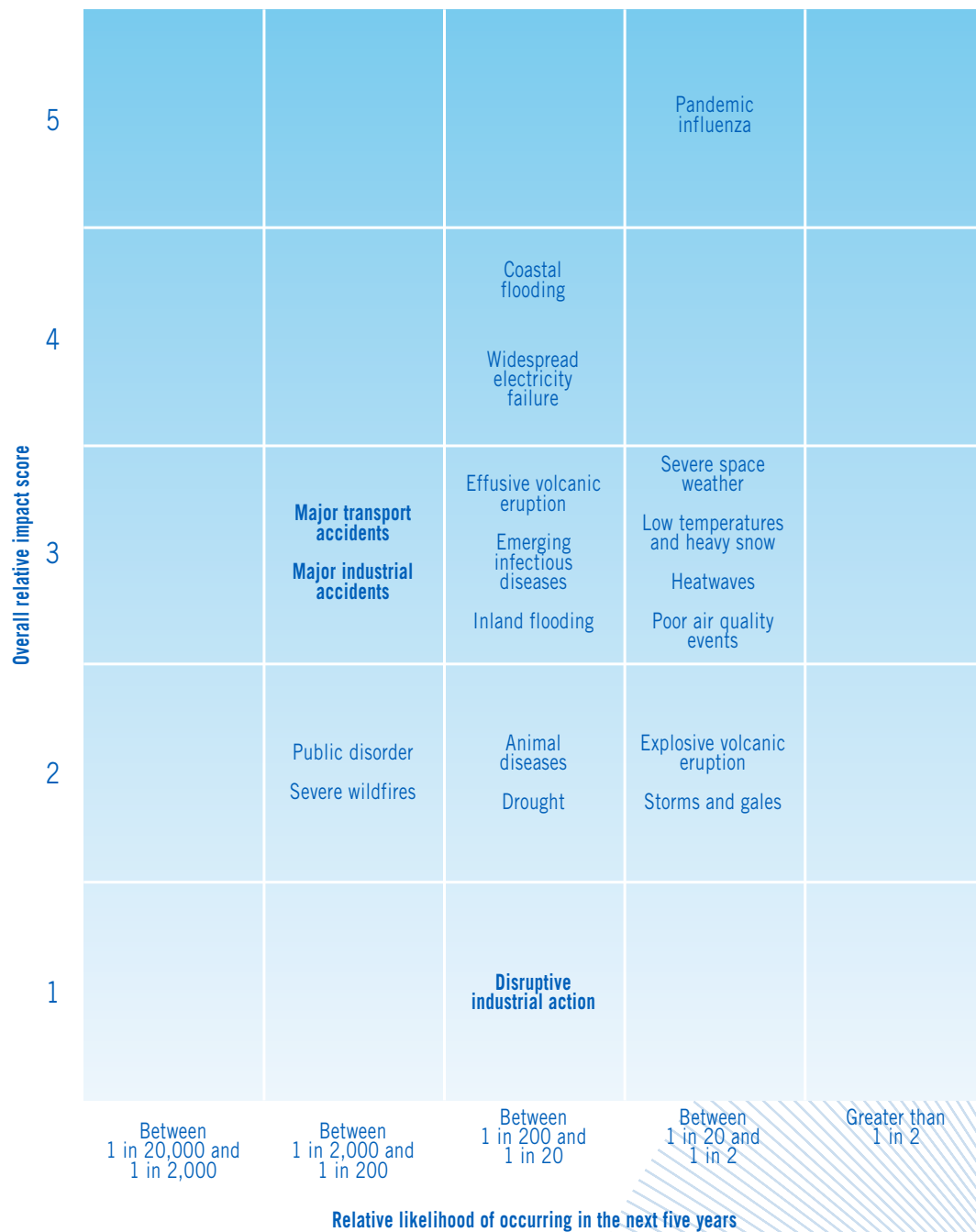


Figure 1: Risks other than terrorism according to NRR (source: Cabinet Office, 2015, p. 13).

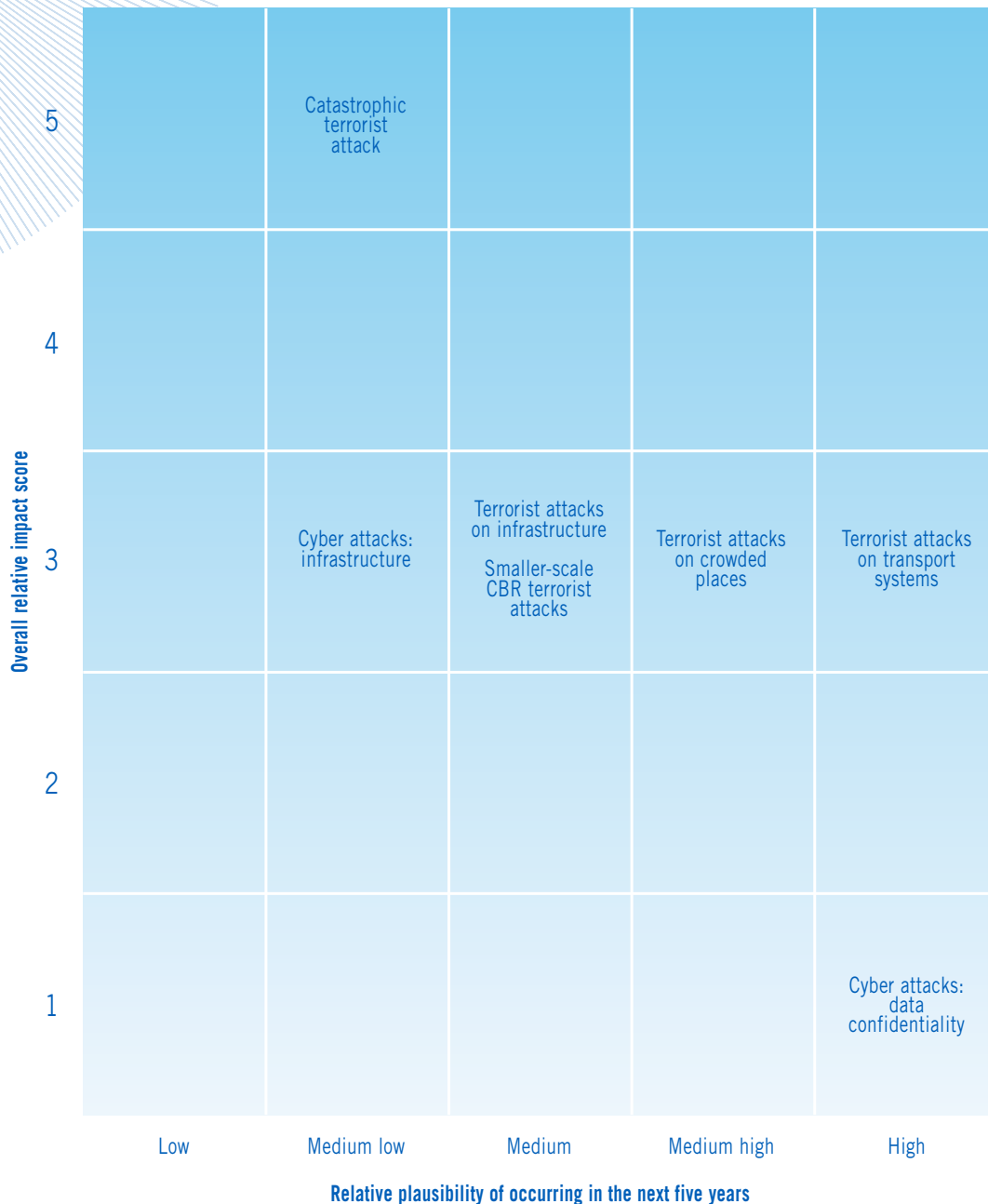


Figure 2: Risks of terrorist and other malicious attacks according to NRR (source: Cabinet Office, 2015, p. 12).

Similarly, Figure 2 shows that roughly 50% of the terrorist threats that the NRR thinks the UK faces relate to virtual or physical infrastructure. Moreover, attacks on transport infrastructure are the most plausible form of terrorist attack according to the NRR risk matrix. While aviation security receives the headlines, surface transportation is a regular target of terrorist violence. Indeed, research by the US Department of Homeland Security National Transportation Security Center of Excellence (2011, p. 22) showed that between 11 September 2001 and 27 July 2011:

terrorists carried out 1,907 attacks against public surface transportation worldwide, resulting in 3,918 deaths and 13,869 injuries. The average lethality per attack was much higher than in aviation. [...] Eleven attacks killed 50 or more people, and in three of these, nearly 200 were killed.

Away from transport the NRR notes the vulnerability of a range of infrastructures, including ‘electricity substations [...] financial institutions and government buildings’ (Cabinet Office,

2015, p. 47). Overall, the NRR suggests that a variety of everyday infrastructures face substantial threats.

The Ontopolitics of Threat Assessment

National Risk Registers are not – as Haggmann and Dunn Cavelty have noted – simply ‘authoritative definition[s] of public danger’, but rather tools for ‘making sense of a world [...] crowded with potential security issues’ (Haggmann and Dunn Cavelty, 2012, p. 80). Moreover, National Risk Registers are not simply a ranking of these multiple dangers on the basis of objective criteria. Rather, documents such as the NRR are a ‘categorical act’ (Larkin 2013, p. 330) in which certain objects are represented as vulnerable and, hence, it is decided which will ‘be discussed and which [...] will be ignored’. Threat assessments are thus a powerful political tool that legitimises certain actions and de-legitimises others, enfranchises certain communities and marginalises others.

The process of the representation of threat in the NRR is complex. At a minimum it involves the gathering of data; quantitative and qualitative manipulation of that data; discussions between and within institutions; visual techniques of representation; and, finally, mechanisms of communication with wider audiences from stakeholders to general publics. It would be wrong to say, then, that the decision to rank a threat is simply a political choice; the process of producing a threat assessment is far too complex for this to hold true. However, it is possible to say that National Risk Registers express certain political understandings of the world: what it contains; what is to be protected; how that which is to be protected is vulnerable; and what, therefore, is threatening. If successful, assessments of risk resonate with wider political understandings in such a way that they simply appear to be objective assessments or even commonsensical.

In light of the political consequences of the NRR, it is important for scholars to investigate its implicit understandings of the world and the manner in which these resonate with the wider understandings circulating in a particular society. William Connolly (1995, p. 1) has referred to this as an investigation into the ‘ontopolitics’ of a particular representation. Ontopolitics captures the sense that any given representation expresses both ontological and political commitments – understandings of what the world is (ontology understood here as the branch of philosophy concerned with being: that which is and how it is) and the way in which such an understanding legitimates and includes or de-legitimates and marginalises. Investigating the ontopolitics of a threat assessment such as the NRR requires defamiliarising their representations and asking how they came to be seen as credible or commonsensical.

The research I conducted at the IAS in Spring 2015 sought to do precisely this and in what follows I want to outline the manner in which infrastructure becomes an object of concern to be secured from various threats. In doing so, I hope to shed light on the way in which representations of the vulnerability of infrastructure reveal a particular understanding of the distinctive characteristics of contemporary, urban life. Put differently, representations of threat contain implicit understandings of both the vulnerability of that which is threatened as well as the reasons for regarding its loss as a significant disruption of a way of life.

Crossing the Threshold of Concern: How Infrastructure Emerges as an Object of Security

It is common to argue that infrastructure is ‘by definition invisible, part of the background for other kinds of work. It is ready-to-hand’ (Star, 1999, p. 380). According to this perspective, the various objects that surround us on an everyday basis are unremarkable precisely because of the routinisation of our interactions with them. The invisibility of infrastructure is thus not simply a matter of its being embedded in walls, buried beneath roads or beyond the visible spectrum (such as microwaves). Rather this invisibility is a matter of the way in which the routinisation of our interactions with these objects leads to us taking them for granted. This taken-for-grantedness is only punctured when infrastructure fails and we must question what it is, where it is and how it works. Brian Larkin (2013, p. 336) has questioned the invisibility of infrastructure, noting that it has a range of visibilities – for example megastructures are highly visible when functioning properly, often as a sign of national identity or technological prowess. It nonetheless remains the case that infrastructure is by and large treated as a mundane tool and reflection on the political relations within which it is entangled is limited. It is precisely this mundane character of infrastructure that led Susan Leigh Star to argue that the ethnography of infrastructure is the study of ‘boring things’ (Star, 1999, p. 377).

However, for the NRR infrastructure is anything but boring, rather it is a ‘vital system’ (Collier and Lakoff, 2008) whose disruption represents a critical vulnerability of contemporary urban life. For an object to be represented in this way, it must be dis-embedded from its mundane, everyday, routine existence and re-presented as an object of concern. Put differently, it must cross a threshold of concern. In doing so it could be said to emerge as an object of concern. It is in this respect that my research intersects with the 2014–15 IAS theme of *emergence*. Emergence is a suggestive metaphor resonating with both everyday linguistic meaning as well as more specialised usages in the complexity sciences. The verb ‘emerge’ captures the sense in which objects of concern rise up or come forth from a state in which they are obscured. Typically, this is expressed in the opposing relationship between submergence and emergence: the former typically refers to a state in which an object is immersed into a liquid (but also darkness, clouds, smoke, etc.) and thus becomes unseen, while the latter refers to the making visible of that which was previously unseen by raising it up (from a liquid) or bringing it forward (into the light). The emergence of infrastructures as objects of concern thus resonates with this everyday lexical understanding. Objects that were hitherto invisible, submerged in the mundane routines of everyday life, emerge in their own right by virtue of being represented as facing distinctive threats.

However, references to emergence invariably also resonate with the more specialist terminology of the complexity sciences. As Goldstein (1999, p. 49) notes, ‘Emergence [...] refers to the arising of novel and coherent structures, patterns and properties during the process of self-organisation in complex systems’. Emergence thus involves an outcome that is more than the sum of its parts. The object of concern is represented as having its own causal powers that cannot be inferred from the parts out of which it arose. Moreover, to borrow further from the complexity sciences, the process of emergence is non-linear and thus does not follow what Connolly (2005, p. 869) refers to as ‘efficient causality, in which you first separate factors and then show how one is the basic cause’. Crossing of thresholds of concern also resonates with this more specialist understanding of emergence: specifically, a part of a wider whole becomes an object in its own right with causal powers that cannot be inferred from its constituent parts in a linear fashion. Emergence thus captures a sense in which an infrastructure is raised up out

of its submergence in the everyday and, in so doing, acquires new characteristics that are not simply a product of its constituent parts.

How then do objects emerge onto security agendas, how do they cross thresholds of concern? I suggest that while emergence is often presented as commonsensical, it in fact requires us to understand our affective relations with objects of concern.

Affect and Vulnerability

Affect, as Anderson (2006, p. 735) notes, is the ‘capacity which a body has to be affected (through an affection) and to affect (as the result of modifications)’. More than simply emotion/feeling, affect is both a sensory capacity as well as a force that acts on that capacity. Affect is, thus, ‘the outcome of the encounter between entities and how entities are affected by these encounters’ (Ash, 2015, p. 84). It is not, however, simply a passive sensing but also the various ways in which being affected by the world leads to actions that affect it in return.

I want to suggest that our affective relationship with infrastructural objects – how they affect us and we affect them – is central to understanding how they emerge as objects of concern. In our routine interactions with infrastructures, this affective relationship is implicit unless explicitly reflected upon. However, this relationship is key because implicit to our understanding of the way an object affects individuals and communities is a sense of what its failure might entail. As such then, affect communicates what an object can do but also what its loss might lead to. We might refer to this as the vulnerabilities that are implicit in our routine interactions with infrastructural objects. While the NRR might amplify these affectively intuited vulnerabilities (embellishing them with narratives about the potential collapse of society or orientalist visions of who might bring about that collapse, for example), it nonetheless relies on them for its representations to be credible with a wider audience. In other words, the vulnerabilities highlighted by security representations are powerful because they resonate with our affective interaction with infrastructure and, by extension, this resonance underpins powerful ontopolitical understandings and commitments.

In his discussion of the anthropology of infrastructure, Larkin (2013, p. 337) affirms the affective capacity of infrastructure, arguing that ‘Infrastructures operate at the level of surface [...] the outside of the body – skin, nose, eye, ear – rather than the mind inside’. The affective capacity of infrastructure is not simply a sensory experience, however: ‘the materials of infrastructure – the hardness of the road, the intensity of its blackness, its smooth finish – produces sensorial *and* political experiences’ (p. 337, my emphasis). Hardness and blackness are not mere sensations, but rather they communicate the sociopolitical dynamics that characterise a particular ‘way of living in the world’ (p. 331). For example, to quote Larkin (p. 337) again, ‘[t]he building of colonial infrastructure was the imposition of hard roads [...] over [...] dirty, muddy, soft paths [...]. These have their own startlingly new and different material properties, their [...] own [...] social [...] relations’. The sensory affective relation with infrastructure thus communicates more than just the material properties of the objects. Rather, this relation discloses the distinctive ways in which infrastructure is integral to a particular way of life. Hard roads, for example, communicate the centrality of speed and mobility to modernity.

Affective relations with infrastructural objects thus disclose the characteristics of a particular way of life to which an infrastructure is integral. And in so doing such affective relations disclose not simply the mechanics of a particular way of life (how power, data, bodies, goods, etc. are moved around) but the sociopolitical relations that characterise them. Moreover, the affective

relation also discloses the vulnerabilities of that way of life: the fear and anxieties aroused by the prospect of the loss or failure of particular infrastructures. Such vulnerabilities reveal not simply a fear of the costs of disruption but rather the way in which destruction or loss of infrastructure might compromise a particular way of life.

However, our affective relation with infrastructural objects does not determine how documents such as the NRR represent threats to infrastructure. Discursive representations and affects are independent of one another – one is a perception of the capacity of an object via its affective impact, the other is a representation of a threat to a particular way of life. The affective relation involves a perception of the social relations the object facilitates and is entangled in. The representation isolates that object and re-presents it as a weak point of a way of life (that is, by extension, normatively valued) threatened by particular forces. However, if the representation is to be successful I would contend that it must at least resonate with the affective relation. This underscores Van Rythoven's (2015, p. 459) contention that 'there are limits to what a focus on language [...] can tell us about threat construction'. Indeed, to understand the way in which objects cross the threshold of security concern we must examine how threat constructions resonate with everyday affective relationships. Investigating affective relations is thus a way of showing the preconditions for the successful emergence of an object of security and thus defamiliarising the commonsensical character of security agendas. In so doing, we can show how objects of security emerge through a process of affect and representation. Moreover, we can show how the ontopolitics of the NRR are not simply confined to that document but instead can be traced into the affective relations they resonate with.

The Affective Relations of Contemporary Infrastructure: Connectivity and Community

It is difficult to make general statements about the affective relations of infrastructure objects. Insofar as infrastructure is a heterogeneous network, individual objects are only understandable as such through a process of disembedding them from their relations with that wider network. It is not certain, therefore, that what holds for one object can be generalised for the entire network. That said, I would contend that we can infer some general affective capacities of contemporary infrastructures. First, if we look at the sensory capacities of infrastructural objects central to contemporary urbanised life we find that they are not simply hard in the way that metalled roads are but, rather, they are shaped to convey bodies in motion (be they actual, such as cars, or virtual, such as data bits). As such, it is not so much the hardness that Larkin (2013, p. 337) identified, which is significant (even though it conveys a normative commitment to increased speed, and thus to a culture of mobility). Rather, the significant affective capacity of roads and wires is their routing function, their linearity and the way this marks a passage from one point to another. It is thus conductivity that is understood in affective relations with contemporary urban infrastructural objects. Conductivity goes hand in hand with connectivity; matter conducting other matter connects with other matter. As such, our affective relation with contemporary infrastructure is one in which we understand its key characteristic to be connectivity.

Second, connectivity implies spatial extent. Insofar as the affective impact of the object conveys a sense of connectivity it also communicates a certain understanding of spatial extent. Roads, wires, cables and pipes connect from here to there and thus imply a certain spatiality. I would argue that the spatiality at stake in affective encounters with

contemporary infrastructure is framed by the figure of the nation state in its modern sense as a territorial container. The history of infrastructure is one of standardisation at either a national or international level, each of which have implicit spatial relations. Roads and rails, for example, tend to adhere to national – sometimes international – standards. They primarily connect places within a territorial boundary. Where they run beyond boundaries they are either interrupted by checkpoints/interchanges indicating a spatial boundary or the product of complex negotiations to extend spatial extent. The spatiality of the road and the rail is thus primarily oriented towards mobility within the nation state. Wires and cables, however, are increasingly primarily transnational – carrying data, in particular, across borders to link places on a global scale. However, transnational linkages are made with reference to the territorial container of the national state – whether it is in government programs to provide universal broadband connectivity within the state, references to the national interest in being connected to global data flows or the fact that the trans-/post-national identity made possible by such connections only gains meaning in a world in which territorial borders persist. As such, we might say that a certain sense of community is implicit in affective encounters with infrastructure: a connection to others within a defined area – primarily the nation-state understood as territorial container.

The connectivity and community implicit in the affective relation with infrastructural objects is central to the successful emergence of infrastructure as an object of security concern. If our everyday affective relation with infrastructural objects gives us a sense of their role in enabling connectivity and (spatially dispersed) community, so the reverse is also true: affective relations with infrastructural objects disclose what could be disrupted or lost if the object was damaged or destroyed. As such, our affective relation with infrastructure objects contains an implicit sense of vulnerability. This vulnerability is precisely what the emergence of infrastructure as a security concern resonates with. For representations such as the NRR to be successful, they must resonate with the sense of vulnerability conveyed by day-to-day affective relations with infrastructural objects.

The Politics of Infrastructure Protection

Noting that the success of particular security representations rests on the extent to which they resonate with everyday affective relations does not really tell us much about the politics of those representations: the way of life they normatively value and its entailments. It merely tells us why they are successful. In other words, it does not tell us about what I have called the ‘ontopolitics’ of a document such as the NRR. By way of conclusion then, I want to sketch out what the ontopolitics of infrastructure protection might be.

Broadly speaking, if successful representations resonate with everyday affective relations with infrastructure objects, connectivity and extent will be the central aspects of this resonance. The ontopolitics of infrastructure protection will therefore be based on these two primary dynamics. Infrastructure does not determine the nature of the connection or extent intimated in affective encounters with particular objects. Affective relations with infrastructure objects merely indicate that we are connected over distance; the precise nature of this connection/extent and the entailments that follow are a matter of the way in which connection and extent are imagined in the representations/images of documents such as the NRR. Thus the NRR shapes a particular sense of connectivity and extent and, in so doing, reveals the way of life it normatively values and seeks to defend. Indeed, the NRR represents both connectivity and extent in distinctive ways with particular political consequences: as both national and critical infrastructure.

On the one hand, national infrastructure is defined as ‘those facilities, systems, sites, networks [...] necessary for the functioning of the country and the delivery of the essential services upon which daily life in the UK depends’ (Cabinet Office, 2015, p. 46). National infrastructure is, therefore, primarily defined in relation to the nation state as geopolitical entity. In this sense it refers to the distinctive sociopolitical relations that exist in a particular bounded territorial area. This is the dual sense of nation – both geopolitical entity and distinctive way of life – that has defined the nation-state in the modern era. The ‘daily life’ of a particular entity (the ‘country’, the ‘UK’) is said to be at stake. Rather than being defined in ethnic terms as nations (and their states) often are, the way of life at stake is defined by territorial extent. As such, it is a community of fate defined by spatial coexistence.

This sense of a community of fate within particular geospatial boundaries resonates strongly with the affective understanding of infrastructure as having an implicit extent. The affective impact of the conduits of contemporary urban infrastructure conveys a sense of integrating spatially-dispersed entities into a distinctive whole. The hardness, smoothness, malleability and, above all, linearity of the fibres, wires, metalised roads, pipes, and so on carry with them distinctive social relations: a sense of the mobility they facilitate integrating those within the spatial network they establish into a community of fate. On the whole this community resides within the borders of the state since infrastructure changes, sometimes radically, sometimes subtly, at these boundaries. The success of an appeal to a national way of life, therefore, resonates with this affective understanding of everyday infrastructures.

Critical infrastructure, on the other hand, is defined as ‘elements of infrastructure, the loss or compromise of which would have a major detrimental impact on the availability or integrity of essential services, leading to severe economic or social consequences or to loss of life’ (Cabinet Office, 2010, p. 8). Criticality is thus framed in terms of the loss of elements having disruptive effects. Typically, critical infrastructures include links in distribution networks (for example, power distribution), key transport services required to link one site to another (for example, the ambulance services linking patients in the community to hospitals), data relays or switches (required to maintain flows of capital) and so on. Criticality is thus a matter of the interruption of connections through the loss of elements in networks and thus the disruption of connectivity. Critical infrastructure is thus defined by connectivity.

This connectivity resonates with everyday affective understandings of urban infrastructure. The affective impact of infrastructure objects is thus not simply a sense of integrating spatially-dispersed communities of fate, but also that of connecting distant places in order to move both physical and virtual matter (bodies, goods, power, water, waste, information or capital). Connection thus implies motion, which implies vulnerability to interruption. As such, the connectivity at the heart of representations of critical infrastructure resonates with the affective encounter with everyday urban infrastructures.

It is this resonance that makes the infrastructure protection discourses of documents such as the NRR appear commonsensical. Insofar as they resonate with everyday affective relations, these representations appear to have a basis in our everyday perception of other worlds around us. Were they to lack this resonance, the disjuncture would make us question the effectiveness of the representations. Here we might echo Van Rythoven’s (2015, p. 459) observation that climatologists’ representations of climate change as a security threat are often unsuccessful because they do not resonate with our everyday affective relation with weather. However, the success or otherwise of a particular representation is only one half of the story about the emergence of objects of security. Implicit to documents such as the NRR is an ascription of normative value to a particular way of life its proposed security measures seek to defend. As

I noted earlier, while documents such as the NRR present their security agenda in common-sense terms as simply a precaution necessary to keep the lights on or the traffic moving, they should be understood as a proposition about, to quote Connolly (1995, p. 1), 'the forms into which humans may be composed and the possible relations humans can establish'. The threat matrices (re)presented in infrastructure security documents thus have political consequences – their seemingly neutral, fact-based assessments establish a sense of what individuals and communities should be via a sense of how that way of life should be serviced by infrastructure.

Briefly put, infrastructure protection documents demonstrate the importance of belonging through connectivity to the way of life they seek to defend. Whether it is connectivity to distant others through roads, rails or fibre optic cables or the ability to connect to the various circuits of power, food and waste that are vital to urban life, access to infrastructural conduits is central to the ontopolitics of infrastructure protection. However, valuing and protecting certain forms of connectivity will also entail forms of exclusion. Given, as Graham and Marvin (2001) have noted, that infrastructure has been increasingly seen as a private rather than public good, access to wires, cables, rails and roads is controlled by pricing structures that will necessarily exclude the poor. Keeping the water or electricity running is not seen as a universal benefit but a service to customers. As McFarlane (2013) notes in relation to urban sanitation in India, the correlate to such pricing structures is a 'malevolent urbanism' that denies those excluded from basic provision of services and condemns them to informal infrastructures fraught with risks. Similarly, while the nation-state implied in the NRR's concept of national infrastructure might not be the ethnic-national body that has haunted European states in the twentieth century, it is still not a fully inclusive community. The stress on integrative infrastructures such as roads and cables de-emphasises the importance of the local and the transnational while also excluding forms of mobility such as walking or cycling.

Conclusion

Investigating infrastructure protection in this way enables us to think through the political consequences of seemingly common-sense documents. The manner in which objects cross the threshold of concern is central to such an investigation. Highlighting the manner in which successful representations – which in themselves isolate objects from a larger whole – resonate with everyday affective encounters with objects, enables us to understand the way in which security is a 'categorical act' (Larkin, 2013, p. 330) that selects and values certain objects and connections among heterogeneous networks of infrastructures. Showing this to be the case is a key step in defamiliarising the apparent common-sense approach of security documents such as the NRR and a route to understanding and ultimately contesting their consequences. A critical approach to infrastructure security thus enables us to challenge the inequitable and uneven access to infrastructure that results in malevolent urbanism.



Reference List

- Anderson, B. (2006) Becoming and being hopeful: towards a theory of affect. *Environment and Planning D: Society and Space* 24: 733–52.
- Ash, J. (2015) Technology and affect: towards a theory of inorganically organised objects. *Emotion, Space and Society* 14: 84–90.
- Brown, K. A. (2006) *Critical Path: A Brief History of Critical Infrastructure Protection in the United States*. Fairfax, VA: Spectrum Publishing Group. Available at: http://cip.gmu.edu/wpcontent/uploads/2013/07/CIPHS_CriticalPath.pdf (accessed 19 October 2015).
- Cabinet Office (2010) Strategic Framework and Policy Statement on Improving the Resilience of Critical Infrastructure to Disruption from Natural Hazards. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62504/strategic-framework.pdf (accessed 19 October 2015).
- - - . (2015) National Risk Register for Civil Emergencies – 2015 edition. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/419549/20150331_2015-NRR-WA_Final.pdf (accessed 14 October 2015).
- Collier, S. J. and Lakoff, A. (2008) The Vulnerability of Vital Systems: How Critical Infrastructure became a Security Problem. In Dunn Cavelt, M. and Kristensen, K. S. (eds.) *Securing 'The Homeland': Critical Infrastructure, Risk and (In)security*. London: Routledge, pp. 17–39.
- Connolly, W. E. (1995) *The Ethos of Pluralization*. Minnesota: University of Minnesota Press.
- - - . (2005) The evangelical-capitalist resonance machine. *Political Theory* 33(6): 869–86.
- Goldstein, J. (1999) Emergence as a construct: history and issues. *Emergence* 1(1): 49–72.
- Graham, S. and Marvin, S. (2001) *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*. London: Routledge.
- Hagmann, J. and Dunn Cavelt, M. (2012) National risk registers: security scientism and the propagation of permanent insecurity. *Security Dialogue* 43(1): 79–96.
- Larkin, B. (2013) The politics and poetics of infrastructure. *The Annual Review of Anthropology* 42: 327–43.
- McFarlane, C. (2013) From sanitation inequality to malevolent urbanism: the normalisation of suffering in Mumbai. *Geoforum* 43: 1287–90.
- Muschamp, H. (1994) Architecture View; two for the roads: a vision of urban design. *New York Times*. Available at: <http://www.nytimes.com/1994/02/13/arts/architecture-view-two-forthe-roads-a-vision-of-urban-design.html?pagewanted=all> (accessed 14 October 2015).

National Research Council (2012) *Terrorism and the Electric Power Delivery System*. Washington, DC: The National Academies Press.

National Transportation Security Center of Excellence (2011) *2010–2011 NTSCOE Annual Report*. Available at: <http://transweb.sjsu.edu/PDFs/Security/MTI-NTSCOE-annual-report-2010-11.pdf> (accessed 14 October 2015).

Star, S. L. (1999) The ethnography of infrastructure. *American Behavioral Scientist* 43(3): 377–91.

Van Rythoven, E. (2015) Learning to feel, learning to fear? Emotions, imaginaries, and limits in the politics of securitization. *Security Dialogue* 46(5): 458–75.

Backlist of Papers Published in Insights

No.	Author	Title	Series
2008 Volume 1			
1	Boris Wiseman	Lévi-Strauss, Caduveo Body Painting and the Readymade: Thinking Borderlines	General
2	John Hedley Brooke	Can Scientific Discovery be a Religious Experience?	Darwin's Legacy
3	Bryan R. Cullen	Rapid and Ongoing Darwinian Selection of the Human Genome	Darwin's Legacy
4	Penelope Deutscher	Women, Animality, Immunity – and the Slave of the Slave	Darwin's Legacy
5	Martin Harwit	The Growth of Astrophysical Understanding	Modelling
6	Donald MacKenzie	Making Things the Same: Gases, Emission Rights and the Politics of Carbon Markets	Modelling
7	Lorraine Code	Thinking Ecologically about Biology	Darwin's Legacy
8	Eric Winsberg	A Function for Fictions: Expanding the Scope of Science	Modelling
9	Willard Bohn	Visual Poetry in France after Apollinaire	Modelling
10	Robert A. Skipper Jr	R. A. Fisher and the Origins of Random Drift	Darwin's Legacy
11	Nancy Cartwright	Models: Parables v Fables	Modelling
12	Atholl Anderson	Problems of the 'Traditionalist' Model of Long-Distance Polynesian Voyaging	Modelling
2009 Volume 2			
1	Robert A. Walker	Where Species Begin: Structure, Organization and Stability in Biological Membranes and Model Membrane Systems	Darwin's Legacy
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3	Ronaldo I. Borja	Landslides and Debris Flow Induced by Rainfall	Modelling
4	Roland Fletcher	Low-Density, Agrarian-Based Urbanism: A Comparative View	Modelling
5	Paul Ormerod	21st Century Economics	Modelling
6	Peter C. Matthews	Guiding the Engineering Process: Path of Least Resistance versus Creative Fiction	Modelling
7	Bernd Goebel	Anselm's Theory of Universals Reconsidered	Modelling
8	Roger Smith	Locating History in the Human Sciences	Being Human
9	Sonia Kruks	Why Do We Humans Seek Revenge and Should We?	Being Human
10	Mark Turner	Thinking With Feeling	Being Human
11	Christa Davis Acampora	Agonistic Politics and the War on Terror	Being Human
12	Arun Saldanha	So What <i>Is</i> Race?	Being Human
13	Daniel Beunza and David Stark	Devices For Doubt: Models and Reflexivity in Merger Arbitrage	Modelling
14	Robert Hariman	Democratic Stupidity	Being Human
2010 Volume 3			
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2	Zoltán Kövecses	Metaphorical Creativity in Discourse	Modelling
3	Maxine Sheets-Johnstone	Strangers, Trust, and Religion: On the Vulnerability of Being Alive	Darwin's Legacy

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6	Charles Fernyhough	What is it Like to Be a Small Child?	Being Human
7	Maren Stange	Photography and the End of Segregation	Being Human
8	Andy Baker	Water Colour: Processes Affecting Riverine Organic Carbon Concentration	Water
9	Iain Chambers	Maritime Criticism and Lessons from the Sea	Water
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12	Ingo Gildenhard and Andrew Zissos	Metamorphosis - Angles of Approach	Being Human
13	Ezio Todini	A Model for Developing Integrated and Sustainable Energy and Water Resources Strategies	Water
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16	Marilyn Strathern	A Tale of Two Letters: Reflections on Knowledge Conversions	Water
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20	Monica M. Grady	Does Life on Earth Imply Life on Mars?	Water
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6	Russell Jacoby	The Future of Utopia	Futures
7	Frances Bartkowski	All That is Plastic... Patricia Piccinini's Kinship Network	Being Human
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5	Ben Anderson	Emergency Futures	Futures
6	Pier Paolo Saviotti	Are There Discontinuities in Economic Development?	Futures II
7	Sander L. Gilman	'Stand Up Straight': Notes Toward a History of Posture	Futures II
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4	Robert Hannah	From Here to the Hereafter: 'Genesis' and 'Apogenesis' in Ancient Philosophy and Architecture	Time
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Insights

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