Lockwood Alan H (2016) Heat Advisory: Protecting Health on a Warming Planet. MIT Press: Cambridge, Massachusetts. 244 pages. ISBN: 978-0-262-53448-2

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Introduction

'Heat Advisory' joins the ranks of books intended to mobilize the public on climate change by amassing scientific facts in a readable manner. Other examples in this space include George Monbiot's (2006) Heat: how we can stop the planet burning, and Elizabeth Kolbert's (2014) The Sixth Extinction. This book's angle is 'health,' broadly conceived, and its author, Alan Lockwood, is a neurologist, rather than an environmental journalist. This piqued my interest; perhaps the author would elucidate the relationship between heat and health at a neurological level, or launch a radical new take on climate change and health via a neurology's disruption of the physiological and psychiatric divide, providing an aperture for analyses that collapse man/nature, matter/thought and nature/politics?

However, driving this book is Lockwood's role in Physicians for Social Responsibility (PSA). His primary objective is to make the case that climate change is bad for health. In so doing, the book provides a useful survey of mainstream accounts of climate change and its impacts, particularly on health. Like Monbiot (2006) and Kolbert (2014), the objective is assembling conventional, institutionalised, accessible forms of evidence to justify 'doing something' about climate change. The book's scope demonstrates a Herculean effort, but this leaves its content rather general and thus its political utility somewhat limited – it is hard to see anyone using this book to make policy, although it has potential in lobbying for policy change, which Lockwood himself and presumably the PSA and others, will make use of. In the wake of Trump's election and the emerging ultra-conservative political order in the United States, the remarkable re-inhabiting of the political by existing institutions and their agents perhaps means that this book's decidedly non-radical approach will do surprisingly political work.

While acknowledging the context and purposes of 'Heat Advisory,' its content – the articulation of climate change, heat and health – is the focus of this review. For mainstream academic disciplines this represents a complex conjunction of different knowledges. From a Science and Technology Studies or Critical Geography perspective (among others), 'climate change', 'heat' and 'health' are profoundly contested, multiple and contingent, and their relations even more so. In the remainder of this review, we'll take a look at Lockwood's account and the more critical engagement that it inadvertently encourages.

Shifting Heat/s

The title of the book, 'Heat Advisory', utilizes the heatwave warning terminology of the United States' National Weather Service. Given this, the focus on extreme environmental heat and heat waves is surprisingly limited, and climate change's

influence on these events is not the launch-point of the book. Instead, climate change, heat and health are loosely assembled in the introduction. Heat appears first in reference to a 2005 World Health Organisation report (p. 3), where climate change is described as affecting ecosystems, which in turn affect health: here, increased temperatures are an ecosystem impact and heat illness is a health effect. However, Lockwood (p. 6-9) turns immediately to a different framing of health, as the absence of disease, and the Global Burden of Disease 2010 project. This shift seems to be based on climate change understood in terms of its emissions rather than impacts. Lockwood himself identifies this disconnect on page 42, where he notes heat-related morbidity and mortality aren't included in the Global Burden of Disease report, but fails to resolve this. What seems like an oversight in fact enables Lockwood to construct a broader relation between climate change and health where heat is not an impact but rather the cause of (other) climate change impacts which have health implications. These include heavy rainfall (resulting from warmer seas), sea level rise (via melting of ice caps), and, even more indirectly, changes in disease vectors, by (for example) creating more favourable environments for mosquito breeding, enabling the spread of Malaria.

The shifting position of heat from climate impact to driver of other climate impacts is a slight-of-hand, obscuring whether Lockwood is tracing a relationship from heat to health impacts or whether 'heat' is just being used as a proxy for climate change per se (see, for example the discussion of increased Carbon Dioxide levels on plant growth, food supply, and human nutrition, p. 81). The lack of clarity perhaps arises because the author is torn between the dramatic sounding but heat-specific title and the real objective of the book: stacking up all the reasons why climate change is bad for human health. However, it leaves useful disjunctures for critical accounts of heat, health and climate change.

Provocations

Glossing over the particularities of all the ways heat plays out raises at least two missed opportunities. First, of paying attention to the different ontics of heat and all the fascinating ways that heat 'matters' to, and as a result of, different (knowledge) practices. Although largely unacknowledged, multiple 'heats' emerge in the book, including multi-species and more-than-human heats (Oppermann et al., 2017; Oppermann and Walker, In Press): the heat that matters for the global climate system, for the human body's thermalregulation, for water's evaporation and precipitation, and for mosquito breeding. Tantalizingly, Lockwood notes "[in] agriculture, it is necessary to consider multiple species, not just humans" (p. 79), although he pursues these through a thoroughly modernist conception of nature.

The second, related, opportunity is to examine the ways in which heat is, while multiple, also profoundly relational, including in its co-productions with the multiple bodies and healths at play in the book (also implicit). For example, 95°F is too hot for humans to maintain a stable state (p. 46), but much lower temperatures are too hot for sea ice to do the same (p. 96-101). Relational also is the question of the political ecology (Bennett, 2009; Latour, 2007) of these heats as they traverse, transgress and disrupt different fields and come to matter in different ways for different bodies (Oppermann et al., 2017). In Heat Advisory, they are mostly kept discrete, so tensions between them are rarely visible. A nice example of how this could be done, relevant to the field of health is de la Bellacasa's recent book on care (2017). Heat Advisory's Chapter 8 on climate change, heat and violence resonated most with such an approach; Lockwood moves from 'lay' knowledges of heat to the multiple ways it flows and modulates through relations between the environment, geography, physiology, and bodies, roads and cars.

Conclusion

In sum, 'Heat Advisory' provides a broad overview of knowledge practices relating to heat, health and climate change, but lacks a systemic analysis of how these areas are related. In so doing, the book inadvertently raises important practical and theoretical challenges: what ecologies of multiple 'heats', 'bodies', and 'healths' are at play that shape climate change and our responses to it? How are these articulated in the constitution of problems and their governance? What of multi-species and more-than-human heat, and heat's multiple mate-

rialities, as it moves, is differently embodied and plays out ecologically? There are some well-established inroads to thinking about heat in this way, such as Prigogine and Stengers (1984) and notable recent attempts to tackle heat and its relation to climate change, such as Clark (2010); and Clark and Yusoff (2014). However we might choose to pursue these questions, 'Heat Advisory' is, both intentionally and unintentionally, a provocation to take them seriously.

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