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**THE MULTIPLE TEMPORALITIES OF SECURITY: LONG-TERM
SUSTAINABILITY, THE EVERYDAY, AND THE EMERGENT IN THE
ANTHROPOCENE**

Adam Crawford

Abstract

The Anthropocene demands a re-evaluation of how we think about historical time across various disciplines and fields of analysis. It challenges scholars to connect understandings of the past with those of the emerging present and (long-term) future. Recognising that many of the future global challenges of insecurity and conflict will be products of climate change – prompted by drought, desertification and migration - this chapter seeks to reflect upon and explore the conceptual implications for historical time and temporalisations prompted by the Anthropocene. It is suggested that social scientists need to (re)consider relations between different temporalities in the production of and responses to contemporary insecurities. In so doing, the chapter explores the meanings of and interconnections between ‘security’ and concepts of ‘sustainability’, the ‘everyday’, and the ‘emergent’ in the study of crime, risks and harms. Each is informed by different temporal registers that imply differing ethical considerations. Exploring their intersectionality, sites of contestation and their interwoven assemblage raise salient issues for critical security studies in an anthropogenic age. The challenge is to shape new normative understandings of security, ethics and social/environmental justice to inform practices in ways that give due consideration to these different temporalities and their implications.

Introduction

Recent years have witnessed extensive debates about the environmental risks of global warming and human-induced climate change prompted by excessive accumulation in the atmosphere of greenhouse gases mainly as a result of the burning of fossil fuel and the industrialised practices of animal farming. The Anthropocene — identified by Crutzen and Stoermer (2000: 17) as ‘the recent age of man’ — represents a new and distinct epoch characterised by the fact that ‘the human imprint on the global environment has now become so large and active that it rivals some of the great forces of nature in its impact on the functioning of the Earth system’ (Steffen et al., 2011: 842). Its defining features are both the trend towards global warming and the radical instability expected of future environments. It represents a new geological epoch in which human existence has become a geological force, signalling a fundamental shift in the capacity of humans to exert influence over and re-shape the Earth’s atmospheric patterns and, hence, determine the direction of the climate for millennia to come. In the process, human beings have become a geological agent disturbing the parametric (i.e., boundary) conditions needed for our own existence.

There remain ongoing debates about the term Anthropocene, its chronology and usefulness (Bonneuil and Fressoz, 2015; Hamilton et al., 2015). On the basis of analyses of air trapped in polar ice, Crutzen (2002: 23) traces the beginning of growing global concentrations of carbon dioxide and methane to the later part of the eighteenth century and names a specific date, 1784, which portentously coincides with James Watt’s design of the steam engine. More broadly, the Anthropocene is associated with capitalist industrialisation, whilst others suggest that it dates back to the origins of farming thousands of years earlier (Ruddiman, 2005). The complexities of historical periodisation have led some, rather dismissively, to conclude: ‘Such haziness suggests that the term, which smacks of species vanity, is somewhat overwrought’ (Corfield, 2011: 7). Nonetheless, the identification and conceptualisation of the Anthropocene, undoubtedly has challenged many conventional assumptions and academic disciplines in a variety of profound ways, notably history and our understanding of time. The designation of the Anthropocene has caused scholars to think differently about both the impact of human actions on the ecosystem and the sustainability of often taken for granted contemporary social practices, human activities, patterns and ways of working, given their long-term social and environmental implications and consequences.

While the potential for destruction of the global ecosystem and humanity has been with us since the first atomic bomb was exploded in 1945, the impact on climate change has neither been a conscious nor deliberately malign one: ‘On the contrary’, Levene notes, ‘one might argue that it is simply an indirect consequence of essentially *constructive* efforts at self-betterment’ (2013: 148). The Anthropocene challenges not only our understandings of human and environmental futures but also our interpretations of the past regarding how we got to this (end-)point in history (Bonneuil and Fressoz, 2015), as well as the relationship between the past, present and future. Anthropogenic explanations of climate change erode conventional humanist distinctions between natural history and human history. Chakrabarty notes:

The discipline of history exists on the assumption that our past, present, and future are connected by a certain continuity of human experience. We normally envisage the future with the help of the same faculty that allows us to picture the past. (2009: 197)

According to Chakrabarty, modernity’s close connection with the concept of ‘freedom’, in terms of human agency and sovereignty, was not accompanied by any discussion or awareness of ‘the geological agency that human beings were acquiring at the same time as and through processes closely linked to their acquisition of freedom’ (2009: 208).

Enlightenment philosophers of freedom, he argues, were primarily concerned with how humans would escape injustice, oppression and inequality imposed upon them by other humans. As a result, ‘[t]he mansion of modern freedoms stands on an ever-expanding base of fossil-fuel use’ (2009: 208). Consequently, the Anthropocene challenges the ways in which we have thought about both time and ourselves as social and geological agents since the Enlightenment. It demands a re-evaluation of how we think about historical time across various disciplines and fields of analysis, by challenging scholars to connect understandings of the past with those of the emerging present and (long-term) future. As I will argue, it also raises important questions about agency and moral responsibility. It places questions about the moral and political challenge of climate change centre stage, not simply for climate and environmental sciences but also (and as profoundly) for the social sciences. In many senses, the social sciences have lagged behind in their engagement with the Anthropocene and its profound ramifications for theorising diverse aspects of social relations and global societal challenges of the future (Palsson et al., 2013), including crime, security and order.

My purpose is not to trace the various security and crime control implications of global climate change - which are extensive in themselves but covered better by others (see this volume) - but to reflect upon and explore the conceptual implications for historical time and temporalisations prompted by the Anthropocene. I begin by highlighting some of the key questions about historical time, temporality and our understandings of interconnections between the past, present and future and apply these to the study of security. In acknowledging the Anthropocene, I suggest that social scientists need to (re)consider relations between different temporalities in the production of and responses to contemporary insecurities. In so doing, this chapter will seek to explore the meanings, ethics and interconnections within and between 'security' and three key temporal concepts, being 'sustainability', the 'everyday', and the 'emergent' in the study of crime, risks and harms. Thus, the aim is to contribute to renewed thinking about the futures of security studies and criminology's contribution therein (Shearing, 2015; Crawford and Hutchinson, 2016a). Drawing on insights from Corfield (2007), I argue that each of these three concepts is informed by a very different temporal register, which, in turn, implies differing ethical considerations with regard to security. Exploring their intersectionality, sites of contestation and their interwoven assemblage raise salient issues for critical security studies in an anthropogenic age. The challenge, I infer, is to shape new normative understandings of security, ethics and social/environmental justice to inform practices in ways that give due consideration to these different temporalities and their implications.

Historical time in the plural

German historian Reinhart Koselleck (2002; 2004) helpfully introduced the notion of 'temporal layers', suggesting that historical change is not a singular or universal phenomenon, but is instead distributed across various temporal strata. He proposed the idea that history contains three layers of temporal structures. The first layer is that of events, which human beings habitually experience as *singular*. The second consists of various layers of *recursive* structures in which singular events are embedded.¹ The third layer concerns a type of repetition that is biological and anthropological in nature, and thus *transcends* history. Consequently, Koselleck highlighted the possibility that human history is fundamentally plural (Olsen, 2012). At some levels, historical change manifests as a radical, geological

¹ The singular is conditioned by recursive structures – 'certain *recursive* patterns provide events with common features, and at the same time the events are always characterized by a *singular* dimension' (2004: 227). For instance, receiving a letter is of singular importance for the receiver – but the letter can only be received because of the established structure of the mail service.

rupture; at others, it appears almost glacial in terms of the slow pace of movement and change. The Anthropocene as a new epoch in the history of the Earth compellingly links a long-term historical analysis - undertaken by climatologists - into a predictive future. In so doing, it questions the idea of history as a singular, universal, progressive process. Whilst anthropogenic climate change is intimately connected with the history of industrialisation and capitalist accumulation, it also causes us to think about 'deep history', which extends far beyond the recorded history of humans. More fundamentally, we need to connect history's different temporal registers; the long-term with the more immediate, short-term and the emergent. In this vein, Chakrabarty concludes:

The task of placing, historically, the crisis of climate change thus requires us to bring together intellectual formations that are somewhat in tension with each other: the planetary and the global; deep and recorded histories; species thinking and critiques of capital. (2009: 213)

This requires a nuanced understanding of the interwoven inter-connections and interdependencies between differing temporalities.

The crisis of climate change calls for thinking simultaneously on both registers, to mix together the immiscible chronologies of capital and species history. This combination, however, stretches, in quite fundamental ways, the very idea of historical understanding. (Chakrabarty, 2009: 220)

Furthermore, in thinking forward through the past, the Anthropocene serves as a graphic illustration of the plural nature of historical time, as global warming is simultaneously a glacial, incremental and unintended process and one with turbulent and seismic geological and human implications.

In what follows, I want to pick up on this prompting by Chakrabarty, to begin to think differently about the temporal registers that apply to concepts and practices of security and their implications in an anthropogenic age. In her majestic *Time and the Shape of History*, Penelope Corfield (2007) demonstrates how the history of human existence is a braided assemblage within time and space of three interwoven dimensions. The first is *persistence* with its attributes of continuity and stability. The second dimension is *micro-change* with its characteristics of adaptation, accumulation and momentum. Third is *radical discontinuity* with its traits of turbulence, transformation and macro-change. She notes:

The past, as it merges with the present, provides ample evidence of human experiences of the familiar mixture of the persistence, with its components of stability-location-addition, micro-change, with its elements of adaptation-accumulation-trend, and radical discontinuity, with its contribution of turbulence-friction-and macro-transformation. (Corfield, 2007: 242)

From this perspective, ‘the long term is always detectable in the immediate moment, just as the synchronic moment is always meshed into a diachronic frame’ (Corfield, 2007: 251). The essential point, however, is not to lose sight of all three dimensions nor their interconnectedness. The challenge, she argues, is ‘to find multidimensional ways of interpreting the combination of persistence, accumulation and transformation that between them shape the past and present and, prospectively, the future too’ (Corfield, 2007: 252).

Corfield’s interpretation of the shape of history meshes well with recent thinking within social ecology on the patterns of interactions across multiple small-scale pressures and strains that connect together and magnify to produce larger catastrophic crises. These have the capacity to spread across the boundaries of different domains, networks and systems, shifting from micro-changes to major disasters and conflicts, with profound implications for how we conceive of contemporary insecurities, risk and harms of various kinds. Homer-Dixon and colleagues (2015) outline a conceptual framework of ‘synchronous failure’ in the causal architecture of global crises that reveals deep causes, intermediate processes and ultimate outcomes of the pattern of multiple, simultaneous and interacting stresses within and between social-ecological systems. They probe some of the multi-dimensional ways in which differing temporal layers – in essence, Corfield’s triptych of persistence, accumulation and transformation - interact. For Homer-Dixon et al., the scale of human economic activity in relation to the Earth’s natural resources and the impact of human-induced change on the natural environment (as evidenced by the Anthropocene), combined with greater human connectivity – in terms of networks’ density, capacity and speed – and increased cultural homogeneity are all trends that contribute (separately and collectively) to conditions favouring the likelihood of increased ‘synchronous failure’ in the future. These recent tendencies generate stresses and ‘risks of large and abrupt systemic disruption and by helping such disruptions propagate farther and faster through global networks’ (Homer-Dixon, 2015: 3). Nonetheless, they also engender societal benefits in terms of enhancing capacities for repair and resilience, stimulating innovation and adaptation.

Homer-Dixon et al. (2015: 4) go on to identify three archetypal processes of ‘synchronous failure’. First, the *long fuse big bang* arises from the slow accumulation of stresses, which can cause ‘a sudden nonlinearity’, in which the rate of change ‘shifts abruptly from slow to fast’. Second, the *simultaneous stresses* archetype illustrates how ‘multiple stresses operating simultaneously can combine in their total impact, often synergistically’. Third, the *ramifying cascade* highlights how disruptions or shocks arising from ‘sudden nonlinearities can propagate rapidly’ across tightly coupled social and ecological networks. Importantly, each pattern highlights and is attentive to the causal links between stresses that can occur along a range of temporal stages in the life-course of stresses and their impacts. The authors seek to illustrate each archetype and their causal, temporal and spatial structures with reference to empirical examples from the financial-energy and food-energy crises of 2008. They explicitly differentiate between two temporal stages: first, *slow* processes mainly functioning within single systems; and secondly, *fast* processes operating across multiple systems. In so doing, they draw attention to ‘emergent patterns’, non-linear reciprocal relations and feedback loops, all of which have significant implications for thinking about the multiple temporalities of security. Finally, for our purposes, they also allude to the ‘deep ethical’, as well as practical inferences of such insights (Homer-Dixon et al., 2015: 1).

Developing upon these important conceptual probings, the crux of my argument is first, that security itself is a temporal concept – it engenders a certain temporality. Secondly, in an anthropogenic age, we can explore and analyse security and the challenges that it presents in relation to three key concepts, each of which evokes a different temporal register. In essence, they are ‘temporal terms’. Each corresponds (broadly) to one of Corfield’s triplet. First, *sustainability* calls to mind the *long-term* of persistence and continuity; it speaks to generations to come. The ‘*everyday*’ suggests *micro-change*, accumulation and momentum; it conveys repetition, not simply referring to the singular, exceptional or unique but also to that which occurs ‘day after day’. The ‘*emergent*’ speaks to a much more imminent and short-term time frame – the constantly emerging present – which, when conjoined with the concept of security, evokes *radical discontinuity* with its traits of turbulence, transformation and macro-change; it induces speed, urgency, emergency and a ‘nowness’. These, in turn, encourage us to think differently about the ethics of security, moral responsibility and justice. Together, they reveal the complex interplay between differing temporalities and the need to understand their intersections and interconnections, as well as points of congruence and dissonance.

Climate change, urban growth and the promiscuity of security

In what follows, I wish to argue that engaging with the Anthropocene has wide-ranging implications for our conceptions and analyses of security. This is evident, first (and most obviously) in the very direct sense that many of the future global challenges of insecurity and conflict will themselves be products of global warming; as large swathes of peoples become refugees from predicted epicenters of drought and desertification or from the flooding of densely-settled, mega-delta regions. Environmental change has already become a major force propelling migration and displacement across the world, prompting ‘climate refugees’ (Gemenne, 2015). As such, global warming is likely to exacerbate the existing and growing geography of inequality and the uneven distribution of lived insecurity. Allied to this, at some point in 2007, ‘*homo sapiens*’ became ‘*homo urbanus*’ in that the proportion of the world’s population living in cities now exceeds 50 per cent - as contrasted with only three per cent in 1800 when the Anthropocene began (The Economist, 2007). Contemporary urbanisation, however, is largely a phenomenon of poor and middle-income countries. By and large, the rich world has put most of its urbanisation behind it. In poor countries, though, the trend is set to continue. The bulk of urban growth is being absorbed in the world’s precarious slums (Davis, 2006). The United Nations forecasts that the current population of approximately 7.5 billion will rise to over 9 billion by 2050, when two-thirds of people will live in cities (United Nations, 2014: 1). The increase will be most dramatically felt in the poorest and least-urbanised continents of Asia and Africa. Yet, these are the countries least able to cope with the confluence of mass urbanisation and climate change. Additionally, cities are responsible for more than 70 per cent of global carbon dioxide emissions (UN-Habitat, 2016: 1). Today’s large cities and fastest growing urban agglomerations are concentrated in the global South; by 2030, some 13 new mega-cities (of over 10 million population) are expected to emerge in less developed countries (United Nations, 2014: 80). The scale and pace of this growth is creating unprecedented social, political, cultural and environmental challenges. For many, these urban agglomerations are not the rich, vibrant cultural centres associated by many contemporary western urbanists within the modern cities. Rather, in many developing countries, urban expansion has been characterised by informality, illegality and unplanned settlements; such that above all else, urban growth has been intensely associated with poverty and slum growth. The growing urban divide between the affluent and the poor provides particularly fertile ground for social conflict and instability. Where once living together assisted collective security, increasingly in the future, as these trends intensify, living

together in human settlements will engender insecurities of various kinds both in the immediate and in the longer-term.

Belatedly, criminology has begun to pay greater heed to the variety of crimes, harms and risks associated with global climate change and how these impinge on humans and non-human species (Lynch and Stretesky, 2010; Agnew, 2011; this volume). Security scholars, likewise, have increasingly come to consider both the broad theoretical challenges presented by the Anthropocene, as well as the practical future security implications for the globe (Dalby, 2007; 2014). For Chandler, the Anthropocene presents ‘a fundamental challenge to previous epistemological and ontological assumptions about how we know and how we govern/secure in a world that is no longer perceived as open to linear temporalities of cause-and-effect’ (2016: 3). Additionally, Fagan has argued that the Anthropocene puts into question one of the key organising logics upon which much security discourse is built: the separation between human and nature and the distinction between referent objects. Provocatively, she suggests that the Anthropocene ‘puts into question the possibility and desirability of security’ (Fagan, 2016: 18) and she goes on to ask; ‘what would a security look like whose subject was not modern man?’ (2016: 13).

More generally, social theorists have identified the manner in which the Anthropocene implies that we are living in an age of ‘manufactured uncertainty’ (Beck, 2009), whereby security threats (notably those prompted by climate change) can no longer be seen as external but rather arise out of and through societal processes.² Following Chakrabarty (2009), these security threats are intrinsic to the modern ‘acquisition of freedom’ and industrial prosperity. As contemporary threats and challenges to social order have become more complex, interdependent and interconnected, so too the concept of security is no longer static but fluid; influenced by the interplay between a range of factors, fields and forces. In various ways, security is on the move. So too, in its movement the concept of security also enlarges and invades new domains. For example, the response of many nation states to amplified insecurity, threats and the fear of conflict, violence and crime has been increased resort to processes of securitisation, criminalisation and militarisation. As a result, security has become an increasingly important strategic lens through which diverse areas of economic,

² According to Beck ‘manufactured uncertainties’ are ‘dependent on human decisions, created by society itself, immanent to society and thus non-externalizable, collectively imposed and thus individually unavoidable; their perceptions break with the past, break with experienced risks and institutionalized routines; they are incalculable, uncontrollable and in the final analysis no longer (privately) insurable’ (2009: 293).

environmental and social life are thought about and governed. It has become an organising concept central to the exercise of authority across numerous domains; such that ‘governing through crime’ (Simon, 2007) - and (in)security - have become prominent political responses. In the face of growing climate migration and conflict-related people-movement, this has been particularly notable with regard to the fortification of border security networks and the intertwining of immigration control and crime control. The process referred to as ‘crimmigration’ (Stumpf, 2006) has seen distinctions between migration administration and criminal justice superseded by ‘novel assemblages’ of law and order and border control (Aas, 2011; Aas and Bosworth, 2013). This has resulted in the institutionalised use of crime control techniques, governmental practices and technologies within the regulatory system of population management.

Alongside the securitisation of urban life through heightened surveillance and embedded crime control, recent years have witnessed an evolving promiscuity of security as a governing frame of reference (Crawford, 2014a). The concept of security has not only colonised immigration and social policies – such as housing, health, education and employment and workfare – but its promiscuity has extended farther afield. From energy, food, water and human well-being, to global conflict, environmental survival and natural resources, the technologies, discourses and metaphors associated with security have become increasingly eminent features of contemporary institutions and governing bodies. A pervasive ramification of the Anthropocene is that we now talk, for example, about ‘food security’ as a way of framing - and, to a degree, in place of - issues of food scarcity and shortage, as well as inequalities of food production, supply and distribution. Hence, security ‘talk’ has become simultaneously more significant, increasingly consequential and more unrestrained.

The temporality of security

Valverde (2014) has compellingly argued that temporality is central to all security projects. Security is concerned not simply with managing present threats and risks but also with governing as yet unknown futures. Feeling secure demands not only the absence of direct harms in the moment but also assurances that the conditions underpinning our security will persist into the future. Moreover, security practices and technologies have both short-term implications and longer-term consequences – they exert an evident temporality. The evolving and interdependent nature of security problems means that nothing done to solve one security hazard is not without impacts. There is a degree of recursiveness in the ways in which

intentional security measures feedback onto and effect subsequent security - both at the level of subjective perceptions and objective reality. Today's quests for security in their attempts to control present risks and assuage extant fears, frequently scatter the future with sources of insecurity. Evoking 'security', as Huysmans (2002) has noted, may bring about precisely that which one is trying to avoid. Security programmes – notably 'emergency measures' – may provide temporary relief, but will often have ramifications that reverberate into the future. They can exhibit patterns of causation and outcomes that approximate to Homer-Dixon and colleague's (2015) archetypes of the 'long fuse big bang', 'simultaneous stresses' and 'ramifying cascade', whereby independent and interdependent factors can interact in ways that combine in their effects within and across networks with cumulative or additional consequences, subsequently shifting between temporal registers from continuity, through momentum to turbulence.

It is precisely this quality of unintended consequences of 'securitisation' that scholars have highlighted (Buzan et al., 1998). They have demonstrated how, by simply evoking 'security', something is being done and something demands to be done. As Wæver (2004: 13) notes: 'It is by labelling something a security issue that it becomes one'. By voicing security, things that might ordinarily be politically untenable become not only thinkable but acceptable, including the introduction of extraordinary or exceptional new legislative powers or special measures. Security, thus viewed, is the result of a move that takes politics beyond the established rules of the game and frames the issue as above 'normal politics'. The issue is then moved into the realm of emergency politics, where it can be dealt with swiftly and without the normal (democratic) procedures. This 'securitisation' of social life can thus be thought of as a consequential condition in which issues and problems are depoliticized and alternative ways of framing and responding to problems of order are set aside or suspended.

Hence, security practices and processes of securitisation embed a temporal register that seeks a faster or compressed time horizon. In seeking to compress the 'normal' routines, this urgent 'now' dimension of security has distinct temporal implications. Huysmans (2004: 332) observes how securitisation institutionalises 'speeding up' against the relative slowness of normal politics: 'Calls for speed not only question the viability of deliberation and a contest of opinion; they also support strengthening executive-centred government, and suppress dissent'. Security imparts urgency, impending consequences and the evasion of erstwhile processes: 'Rather than debate and deliberation, securitisation calls for *silence and speed*'

(Roe, 2012: 252, emphasis in original). Consequently, for many commentators the implications and outcomes of securitisation have almost exclusively been interpreted in a negative light as undermining democracy, destabilising political values, circumventing legal principles and eroding social relations; as inevitably bad. It ushers problematic ethical concerns, stifling debate and side-lining counter-veiling interests. Thus understood, securitisation represents failure; failure to address the issue within ‘normal bounds’ (Buzan et al., 1998: 29). The contrasting ambition, therefore, is ‘desecuritisation’ (Wæver, 1995). Yet, less regard has been given to how security – as a social good – can be productive and is produced, by whom and in accordance with what values. Floyd (2011), however, has usefully sought to elaborate a ‘just theory of securitisation’, governed by certain normative principles whereby: ‘If, for instance, we value the reduction of human wretchedness in the world above all else, then the suspension of ordinary politics is morally permissible, provided that human beings are the beneficiaries of security policies, and not power holders and elites’ (Floyd, 2010: 4). One might wish to expand this to incorporate non-humans, the eco-system and future generations.

Security and sustainability³

Like security, sustainability expresses temporality but does so in a distinctly different register, by referencing the long-term. Sustainability is characterised in terms of meeting short-term needs without compromising future generations’ capacity to meet their own needs (World Commission on Environment and Development, 1987). Sustainable security practices, therefore, can be defined as those that meet the needs of the present without compromising the well-being of the future through adverse societal impacts, depletion of other fundamental social values - such as trust and legitimacy - or erosion to principles of freedom, due process or equity of treatment. Sustainable security requires attention to the causal, temporal and spatial structures and future implications of practices and technologies in the present. For instance, the existence of excessive security differentials and uneven distribution of safety have the capacity to exacerbate and compound extant inequalities. So too, they can foster inter-group or inter-personal tensions and social conflicts. Thus, spatial and social inequalities in security can generate vicious circles and malign feedback loops across time.

³ This section develops upon ideas first published elsewhere (Crawford, 2014b).

A conception of sustainable security seeks precisely to reconcile short-term security needs that enable people to adapt and live confidently with threat and risk, with longer-term goals of developing a functioning, legitimate and normatively viable security system. It follows that the sustainability of security practices as public goods necessitates not only the construction of a just society in the present, but also the design of arrangements and procedures that secure lasting and continuing social and environmental justice in the future. This involves not only being attentive to the capacity of security measures to impact disproportionately on specific groups or unduly discriminate against them, but to be reflexive in terms of the constantly changing social, environmental, economic, political and legal climate in which security is enacted. Such an endeavour necessitates consideration of the role of justice principles and the rule of law as vital stepping stones along the pathway to legitimate and sustainable forms and levels of security. This underscores the requirement to manage uncertainty without prompting social injustices and amplified inequalities or compromising future security by generating new sources of insecurities.

The recognition that we, humans, are making future environments (as geological agents) and thus literally shaping the future through our everyday activities has profound ethical implications. Callicott (2011) argues that the spatial and especially the temporal scales of global climate change demand both a shift in moral philosophy from a hyper-individualistic ontology to a thoroughly holistic ontology, as well as a shift from a reason-based to a sentiment-based moral psychology. I return to the role of emotions and affect in understanding and advancing security practices below (see Crawford and Hutchinson, 2016b), but first I focus on the implications for conceptions of ethics and justice. Usefully, Dale Jamieson (2007) deploys an allegory of ‘Jack and Jill’, highlighting six possible scenarios (see Box 1 below) to illustrate and explore the different forms of moral responsibility and chains of causation that the Anthropocene prompts us to consider.

Box 1: Dale Jamieson's Six Ditties

Ditty 1: Jack intentionally steals Jill's bicycle. One individual acting intentionally has harmed another individual; the individuals and the harm are clearly identifiable; and they are closely related in time and space.

Ditty 2: Jack is part of an unacquainted group of strangers, each of whom, acting independently, takes one part of Jill's bike, resulting in the bike's disappearance.

Ditty 3: Jack takes one part from each of a large number of bikes, one of which belongs to Jill.

Ditty 4: Jack and Jill live on different continents, and the loss of Jill's bike is the consequence of a causal chain that begins with Jack ordering a used bike at a shop.

Ditty 5: Jack lives many centuries before Jill, and consumes materials that are essential to bike manufacturing; as a result, it will not be possible for Jill to have a bicycle.

Ditty 6: Acting independently, Jack and a large number of unacquainted people set in motion a chain of events that causes a large number of future people who will live in another part of the world, from ever having bikes.

Adapted from Jamieson (2007; 2015)

The moral evaluation of the wrongfulness of Ditty 1 is clear and parallels the stuff of much criminal justice processing in contemporary societies. The link between Jack and Jill is direct, both in time and space, and the intentionality is clear. Intuitively, we acknowledge the wrongfulness. However, the moral issues, intentionality, chains of causation, and spatial/temporal relationships become less clear as we move through the subsequent ditties. In Ditty 2, the agent who harms Jill is an unstructured collective rather than an individual, whereas, in Ditty 3, the amount of harm that Jack causes to Jill is reduced to a minimum. In Ditty 4, the spatial proximity between Jack and Jill is dislocated and Jack's intentions are no longer malign. In Ditty 5 not only are Jack's bad intentions removed, but also a temporal remoteness between Jack and Jill is introduced. Finally, Ditty 6 combines all of the changes that are included in Ditties 2-5. Subsequently, it is harder to identify the agents, the victims and the causal relationship. In essence, it appears less evident that anyone has intentionally deprived future people who will live in another part of the world from ever having bicycles. Consequently, Jamieson's final Ditty 6 is evidently an allegory about climate change. It is valuable for our purposes, as it highlights the moral and political challenges of security practices across time when viewed through such a wider temporal and spatial lens. Furthermore, some of the features of climate change also attend to security-related harms, notably the amplifying power of technologies and the stretching - or 'disembedding' - of time and space. Thus, if we replace 'Jill's bike' with 'Jill's safety and security' and the chain of

events become as follows, ‘security practices of some which impact negatively on others either in the moment or later in time’, we can see the temporal parallels with questions of ‘security’ and ethical conceptions of justice embedded therein.

Jamieson (2015) links this ethic directly to what he refers to as ‘climate justice’. Such a notion prompts a rethinking of causation and responsibility in the context of justice, far beyond the traditionally narrow time frame and intentionality of the substantive criminal law – which embodies distinct ideological assumption about causation and free will that delimit a wider vista regarding past and future causes and consequences (Kelman, 1981). Yet, Jamieson’s scenarios draw attention to the ways in which morality and time stand in an awkward relation to one another. Whilst it may seem obvious that, as individuals, we are morally responsible for what we did and also for what we will do, particularly vexing complications are thrown up in relation to cross-generational justice. Some of these have been illustrated, for example, by the extent to which moral responsibility reaches into the past for the historic inequalities of wealth and power to which it is contributing in the present. In a different context, Hall and colleagues (2014) have exposed these complexities with regard to the legacies of slavery derived from compensation payments made to slave owners following the abolition of slavery.⁴ Their work begs the question: given the scale of the injustices committed and despite the length of time passed, do those alive today who benefited from compensation payments, owe something – by way of reparation - to the contemporary descendants of those who suffered as a result of slavery? This reframing of justice prefigures a more fundamental shift in our conception of justice in the Anthropocene to include: ‘justice between generations, between small island-nations and the polluting countries (both past and prospective), between developed, industrialised nations (historically responsible for most emissions) and the newly industrialising ones, and so on’ (Chakrabarty 2015: 49).

Generally, climate change – in terms of climate variability and extreme events - can be seen as an injustice that rich countries (and rich people in poor countries) inflict on poor countries (and the poor people in poor countries). Historically, the emissions that have caused climate

⁴ They have identified and traced the histories of the 3,000 or so British-based slave owners who received almost half of the £20 million compensation following the Abolition of Slavery Act 1833 (see the Legacies of British Slave Ownership website at: <http://www.ucl.ac.uk/lbs/>). Their research shows how the compensation money directly benefited industry, the development of merchant banks and marine insurance as well as families, who amassed art collections and built country houses. Although many of the families named in the Slave Compensation Commission – on which the research is based – have died out, nonetheless, some have survived to produce famous descendants.

change have derived from rich countries, while much of the suffering related to climate change is likely to occur in poor countries and impact adversely upon the poorest members in those countries. In addition to contributing less to climate change, poorer countries are also more vulnerable to its impacts. These vulnerable peoples have less resources or capacity, both technological and financial, to respond. While the generators of climate change have historically been the affluent world and their affluence may enable them to cocoon themselves, to a certain degree, from some of the impact of global warming and climate instability, nonetheless, the climate has a levelling and universalising effect – all humans and all non-humans will be affected by climate change. Yet, given the inventiveness and reflexivity of humans and the market incentives to innovate, McAfee (2016: 71) is no doubt correct in speculating that ‘the gulf will deepen between the climate-protected and the far greater number of people whose already-precarious lives are threatened by the consequences of climate change... the rich may face the same storms but they do have lifeboats’.

Consequently, security differentials are pervasively tied to global social inequalities, and the capacity to cocoon oneself from (non-climate-related) insecurities is considerable. Hence, there are certain differences between ‘climate justice’ and the analogous idea of ‘security justice’ - the confluence of two tensely related concepts (Gearty, 2013; Crawford, 2014b). It foregrounds equity of access to key goods and services as a prerequisite of sustainable communities, both as a good in itself and in that inequities breed insecurities. From a normative and ethical standpoint, security should not be treated as a good simply to be maximised, but rather as something to be achieved as far as possible at an equal level for all; to minimise inequities of distribution. The notion of ‘sustainable security’ thereby infers ideas of distributive justice across space, time and generations. It foregrounds the temporal and spatial unevenness of security practices and their differential implications for peoples’ liberties and freedoms, as well as experiences of (in)justice both in the present and in the future. As such, it underscores equity between generations, in that future generations should not be materially disadvantaged by the activities of the current generation.

Security and the ‘everyday’

Whereas ‘security’ tends to focus on the spectacular that disrupts the normal, the notion of the ‘everyday’ recognises the shared reality of the mundane: ‘Everyday life... not only describe[s] the lives of ordinary people, but recognises that every life contains an element of the ordinary’ (Felski, 1999: 16). The everyday highlights the routine, regularised and

prevailing nature of insecurity; notably, for some people living in particular environments. Recently, Steven Hutchinson and I have sought to highlight insights provided by exploring security through the lens of the everyday (Crawford and Hutchinson, 2016b). From our perspective, the concept of ‘everyday security’ has two broad and interrelated dimensions. The first comprises the lived experiences of individuals and groups who interact with governmental security programmes and practices. It includes the manner in which security projects are interpreted, felt, received, adapted and resisted by different people as well as their own perceptions and understandings of such measures. The second feature highlights the more mundane and quotidian practices and habits that are understood or characterized by people and groups as being “about security”, and which are crafted and carried out on a regular (everyday) basis, namely the production of “security from below” (Crawford and Hutchinson, 2016b: 1190).

Hence, ‘everyday security’ has an informal and taken-for-granted quality. Yet, experiences of formal security practices and quotidian security practices are interconnected in important ways: ‘Formal security projects... will always be embedded within (and in turn, at least in part constituted by) tacit forms of informal local order, social inequalities, routine habits and procedures, and the mundane practices and habits of ordinary people’ (Crawford and Hutchinson, 2016b: 1191). Emphasising the ‘everyday’ provides nuanced understandings of security, which demands more attention be given to how the less prominent and less powerful – in both institutional and non-institutional settings – interact with formal, state-initiated ‘security’ in various ways.

More generally, the everyday acts as an important counterfoil to a prevailing emphasis upon the spectacular and exceptionally dramatic events, which frequently cast a long shadow over security research (and indeed criminology more broadly). It serves as a counterfoil to, what du Gay (2003) calls, the ‘tyranny of the epochal’ that pervades the social sciences, which reflects a preoccupation with radical discontinuity, disruption and transformation at the expense of persistence, micro-change and accumulation in the everydayness of historical change. Too often such ‘epochalism’ makes ‘change appear the inevitable outcome of abstract non-locatable impulses and imperatives... rather than the result of specific (and traceable) political choices’ (2003: 670) that build upon each other in incremental ways. Historic ruptures are often inscribed into particular spectacular events or moments, most notably and symbolically 9/11 in the context of security studies.

The ethics of the everyday are also different to those of the immediate, the ‘emergent’ and the long-term. Studies of the everyday render mundane and routine the lived experiences of insecurity, vulnerability and victimisation; giving attention (and according priority) to its ‘everydayness’. Whereas critical security studies have largely ignored the role of interpersonal feelings, emotions and affect as well as the meanings that people attribute to events and experiences, by contrast, the everyday accords space for consideration of the emotional field and brings to the fore the role of ‘emotion work’ (Hochschild, 1979).

Emotions do not exist independent of everyday life, but are shaped through direct experience of practical activities and engagement with the social world. Hence, research on security that is focused upon the everyday must come to terms with, and work through the implications of, the manifest centrality of emotions to security processes. Importantly, recognition of these dimensions to the everyday provides an invitation to investigate the links and antagonisms between ‘politics’ and everyday life experiences and practices. As feminists have shown, it is in the politics of everyday life that power dynamics and patriarchal norms are forged and reproduced, often imperceptibly and pervasively over time. It thereby focuses on the informal and the relational nature of security – what Stritzel (2007) calls ‘real world’ securitisations. Everyday security identifies people living with and coping with insecurity (wherever that may be) as not only vulnerable but also as having creative capacities for organisation, resilience and problem-solving in ways that provide novel insights into practices and processes of securing.

Problematically, however, the everyday also incorporates a tendency to normalcy. Because it is managed and lived day-to-day, it becomes ‘normal’ and tolerated; often through processes of acculturation. Moreover, as Corfield observes, ‘the routines of daily living blur the historic weight of individual actions and decisions moment by moment’ (2007: 246). In so doing, the everyday is always in danger of accepting (as given) wider structural conditions and constraints. It can run the risk of treating macro-social inequalities as inevitable. Thus, the everyday can be viewed as conservatively rooted in tradition, whereby the horizon of possibilities are narrowed and new threats or sources of danger are ignored. It tends to constrict the focus onto the momentary event, liable to fleeting interventions, rather than in terms of intractable problems that require long-term solutions.

Hence, for these everyday instances of ‘micro-politics’ to be more than short-term projects in making do and coping with inequities of the status quo, they need to interconnect with larger agendas for political change. As feminists have shown, it is in the politics of everyday life that power dynamics and patriarchal norms are forged and reproduced, often imperceptibly and pervasively over time (Stanko, 1995). The challenge is to move from the micro-level experiences to the wider macro and structural material inequalities, injustices, abuses of power that might constitute the foundations of broader strategies of empowerment. In this sense, everyday security constitutes a form of what James C. Scott (1990: 200) termed ‘infrapolitics’, which informs the formal world of political discourses but does so in a way that is often hidden, denied or left unacknowledged. Infrapolitics is performed, acted out and recreated in sites far removed from governmental authorities and those wielding formal power. Consequently, the infrapolitical is something that is often invisible in official politics but which is its infrastructural level, providing elementary forms of political life.

Accordingly, ‘infrapolitics may be thought of as... the building block for the more elaborate institutionalized political action that could not exist without it’ (Scott, 1990: 201).

Importantly, its recognition provides an invitation to investigate the links and antagonisms between *politics* and everyday life experiences and practices. Despite the association of everydayness with continuity, it need not be conservatively rooted in tradition, but rather can be fluid, ambivalent and open to new possibilities. For, as Harrison contends; ‘in the everyday enactment of the world there is always immanent potential for new possibilities of life’ (2000: 498). Nonetheless, the difficulties of scaling up from the human, small-scale of temporal, spatial and conceptual immediacy and affective authenticity of the everyday – what Srnicek and Williams (2016: 9-13) deride as ‘folk politics’ – to strategic, systematic and long-term thinking and actions remain evidently challenging ones. From such a perspective, it may become clear that politics and security are intertwined, not opposed, such that studies of everyday security can serve as useful critical vantage-points from which to expose inequalities and differences, and to re-engage politics rather than prompt de-politicisation.

Security and the ‘emergent’

Just as we have become concerned about the ‘long-term’ future, questions of sustainability, and the impact of the present on generations to come, countervailing trends have simultaneously engendered a prioritisation of a much more immediate and immanent time horizon: namely the ‘emergent’ or the ‘constant present’. Digital culture and developments in communication and information technologies have heralded extensive debates about the

speeding up of time and the acceleration of life in digital capitalism. Urry (2000), for example, argues that new technologies generate new forms of ‘instantaneous time’ characterised by uncertainty, unpredictable change and quantum simultaneity, all of which highlight the significance of exceptionally short-term and fragmented time. Others, like Wajcman, argue that there is ‘no temporal logic inherent in digital technologies’ (2015: 176). Rather, the ‘contemporary imperative of speed is as much a cultural artefact as a material one... built into our devices by all-too-human schemes and desires’ (Wajcman, 2015: 183, 3). Nonetheless, ‘emergent time’ and the cultural allure of speed have become salient experiences of shifting contemporary relationships to time that are informed by the emergence of digitisation and, in turn, inform the rhythms of everyday life.

In the ‘Petabyte Age’ of ‘Big Data’ analytics, the *volume*, *variety* and *velocity* of new forms of data enable interventions in the present that shape the future in diverse (and as yet unimaginable) ways. Moreover, these have evident implications for security. Not only does this ‘revolution in data’ provide new sources of knowledge, stimulate new approaches to its generation, analysis and visualisation, and prompt new questions for research, but also, according to some, the ‘data deluge’ and computational capabilities, ‘makes the scientific method obsolete’ (Anderson, 2008). Whilst this is undoubtedly an exaggeration, the rise of Big Data does present a challenge to scientific practice and the erstwhile search for causality (Mayer-Schönberger and Cukier, 2013). It questions established epistemological assumptions and possibly reconfigures how research is conducted (Kitchin, 2014), including criminology (Chan and Bennett Moses, 2016). A key dimension of ‘Big Data’ that challenges traditional conceptions resides less in its *volume* or *variety*, and more in its *velocity*; the speed at which data are being added or processed, through computational algorithms. Real-time data enable the generation of knowledge and its application in compressed time-horizons and prompts a perspective of emergent causality. It elicits a reflexive approach to knowledge creation and application as both relational and as a state of being, with feedback loops and changes through iterative processes (Chandler, 2015).

In different but analogous ways to the Anthropocene, the ‘data revolution’ also serves to blur distinctions between human and non-human, between subject and object (Thrift, 2014). Chandler notes: ‘Big Data is thereby representative of other shifts both in social theory and in computational analysis, which tend to focus on the enrichment of smaller or micro-level descriptive analysis rather than macro-level theory-building’ (2015: 846). Datafication

removes the need for ‘causal theory and for top-down forms of governance on the basis of cause-and-effect’ (Chandler, 2015: 844). Knowledge has to be fine-grained and real-time rather than abstract or universal - causal lines of prediction and implementation become less relevant. It does *not* imply movement ‘up’ to macro-theories and general laws; rather data mining drills ‘down’ to contextualisation and the specificity of individual cases. Emergent causality derived from real-time interactions and connections constitutes a much ‘flatter’ or ‘horizontal’ reality (Latour, 2005: 165-72).

Digital technologies and Big Data provide possible insights into shifting patterns of security and changing contexts, potentially enabling real-time reflexive awareness and management of risks, threats and problems as they arise. Most particularly, algorithms built into socio-technical assemblages appear to afford far-reaching potential for security (Staniforth and Akhgar, 2015). Algorithms imply novel ways of knowing, even though their actual operations and software content are all-too-frequently inaccessible and invisible. They exemplify the complex interplay and co-constitution of human and non-human machine-based elements of technology. They presage forms of ‘algorithmic justice’ where the preventive designs are built into the algorithms that determine how information is used. As Amazon and Google seek to predict your taste, so too the algorithms of future services, providers and utilities seek to prevent or design out ‘bad risks’ (Harcourt, 2015). Algorithms come to replace expert knowledge and processes of interpretation, however, they are not impartial as they embed different philosophies and assumptions. In so doing, they push the boundaries of cognition decision-making, agency and responsibility beyond humans, politics and the nation-state. The deployment of algorithmic techniques and technologies for security has both political and ethical implications. With this in mind, Amoore and Raley (2017: 4) appositely pose the question: ‘Amid the apparent proliferation of algorithmic techniques in the gathering of intelligence data from battlefield, border and city streets, what are the political and ethical stakes involved in securing with, through and via algorithms in the 21st century?’

More generally, this points to an appreciation of contingency, rather than quests for a retrieval of ‘certainty’, as well as the limits to instrumental cause-and-effect approaches to governing not only crime but also medicine, healthcare and other public services. Awareness of the possibilities and diversifying implications of Big Data, as well as its dangers and limitations, constitutes a major challenge for the social sciences; its epistemologies,

methodologies and knowledge assumptions and application looking forward. It also raises ethical questions about ownership and use of these data, which are produced by ordinary people in everyday interactions. Big Data might be argued to have diversifying and levelling effects. Nonetheless, a blinkered focus on the ‘emergent’ leaves little space for linkages to be made to long-term and enduring structural dynamics and inequalities or the politics and resources required to address these. Instead, we are left simply with fleeting and momentary interventions that leave the inequitable *status quo* intact whilst remaining inattentive to its future after-effects.

Conclusion

‘Time is a “coming” theme’, as Corfield notes, ‘looking at the world not only “in the round” but also “in the long”’ (2007: 251). This is especially so in an anthropogenic age in which humans have become a driving force of ecological change. The Anthropocene requires us to think differently, not only about our place as humans on this planet but also how we understand the interconnections between the past, present and future across diverse fields of social activity. As Chabrabarty (2016: 111) suggests, it necessitates ‘zooming in’ and ‘zooming out’ different temporalities and shuttling between ‘different scales, perspectives and different levels of abstraction’. Conceptually, practically and in its effects, security has multiple temporalities that interact in a complex and interwoven lattice. As I have tried to show, the Anthropocene has clear implications for our understanding of causation, moral responsibility and justice, as well as how we think about security practices, their genesis, patterns of development, adaptations and implications. In the preceding discussions, I have simply sought to draw together and sketch out some of the conceptual contours that might inform and prompt a (re)thinking of security as a braided assemblage of the ‘emergent’, ‘everyday’ and ‘long-term’, alongside the attributes of persistence, micro-change and radical discontinuity in the shape of history. In addition to the temporal dimension, the Anthropocene also demands that we accord due regard to the interactions between different domains, systems and networks – notably the social, ecological and technology - and at different scales. Yet the size of the challenge, the scope of agency, the capacity to effect change and the radically reframed thinking required to respond can easily result in despondency, helplessness, inertia and a sense of futility. As Bruno Latour has recently noted:

people are not equipped with the mental and emotional repertoire to deal with such a vast scale of events; that they have difficulty submitting to such a rapid acceleration for which, in addition, they are supposed to feel responsible while, in the meantime, this

call for action has none of the traits of their older revolutionary dreams. How can we simultaneously be part of such a long history, have such an important influence, and yet be so late in realizing what has happened and so utterly impotent in our attempts to fix it? (2014: 1-2)

Apocalyptic scenarios about the impact of climate change have a tendency to ‘depoliticise’ debate, constituting an arena in which a ‘post-political’ frame is fashioned, arranged and embedded (Swyngedouw, 2011). According to Swyngedouw, much of the climate change and sustainability argument is ‘inherently reactionary’ for him, in that it ‘has evacuated the politics of the possible, the radical contestation of alternative future socio-environmental possibilities and socio-natural arrangements, and has silenced the antagonisms and conflicts that are constitutive of our socio-natural orders by externalizing conflict’ (2010: 228). In the face of such fears, there is an urgent need to rethink ‘the political’ and the scope for a reformulated ethic of justice therein; such that, as Levene (2013: 157) suggests, climate change may be seen as ‘the occasion, *not* the cause, of humanity’s ultimate moral and ethical challenge’. Far from the ‘death of politics’, it is anticipated that this may help open up new possibilities for a different politics – a more nuanced and engaged ‘infrapolitics’ of security.

There are parallels here with the framing of security that Chandler (2016) detects in and through new forms of mediation and agency in the field of digital policy activism being developed and applied in ‘the City of the Anthropocene’, in Jakarta, Indonesia. He concludes:

Securing the Anthropocene cannot be done by attempts to socially or technologically engineer the world, but it can be done by applying technological applications to citizens recast as a geo-socially networked community of sensors, attuned to the “unfolding” of the Anthropocene as a human-non-human assemblage of open-ended interrelations. (2016: 12)

Such networks and relationships preface a repurposing and re-envisioning of security practices attentive to the micro-politics and ‘infra-politics’ of the emergent and the everyday, as well as how these interconnect with and are enmeshed in the long-term. It should simultaneously prompt debates about alternative politics of time and our entanglement in the shifting and multiple temporalities of social, technological and geological life.

Finally, the history of the Anthropocene, thus far, has been one that includes a mix of persistence, micro-change through the additive and cumulative effects of everyday activities, and radical discontinuity, tipping points, turbulence and macro-transformation. Recognising this prompts us to explore multidimensional ways of interpreting the interwoven pattern of persistence, accumulation and transformation that will no doubt continue to shape the future too. But history also records how humans are reflective agents capable of adaptation and change. Humans are not only notorious as ‘problem-creators’ but also as ‘problem-solvers’. History reminds us that even major changes and turbulence ‘will be mitigated and counter-balanced by continuities and micro-changes, making the final outcome at once comprehensible after the event but unpredictable before it’ (Corfield, 2011: 13).

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