

This is the author's accepted manuscript, accepted on 12th January 2017, published on 08th march 2017 and embargoed until 8th September 2018. The final published version of this work (the version of record) is published by Taylor and Francis and the Regional Studies

Association in *Territory, Politics, Governance* available online at:

<http://www.tandfonline.com> <http://dx.doi.org/10.1080/21622671.2017.1297251>

This work is made available online in accordance with the publisher's policies. Please refer to any applicable terms of use of the publisher.

Crude geopolitics: territory and governance in post-peak oil imaginaries

Dr Nichola Harmer

Department of Geography, Plymouth University, United Kingdom

Drake Circus

Plymouth University PL48AA

00 44 (0)1752 584705

nichola.harmer@plymouth.ac.uk

Crude geopolitics: territory and governance in post-peak oil imaginaries

Concerns over diminishing access to cheap fossil fuels and the impacts of their use on the environment have engendered the production of novels in which new ways of living and alternative forms of governance are imagined. From pioneering self-sufficiency expert John Seymour in the 1990s, to 21st century novelists dealing with the twin crises of climate change and ‘peak oil’, these stories draw on existential concerns over resource depletion, environmental degradation and climate change to portray fundamentally altered socio-political futures. This article explores the political geographies of these imaginary futures as depicted in post-peak oil novels from the UK and the US. It traces the re-territorialisation and re-scaling of governance following the imagined disintegration of social and political structures post-peak oil, highlighting an emphasis on the creation of small, localised communities, drawing for their survival on their immediate physical geography. In doing so, the article also demonstrates how the novels provide a conceptual space in which diverse threads of

political philosophical thought are drawn upon in order to construct new political geographies in the imagined post-oil societies.

Peak oil literature futures territory governance

Introduction

In the summer of 2015 the renowned Canadian author Margaret Atwood wrote an article in *The Independent* newspaper entitled 'It's not climate change...it's everything change', in which she discussed three future scenarios in a world with depleted access to oil (ATWOOD, 2015). In the second of these scenarios, the pessimistic option in which oil production ceases suddenly, ATWOOD depicted a scene of looting and violence where central government authority would be usurped by warlords and the earth's population decimated by epidemics and food shortages. While she acknowledged this scenario 'is extreme, and also unlikely' (2015, p. 32), this public contemplation of imagined worst case scenarios is significant as it highlights, firstly, the reflection of a contemporary concern in Europe and North America with the character of society and governance in the advent of an era of restricted access to cheap oil supplies (peak oil) ; and secondly, the importance of literature as a cultural site through which contemporary concerns regarding the impact of the exploitation and depletion of natural resources, in particular fossil fuels, may be articulated and other futures may be hypothesised (CURTIS, 2012; GHOSH, 2016).

Prominent analyses of policy and wider socio-political discourse on environmental change and peak oil have identified that the construction of these issues as catastrophic inhibits political mobilisation and is related to a wider context of an era of post-politics (SWYNGEDOUW, 2010, p. 1) or the rise of libertarian ideals, individualism and fatalism in contemporary American society (SCHNEIDER-MAYERSON, 2015). Research by

SCHNEIDER-MAYERSON (2015), for example, suggests that “peakists” (people who believe that the imminent end of access to cheap oil would trigger fundamental social change), despite largely being educated, middle class and liberal or left-wing, tended to eschew traditional collective politics in favour of individual actions and political disengagement. SWYNGEDOUW has argued for the existence of a discourse of an ‘environmentally apocalyptic future, forever postponed’, which ‘neither promises redemption, nor does it possess a name; it is pure negativity’ (2010, p. 219). This discourse, he claims, is intimately connected to a ‘post-political frame’ based on the ‘inevitability of capitalism and a market economy’ (2010, p. 215). Apocalyptic discourse regarding climate change, he argues, serves to paralyse political debate, foreclosing the discussion and possibility of alternative contemporary modes of socio-political organisation (SWYNGEDOUW, 2010). Similarly, BETTINI and KARALIOTAS (2013, p. 333) argue that ‘the mobilisation of peak oil as a narrative leads to de-politicisation’, while GIBSON-GRAHAM and ROELVINK (2009) have also argued that the announcement of the Anthropocene generated ‘apocalyptic images’ of climate change and ecological collapse, which at once present us with an urgent need for action and create a seeming inability to act. These analyses point strongly to the idea that catastrophic discourses around environmental change and natural resource depletion tend, on one level, to close down discussion of, or mobilisation towards, alternatives to the socio-political status quo.

At the same time, the past decade has seen an increasing interest in and production of books and films concerned with catastrophe and the end of the world as we know it (BRAUN and WAKEFIELD, 2014; CURTIS, 2012; MANJIKIAN, 2012; SCHNEIDER-MAYERSON, 2015), including fictions depicting the consequences of diminishing oil supplies and catastrophic environmental change. As CLAIRE CURTIS has argued in her exploration of post-apocalyptic fiction and the social contract: ‘...we live in an age where thinking about the

end has fully suffused the popular culture' (201, p. 3). Apocalyptic, post-apocalyptic and dystopian literature has emerged as a broad sub-genre which includes fictional accounts of devastation triggered by nuclear war, pandemic disease, technological failure, alien invasion, fossil fuel depletion, and other hypothesised causes of catastrophic breakdown of society (CURTIS, 2012). The depiction of apocalyptic images in art and print, particularly those of a biblical nature, has a long history in Western societies and O'HEAR and O'HEAR argue that 'the ways in which we frame our apocalyptic expectations act more as a mirror to our collective anxieties than as signposts to an actual apocalypse' (2015, un-paginated). In the recently published *What is the Future?* the late JOHN URRY connects a rise in catastrophic thinking in scientific and social scientific thought, and cultural outputs after the turn of the century, to disillusionment of post-cold war hopes for a better world (2016); while MANJIKIAN links apocalyptic narratives to an interest in the fictional exploration of the end of the state, US unipolarity and imperialism (2012).

The genre of post-apocalyptic fiction has received attention from political theorists for its potential to imagine new forms of political organisation. As CURTIS argues: 'The apocalyptic event creates the social contract thinker's state of nature' from which new imaginary political worlds can come into being (2012, p. 2). For Political Geographers, MANJIKIAN's argument that they allow us to visit our own country through 'a new geographic lens' and to look at the nation anew as 'a foreigner might', claiming, she argues, a post-colonial or subaltern perspective (2012, p. 26), provides one compelling argument for their further study. MANJIKIAN argues that: 'The apocalypse... smashes the conceptual maps which we as analysts keep in our heads to organise the world into a center and a periphery, an us and a them' (2012, p. 30). These novels, she argues, allow the writer to imagine new territorial divisions, new spatial arrangements of authority and governance; new ways and means of distributing resources across space.

Post-peak oil narratives then, as a form of apocalyptic fiction, may hold potential as a cultural space for the imaginary exploration of new or re-shaped forms of politics as, in allowing for the (admittedly only) fictional unleashing of the catastrophe identified by SWYNGEDOUW as permanently deferred (2010), they fantasise a return to ‘the social contract thinker’s state of nature’ from which the author and reader can imagine the creation of new forms of political organisation (CURTIS, 2012, p. 2). This is clearly not equivalent to actual political change, but for political geographers in particular, these fictional accounts of the end of the world may provide an insight into alternative future visions for the governance of space, both within the erstwhile state and in relation to other former territorial entities. This article thus explores these fictional accounts of apocalypse and their aftermath as a conceptual terrain in which alternative futures can be imagined; where the contingent nature of dominant contemporary political-spatial models may be highlighted (INCE and BARRERA DE LA TORRE, 2016) and where alternative socio-political futures may be configured and explored. These imaginary scenarios are not always entirely progressive, but do suggest an experimentation with different forms and scale of government, drawing, variously, on historical models such as the English medieval hundreds system or the participatory democracy of the Greek city state. The article does not intend to conflate the fictional with the material or to suggest that there is any straightforward link between textual representations and political or social action or inaction. Instead, it sets the discussion within the context of, rather than in opposition to, the compelling arguments made above regarding the de-politicising effects of catastrophic environmental or resource scarcity discourse. However, it also approaches the analysis of these fictions with a recognition of the power of discourse, language and textual representation in the wider socio-cultural sphere, in relation to international politics and political geography (AGNEW, 2009; HOPF, 1998: Ó TUATHAIL and AGNEW, 1992) and in the construction of geopolitics. As the novelist

AMITAV GHOSH has argued, ‘the climate crisis is also a crisis of culture, and thus also of the imagination’ (GHOSH, 2015, un-paginated), with the relative absence of the engagement of modern literary fiction with issues of climate change connected to wider socio-political processes of commodity fetishization and the perceived separation from, and control by, humans over the non-human and future destinies (GHOSH, 2016). Fiction is thus clearly a cultural site across which contemporary ideologies and practices may be inscribed and provides the potential for the expression and exploration of alternative visions of societies surviving in the absence of ready access to fossil fuels.

While there is a history of Geographers using literary texts to shed light on issues pertinent to questions of space and place (ELDEN, 2012), the sub-discipline of literary geography has recently been described as an ‘emergent interdisciplinary field of research’ driven by the cultural turn in Geography and a concurrent spatial turn in the arts and humanities (ALEXANDER, 2015, p. 3). Introducing a new journal, *Literary Geographies*, in 2015, ALEXANDER argues that ‘geographers have become increasingly sophisticated readers of literary texts’ but that the burgeoning of work in this area is characterised by theoretical heterogeneity and significant diversity, from generating maps from literary texts, to examining the spatial implications of the material production of texts and the representation in texts of place and space (ALEXANDER, 2015, p. 5). Geographers have used literary texts to create insights into postcolonialism, feminist geographies, poetry, the importance of literature to geographers’ own writing, and relations between politics and space (ELDEN, 2012). It is this latter type of literary geography – one that Elden calls ‘politicised literary geography – where literary texts are used to shed light on the complex interrelations between politics and space’ (ELDEN, 2012, p. 2) which are relevant to this article.

Early literary geographies sought accurate representations of society and place in literary texts, while humanistic interpretations sought an understanding of the subjective meanings attached by individuals to place therein (BROSSEAU, 1994). More recently emphasis has shifted to an interest in spatial imaginaries or ‘socially held stories, ways of representing and talking about places and spaces’ (SAID, 2003, paraphrased in WATKINS, 2015, p.509). These are created through the circulation of texts which represent places in certain ways (WATKINS, 2015). Geographers have predominantly explored ‘three types of spatial imaginaries – of places, idealized spaces, and spatial transformations’ (WATKINS, 2005: 508). This article emphasises the latter two, seeking to interrogate the way in which future governance over space is depicted in post-apocalyptic fiction and what that may tell us about contemporary concerns regarding unsustainable exploitation of natural resources and the political philosophies and ideologies that shape thinking about alternative futures following catastrophic change. This article focuses on the genre of post-peak oil apocalyptic novels, which it approaches as a synecdoche of wider concerns regarding resource depletion and anthropogenic environmental change (SCHNEIDER-MAYERSON, 2015). It explores how governance over space and place, in particular, are imagined in these fictions, traces the divergent political philosophies drawn upon in the fictional recreation of post-oil societies, and teases out some of the tensions between the imaginary production of alternative futures and the re-inscription of current dominant or historical political structures.

The article starts by briefly outlining peak oil theories and the extent to which they have been overlaid more recently with wider concerns about the environmental, particularly climate, impacts of continued fossil fuel use. An overview of the sub-genre of post-peak oil fiction is then provided. Through a close analysis of selected texts, the article then examines the way in which territoriality is enacted and governance is imagined in post-peak oil fictions, with particular attention paid to the division of authority over space, the differentiated

representation of rural and urban spaces, and the ways in which scale is reduced and the ‘international’ is re-figured when a future without oil is imagined.

Peak oil and its adherents

Peak oil theories hold that global oil production will reach a high point before entering terminal decline. The idea was originally put forward by United States Geologist M. King Hubbert in the 1950s, who argued that oil production would follow a bell-shaped curve and that production from the lower 48 US states would peak between 1965 and 1970 (GRUBB, 2011). The discovery of oil reserves in other parts of the world and new technologies for oil extraction mean global oil production has, nonetheless, continued to grow (GRUBB, 2011), but fierce debate continues regarding when oil production will peak and how steep any decline might be. A report commissioned by the US Department of Energy in 2005 (HIRSCH ET AL., 2005) argued that when oil production would peak could not be accurately forecast partly because of flawed data and institutional or political bias in interpretation of the data. However, the report warned of the significant consequences of decline. The first lines of the Executive Summary stated that: ‘The peaking of world oil production presents the U.S. and the world with an unprecedented risk management problem. As peaking is approached, liquid fuel prices and price volatility will increase dramatically, and, without timely mitigation, the economic, social, and political costs will be unprecedented’ (HIRSCH ET AL., 2005). Factors with the potential to mitigate the decline noted by the report included better methods of extracting oil from existing reserves, increased production from heavy oils and oil sands, coal liquefaction, and energy production from natural gas; but these solutions were argued to be time intensive and expensive (HIRSCH ET AL., 2005). Contemporary economic prosperity in developed countries has largely been attributed to low oil prices and therefore it has been argued that any abrupt restriction in energy supplies or high or fluctuating prices, risk serious economic decline (ATKINSON, 2010). ATKINSON argues that this would mean

‘The legitimacy not only of particular governments and agencies but the very formula of government and the whole organisation of life as we think of it today will come deeply into question’ (ATKINSON, 2010, p. 315).

As SCHNEIDER-MAYERSON (2013, 2015) describes, a plethora of websites appeared in the middle of the last decade as testimony to public interest in the subject of peak oil. There are also books or guides on how to survive the predicted coming global crisis such as the *Peak Oil Survival Guide* (MCBAY, 2006) and *The Post Petroleum Survival Guide and Cookbook* (BATES, 2006). SCHNEIDER-MAYERSON’s recent study of US-based ‘peakists’ estimated that in the period from 2004 to 2011, ‘more than 100,000 Americans came to believe that oil scarcity would lead to the imminent collapse of industrial society and the demise of the United States’ (2013, p. 867). In the UK, the idea of the projected restriction of access to fossil fuel resources is also at the heart of the Transition Town movement which encourages communities and individuals to develop their resilience for a world with restricted access to cheap oil (BAILEY, HOPKINS and WILSON, 2010; SCHNEIDER-MAYERSON, 2013). The movement has gained significant media attention and spread rapidly worldwide (ATKINSON, 2010; BAILEY et al., 2010), with over 1,258 initiatives in 43 countries in November 2016 (TRANSITION NETWORK, 2016).

Oil prices in the past two years have remained relatively low due to a complex mix of economic (ROGOFF, 2016), geopolitical (THE ECONOMIST, 2016) and technological factors, including increased shale gas and shale oil production in the US and several other states (HARTMANN and SAJI, 2016). However, while immediate concerns over levels of reserves may have been tempered, continued global economic dependence on oil remains linked to serious climate impacts of fossil fuel extraction and use (LeMENAGER, 2016; SCHNEIDER-MAYERSON, 2015) and the continued burning of fossil fuels is constrained by the recent adoption by international state actors of greenhouse gas emissions targets. In a

follow-up survey of 'peakists' in 2013, SCHNEIDER-MAYERSON (2015) found that while wider interest in peak oil had waned since his original research in 2007-2011, nine out of ten of his participants had not changed their views and that peak oil remained a potent symbol of human impact on the environment, including climate change.

Post-peak oil novels may be seen as one cultural site where these concerns have been expressed. These novels, according to KAMINSKI, share the central characteristics of exploring the results of severe resource depletion and being entirely fictional (2008). Writing in 2008, KAMINSKY listed just four titles by mass market publishers which tackled the issue of peak oil: ANDREAS ESCHBACH'S German language *Ausgebrannt* (2007), the late JOHN SEYMOUR'S *Retrieved from the Future* (1996), ALEX SCARROW'S *Last Light* (2007) and JAMES HOWARD KUNSTLER'S *World Made by Hand* (2008). Excluded was CARYL JOHNSTON'S *After the Crash: An Essay Novel of the Post-Hydrocarbon Era* as it was argued that it combines fiction and non-fiction (2008). Since KAMINSKY'S article in 2008 the number of fictions dealing with this topic has increased incrementally, such that BARRETT has argued for their inclusion as a popular fiction topic in their own right (2011).

This paper expands KAMINSKY'S (2008) definition to include fictions that, i) are set in the present or in the future; ii) deal with the social consequences of the depletion of fossil fuel resources, either alone or in a combination with other risk factors; and iii) offer, however briefly, a vision of life, or of how survivors cope, following the imagined demise of fossil fuels. Six English language texts have been chosen for analysis. The three novels by UK authors are *Retrieved from the Future* (1996) by the late self-sufficiency expert JOHN SEYMOUR, *Last Light* by ALEX SCARROW (2007), and *The Bone Clocks* by DAVID MITCHELL (2015). *Retrieved from the Future* uses accounts from a range of characters based in a future rural Suffolk to allow the description of and reflection on the re-creation of an agricultural-based self-sufficient regional economy following the sudden severing of oil

supplies from the Middle East. *Last Light* focuses on the period of collapse in an imaginary present following an international conspiracy to disrupt oil supplies. The action moves between Iraq and England as the protagonist battles to reach his home in London from the Middle East and protect his family from harm as civil society disintegrates and Londoners become victim to violent attack, sexual assault and looting. It is in the final section of *The Bone Clocks*, a magical-realist novel, that peak oil is dealt with directly. Here, the main character, Holly, is depicted living in rural Ireland in 2043 where fossil fuels scarcity has led to an ‘endarkenment’ in which medicines, food and energy are strictly rationed and international communication almost non-existent. The three further novels analysed are by US authors. These include JAMES HOWARD KUNSTLER’S (2008) *World Made by Hand*, perhaps the most well-known peak oil novel, WILLIAM FLYNN’S *Shut Down: A Story of Economic Collapse* (2011) and *Crossing the Blue: a post-petrol, post-America road trip* by HOLLY JEAN BUCK. *World Made by Hand* is set in a small town in Washington County following an economic collapse precipitated by terrorist bombs and epidemics. The novel follows the survivors’ attempts to re-build using pre-oil technologies. *Shut Down*, portrays a community in Oregon, able to provide for itself through organic farming but fighting to exclude others who would compete for their resources. In *Crossing the Blue* by HOLLY JEAN BUCK (2008) a young woman and man travel from the flooded island communities of Florida to the west coast, witnessing and participating in new forms of society and community established in the wake of fossil fuel depletion and catastrophic climate change. Summaries of these six novels are provided in Table. 1 below.

[Table 1 here].

The paper does not, however, deal with peak oil thrillers. These fictions, such as KURT COBB'S *Prelude* (2010), are not included because their narratives centre on political intrigue surrounding the controversy over peak oil without describing the imagined catastrophic impacts following any decline in oil supplies. For practical reasons, this article will only deal with fiction written in the English language. MANJIKIAN, in her analysis of the wider genre of apocalyptic fiction (where catastrophe is also caused by nuclear war or epidemics), restricted her analysis to books by mainstream publishers and which had been excerpted in the popular press or distributed to book clubs (MANJIKIAN, 2012, p. 8). However, as SCHNEIDER-MAYERSON has argued, the peak-oil community, which is likely to form a substantial proportion of the novels' readership, is a largely online phenomenon (2013), and it is therefore legitimate to include some non-mainstream fictions marketed digitally and published by small-scale alternative publication methods. FLYNN'S (2011) *Shut Down* and BUCK'S *Crossing the Blue* are therefore included, as although not published by mainstream publishing houses, *Shut Down* has had over 80 reviews on the Amazon website and has a kindle edition, while the self-published *Crossing the Blue* has nine Amazon reviews. The novels were not selected on account of their literary merit which, likewise, is not the subject of this article. They were instead chosen because they describe an imagined world in which oil production has entered terminal decline or where fossil fuels are scarce or non-accessible, and, as a result, where the rupture with contemporary Western society, as we know it, is so fundamental that the worlds envisaged therein may be described as post-apocalyptic. The causes of the apocalyptic event are not always clear in the fiction, but as SCHNEIDER-MAYERSON argues, for 'peakists' (although not all the books are necessarily written by adherents to peak oil theory) the 'threat' is an 'ecological collapse of which petroleum is the central symbol' (2013, p. 869). For instance, *Shut Down* deals with world economic collapse, precipitated by a wave of bank closures, which leads to the disintegration of government,

looting, violence and social anarchy (FLYNN, 2011), but financial melt-down in this vision is also closely linked to the end of cheap oil. Peak oil fictions, as with peak oil concerns, may thus be read as a synecdoche for a bundle of concerns about, and explorations of human relationships with, the earth in the current era (SCHNEIDER-MAYERSON, 2015).

Peak oil fiction has received some attention from scholars within the recently emerging ‘petrocultures’ field (EDWARDS, 2015). This work is focused on highlighting the complex and hitherto largely unrevealed relationships between oil, modernity and culture (EDWARDS, 2015). Several texts have been written about the narrative expression (and challenges associated with the fictional representation) of oil or ‘petromodernity’ (LeMENAGER, 2012) in American culture (HITCHCOCK, 2010; LeMENAGER, 2012). While these articles touch on post-peak oil fiction, their key interest lies in ‘why the world that oil makes remains so beloved’ (LeMENAGER, 2012, p. 3) and the difficulty of articulating non-oil based ontologies (HITCHCOCK, 2010; LeMENAGER, 2012), rather than exploring imaginary futures without oil. In *Living Oil: Petroleum Culture in the American Century*, LeMENAGER (2014) briefly discusses the importance placed by peak oil adherents, and reflected in *World Made by Hand*, on the ability to imagine the practicalities and aesthetics of a future world without oil. SCHNEIDER-MAYERSON (2013; 2015) provides an in-depth analysis of KUNSTLER’S *World Made By Hand* (2008) and briefer references to *Shut Down* and *Last Light*. His analysis of these novels highlights how a main character often becomes the ‘prophet’, whose initially ignored warnings of the need to prepare for peak oil provide a didactic underpinning to the narrative (2015). However, SCHNEIDER-MAYERSON’S main focus is how race and gender are portrayed in some of these novels, pointing to racial divisions depicted in the narratives (2015). While the author suggests that in *World Made by Hand* racial division is critiqued as national failure to achieve equality (SCHNEIDER-MAYERSON, 2015), his critique of the gender politics of the novel

and of racial politics in *Shut Down* point, he argues, to the mobilisation of fears regarding white male masculinity in contemporary US society. This article seeks to build on this work by including the analysis of an expanded range of peak oil novels, including two from UK authors and one novel by a female writer. It will cover some of the issues regarding race and gender discussed by SCHNEIDER-MAYERSON but within the specific context of territoriality, governance and political organisation. The article will focus on the enactment of territoriality within the post-peak oil fictional world; the process and forms of governance; the characterisation of rural and urban spaces, and how the international is imagined.

The disintegration of the state

As characteristic of the apocalyptic and post-apocalyptic genre (CURTIS, 2012; MANJIKIAN, 2012), in the novels examined in this article, national civil government usually ceases to function almost immediately following the curtailment or restriction of fossil fuel supplies and the concomitant economic collapse. The exceptions are *Last Light* and *The Bone Clocks*, both UK-centred novels, while in the other British novel, *Retrieved from the Future*, before reconstruction, government is martial, geographically limited and portrayed as illegitimate. In *Last Light* the UK central Government, compromised by conspiracy, lingers throughout the narrative but is portrayed as ill-prepared and unable to cope as order gives way to ‘total lawlessness’ except in a few small towns and limited militarised zones (2008, p. 238). In *The Bone Clocks* an organisation called ‘Stability’, apparently linked to a globally hegemonic China, retains a form of loose governance over peripheral areas in rural Ireland, as long as they remain profitable as a source of agricultural production for the regime; but outside ‘the Cordon’, looting and disorder are the norm. In the other novels, central government is rendered irrelevant almost immediately. For example, in *Shut Down*, set in Oregon, law and order succumb within hours of the petrol tanks running dry and banks closing, to a Hobbesian pre-social contract scenario of un-controlled violence and depravity:

...a plague of home invasions featuring murder, rape, robbery and arson swept across the nation like a deadly incurable new strain of bird flu. By Thursday morning the entire nation was infected. In a month or so it would completely run its course and few would survive (FLYNN, 2010, p. 87).

Here, violence is portrayed as viral and overwhelming. Central and local government simply disappear as financial systems collapse. Prisoners are released or escape from jails and ‘a loose assortment of civilian militia groups, many on horseback, formed almost overnight... offering a vigilante force of law providing some sense of safety and protection’ (FLYNN, 2010, p. 81). As the novel proceeds and the crisis deepens, the police force becomes increasingly powerless. The reader is told that the governor of Oregon announced a state of emergency, but with Oregon National Guard soldiers deployed in the Middle East they were impotent and the main characters resort to self-defence (FLYNN, 2011, p. 149). In the UK-based novel, *Retrieved from the Future*, as oil supplies are cut off following rapidly increased demand from China and the destruction of Middle East oil wells during Shia-Sunni conflict, a state of martial law is declared (SEYMOUR, 1996). Immediately after, and in common with the other novels in this genre (MANJIKIAN, 2012), legitimate civil authority is simply silenced: ‘And that is the last time we were to hear her [the Prime Minister’s] voice’ (SEYMOUR, 1996, p. 7). In *World Made by Hand* the reader is led to understand that a bomb in Washington has rendered the capitol uninhabitable and any remnants of federal government lack legitimacy and territorial control; they are a mere ‘figment of the collective imagination’ (KUNSTLER, 2008, p. 15). While the small-town setting for this story in rural Washington County escapes the murderous plundering described in the other novels, local government is also described as having ‘fallen way off along with the population’ and to comprise of an ineffective mayor, a drunken constable and a magistrate who refused to serve

(KUNSTLER, 2008). In common with the other novels, national government is largely silenced; the agents of the state are rendered impotent; and the borders of the state are no longer known. News of the world beyond the town is scarce. Sporadic radio broadcasts feature solely religious preaching; there is no mail, no internet, no television; and knowledge of other places is therefore dependent on that derived from travellers on foot or by horse. When the protagonist states that ‘it’s still a free country’, his friend reminds him ‘I don’t know what kind of country it is anymore... and neither do you’ (KUNSTLER, 2008, p. 12). The state, post-peak oil event, it is suggested, is rendered unknown, impotent, or irrelevant.

While the erasure of governance here is clearly a narrative device that allows for the removal of the old authority structures to clear the way for the authors’ exploration of a new order (CURTIS, 2012), the speed at which central government disappears may also be interpreted as gesturing to the perceived flimsiness of civil government and its contingent nature, in this case upon the political-economic structure of oil. Additionally, it suggests a lack of faith or distrust in central government as able to deliver solutions to the envisaged crises. SCHNEIDER-MAYERSON (2015) identifies such a link between peak oil ideologies and a strong thread of libertarianism or distrust of the state in the US. However, the rejection of centralised hierarchical authority is also a feature of anarchist thinking and, as will be discussed in the following sections, there is potential for exploring possible synergies between some threads of post-peak oil narratives and some of the central tenets of anarchist theory.

Mode of governance

With authority structures effectively removed, the stage is set for the authors’ reconstruction of alternative forms of governance within the imaginary spaces of the novel (CURTIS, 2012). These take various forms across the fictions but tend to share some common features. These include: extending over a bounded and defensible piece of territory; being relatively small in

scale; exhibiting some forms of a loose direct democracy, and coalescing around mostly male leaders, respected for their physical prowess, experience of combat and their ability to be productive in a non-mechanised world, although there are exceptions to these trends.

Securing territory

In several of the novels studied here, the first stage in the process of reconstruction of governance after widespread societal collapse, is that of claiming and securing a delineated area of land. Territoriality has been defined by AGNEW as ‘the strategy used by individuals, groups and organisations to exercise power over a portion of space and its contents’ (2000, p. 823) and this strategy may be seen to be enacted following the disintegration of previous territorial divisions. In several of the fictions under discussion the action is set, and governance is depicted, within a small area of land that can be secured against outsiders and over which some form of control is exerted. The main action in *Shut Down* focuses on the efforts of the townsfolk to secure the perimeter of their territory, which extends beyond the immediate town to its hinterland - farmland and mountains beyond. This is made possible because of the natural barriers provided by two rivers. Anyone who tried to cross the rivers would be shot on sight, with the violence justified through the rationale of survival: ‘This was the time to focus on sharing compassion towards those living on the Corbett lifeboat’ (FLYNN, 2011, p. 220). In Seymour’s *Retrieved from the Future*, the story focuses, initially, on a bounded land area ‘ten miles by ten’ surrounding the fictional town of Gretford, in East Anglia (1996, p.5). Its immediate surroundings are bordered, and therefore more easily defended, by its physical geography of rivers and a narrow isthmus. The hinterland is largely coniferous forest, which provides an ideal landscape for the heroes’ guerrilla activities. At the beginning of the novel, the local Territorial Army secures this area from intrusion from outsiders, ensuring the immediate survival of those within the perimeter. Bridges were secured and men patrolled ‘the banks of the two rivers to stop people swimming across’

(SEYMOUR, 1996, p. 20). In each of these stories, intimate knowledge of the physical geography of the area being defended is also crucial in providing advantage to the local defenders. In *Retrieved from the Future* the protagonists' ability to traverse, hide in and use the local landscape for guerrilla warfare is crucial to their success in routing an oppressive military regime and restoring a more equitable and productive society. Similarly, in *The Bone Clocks*, familiarity with the lie of the land allows the protagonists to escape detection by looters, although they are eventually forced to flee and accept sanctuary in Iceland, which, it is suggested, partly because of its physical geography, remains a progressive society, able to draw on renewable energy to sustain its population.

Knowing the land is therefore an attribute which aids survival and the securing of territory and allows the possibility of reconstruction of society in several of these fictional post-oil orders. The use of physical landscape features or topography may be read as a reification of 'natural' borders, sometimes associated with assumptions or myths about the ethnic, racial or cultural homogeneity of populations within political units (Fall, 2010). However, the importance of natural features in delineating political spaces may also be linked to bioregionalist visions of egalitarian and participatory communities formed on the basis of watersheds (Paterson, 2005). From an anarchist perspective, INCE (2012, pp. 6-17) has argued that bordering can in some circumstances be understood as a 'legitimate spatial strategy' which 'can produce emancipatory spaces', such as alternative, counter-institutional communities which 'prefigure future worlds' and allow for 'permeation and cross-fertilisation between territories'. While, as will be discussed below, one of the peak oil fictions may be read as sketching the border as exclusionary along racial lines, in others, borders may be seen to allow the possibility of experimentation in the recreation of decentralised political communities which are diverse, semi-permeable or evolutionary in regards to their territorial and demographic constitution. In *Retrieved from the Future*, those

initially excluded are simply those who were not residing in the area at the time and there are no suggestions that outsiders are excluded because of difference. The emphasis on knowledge of the physical landscape also suggests a deep concern about increasing urbanisation and human alienation from the land, with associated moves to re-inscribe the perceived importance of human-nature connections.

What is also notable in these accounts is that the territory imagined is not only bounded but is also relatively small in area. While this may be a narrative device in terms of the ability to focus readers' attention on a particular and mentally manageable space – it also suggests a tendency to fantasise about territory of diminutive a scale to be defensible and knowable, a privileging of smallness, which links to forms of governance discussed below.

As BLACKSELL (2006, p. 18) has argued, a further key component of territoriality is exclusion, of drawing the lines between those who are inside and those who are outsiders, with a degree of 'fuzziness at the edges'. CURTIS (2012) has previously pointed out how post-apocalyptic fiction also tends to create an 'Other', usually terrifying murderous bands against whom the heroes must join with others in a community to fight. This is certainly the case in *Shut Down* as SCHNEIDER-MAYERSON (2015) has discussed, where the townsfolk work together to fight off those outside the perimeter who would overrun their town. In the penultimate section of the book, entitled 'War', violence occurs following the break out from jail of 'mostly black and Hispanic gangsters' whose goal is 'dominance and power' and who create carnage through the city before turning on the rural areas. While the ethnic conflict in other countries is portrayed as troubling, in *Shut Down*, the removal from the community of 'migrant farm workers' is also justified in the narrative with the idea that 'they were no longer needed. They would pose an unacceptable level of resource burden and were being told to leave or turned away...' (2011, p. 205). As SCHNEIDER-MAYERSON (2015) has explained, the racial othering may mirror racial stereotypes and inequalities already operating

within contemporary American society and more current anxieties around white masculinity linked to recent economic re-structuring and changing gender roles in the workplace (SCHNEIDER-MAYERSON, 2015).

This exclusion of outsiders is also evident in Seymour's *Retrieved from the Future*, as borders are patrolled and outsiders turned back or killed. However, here the ethics of exclusion are the subject of fierce community debate and a compromise is reached that some people, particularly children, are allowed in, lest they starve, and any spare food should be distributed to the cities. Later, when a 'Land Reform Party' is elected, a key policy highlighted is that outsiders who worked on the land for three years would be entitled to a portion of land in their own right – signifying a limited inclusivity. Nonetheless, the borders provide a focus for the narrative and a spatial unit for the imaginary construction of new forms of governance. In *World Made by Hand*, conversely, outsiders (a religious sect) are not prevented from entering the town, although they are treated with suspicion until they conform to (newly re-established) local authority and make a contribution to community life. In an age of population depletion, their skills and energy are, although reluctantly at first, welcomed. Similarly, in *The Bone Clocks*, the strict immigration laws in place in post-oil Ireland are critiqued and humanitarian norms are privileged as the main character takes in and adopts a migrant child, suggesting, like Kunstler, an alternative narrative to exclusionary bordering. Further challenging the pattern of claiming territory and excluding others is Buck's road trip novel *Crossing the Blue*, in which the characters visit and contribute to successive diverse and alternative communities, sampling each. MANJIKIAN (2012) has argued that the post-apocalypse is characterised by the absence of previous maps, allowing for the expression of subaltern voices in the experience of space anew. Buck's main character, Blake, growing up post-apocalypse, has never seen a map and has no geographical conception of America (2008, p. 33). On the rough map provided by his companion, only the

mountains, wastelands and rivers that must be crossed are relevant as state boundaries are largely obsolete and state and federal power incapacitated. The small communities they visit are not entirely porous or without borders, but systems exist for applying to join them, based on the incomer's willingness to participate and contribute. As discussed further below, *Crossing the Blue* privileges mobility over the restriction of the protagonists to static bordered communities. For instance, references to the re-opening of by-ways used for movement across the land by indigenous peoples and their animals and early traders and settlers, suggest the valuing of migration and open forms of association. The rest-area where the main characters stop on the Natchez Trace is marked by a decorated sign saying 'ALL WELCOME' and when the old man tending the fire calls out to greet the travellers he does so in four different languages, underlining an expectation and embrace of diversity. The heroine replies, explaining that her mother shared Arizonan and Indian heritage, her was father half-Egyptian and half French, thus underscoring the celebration of mixed heritage and identities in this new era. At the rest stop a board displays messages for fellow travellers, one of which is an open invitation to a potluck and water planning meeting, also suggesting the fluidity, inclusivity and organic nature of political community and decision-making in this novel. Therefore, while the securitisation of territory and the exclusion of minorities, or those deemed outsiders, are evident in some fictions, in others this bordering process is brought into question.

Re-creation of governance in post-peak oil fiction

The form of governance emerging within the bordered spaces sketched in these post-peak oil apocalyptic narratives is heterogeneous. In *Last Light* and, to a certain extent, *The Bone Clocks*, because the action focuses on the disintegration of society, there is less attention paid to the governance of the community which survives. It is in *Retrieved from the Future*, *Shut Down*, *World Made by Hand* and *Crossing the Blue* that we see more clearly the re-

construction of local governments in the vacuum of effective national authority. They range from an authoritarian dictatorship, to a regional federation based on universal suffrage and the medieval hundreds system in *Retrieved from the Future*, to a diverse set of experimental communities in *Crossing the Blue*.

In the first two novels, these governments are a melange of autocracy, participatory and representative democracy. Direct or participatory democracy may be traced back to the political organisation of ancient Greek city states - economically and politically delineated areas where the proximity of the population allowed for the direct involvement in decision-making of all eligible citizens (HELD, 2006). The allure of this scale and form of government has long fascinated political thinkers and was influential on the work of JEAN-JACQUES ROUSSEAU (1968, p. 141). In ROUSSEAU'S ideal polity, the principle of direct democracy necessitated that politics took place within a limited geographical area (CRANSTON, 1968) in order to facilitate the participation in person of all those enfranchised: 'All things carefully considered' ROUSSEAU argued, 'I do not see how it will be possible henceforth among people like us for the sovereign [the people] to maintain the exercise of its rights unless the republic is very small' (ROUSSEAU; 1968, p. 143). The value of collective decision-making and the example of the 'Athenian ecclesia' has also been important in anarchist political thinking, as highlighted by BOOKCHIN (1965/1978, p. 31), who argues for the importance of inclusive face-to-face discussion and small political communities so that, as in the ancient Greek polis, citizens might know one another and humanise political relations (BOOKCHIN, 1965/1978). In a polemical text written five years before *Retrieved From the Future*, SEYMOUR (1991:46) refers explicitly to direct democracy in the 'Golden Age of Greece', noting the importance of the small scale for effective political and civic participation and identifying the remoteness and magnitude of institutions as the root of contemporary ills. In *Retrieved from the Future* we find traces of these principles in several of the stages of

political metamorphosis enacted in the territorial unit. Initially, after the 'CRASH', a community meeting is called by local 'big-wigs', (a retired major and the vicar), at which the local Territorial Army head announces he will take control, assisted by other establishment figures. This arrangement, while initially autocratic and rooted in traditional conservative power structures is, however, put to and endorsed by, a direct popular vote and subject to the democratic principle of recall, as it is agreed to revisit the arrangement within six months. At the subsequent election, civilian rule is briefly restored when the protagonist, an independent, and his associates are elected on a pledge to divide and re-distribute corporately-owned land into small-holdings. This progressive government is short-lived, however, as an army Major, professing to represent the new 'Government of England' and based externally in the Midlands, imposes military rule and returns the land to the mismanagement of larger corporate farm holdings. The remainder of the novel concerns the guerrilla action taken by the protagonist and his fellow councillors to regain control from the army and to restore a smallholding economy in the locality. This is achieved through guerrilla military action, followed by an autocratic caretaker regime. The main character confesses that he will be a 'dictator for a month or two' as there is 'no time for democracy' (1996, p. 160). As PATERSON (2005) has argued, authoritarian rule over small self-sufficient communities has a distinct tradition within green political thought, where strong rule has sometimes been mooted as necessary to curb the individualism driving unsustainable lifestyles. However, John Seymour's non-fiction writing suggests a distinct contempt for either the 'nanny state' (1991) or right wing authoritarian rulers (1963/1980) and this distrust of strong centralised authority emerges towards the story's denouement as the regime transitions peacefully into a locally-based democracy modelled on the medieval hundreds system of councils elected by clusters of villages, which feeds into a larger East Anglian Federation, formed following an inclusive conference of people from throughout the region. The Federation would make

decisions on issues such as transport, trade and currency, but with government kept to an absolute minimum to allow for sovereignty to be held locally rather than centrally. The political trajectory envisaged may be characterised as non-linear and although it evolves into what is projected as a progressive alternative to a system in which power is held centrally within the nation, it is noteworthy that the preferred forms of government draw deeply on historical models from pre-oil eras of production. What is striking about Seymour's text, and arguably reflective of his complex personal political philosophy, is its sense of experimentation in drawing on various political traditions and theories to craft a response to concerns over peak oil and environmental change. Several of Seymour's other works hint at parallels with aspects of anarchist theory in regards to his critique of centralised and hierarchical authority, the idea that 'Government should grow from the ground up' (1991, p. 46), a rejection of wage and market economies (1991), and a repudiation of democracy in large countries where direct participation is seen as unfeasible. As INCE and BARRERA DE LA TORRE explain, anarchism critiques the state as a central figure of authoritarian and coercive power relations, supporting instead 'participatory, democratic and horizontal order' (2016, p. 11). An anarchist vision of 'federations of moneyless, self-governing but interdependent community, workplace, and larger-scale councils and assemblies rooted in free association, participatory forms of democracy, and mutual aid' (INCE and BARRERA DE LA TORRE, p. 11) bears some similarities to the federation proposed by Seymour. Yet Seymour's strong assertion of the importance of free will and individual conscience (Seymour, 1980) and an emphasis on individual resourcefulness may also be read as elements of libertarian philosophies.

In *World Made by Hand* and in *Shut Down*, governance is similarly recreated at the local scale. MANJIKIAN has argued that in *World Made by Hand*, the state has been replaced by a more progressive communal society: 'a new pastoral future in which citizens

know their neighbors better, struggle is collective rather than individual...’ (MANJIKIAN, 2012, p. 171). While concurring with this reading to some extent, it may also be argued that it is only an act of violence that prompts the revitalisation of local government, with the protagonist being voted Mayor after heroically rescuing a woman and child from a burning house and following the community’s failure to deal with a violent murder. The protagonist takes unilateral action to summon the trustees of the town board which consisted of ‘all men, no women, and no plain laborers’ and an internal coup brings the narrator to power (KUNSTLER, 2008, p. 109), although his leadership is subject to recall: ‘I guess you can always vote me out if you are dissatisfied’ (KUNSTLER, 2008, p. 110). Similar to the relatively informal and spur of the moment process of consent to the town leadership in *Shut Down*, the reduction in scale to local government at a town-level and the direct involvement of constituents (even if not universally representative of the population) hints at a form of democracy akin to the polis of the Greek city state. In contrast, in *Crossing the Blue*, the travellers encounter various forms of government on their journey. The protagonist is born under oppressive military rule in the east, but follows the heroine Juliet through a range of different governance arrangements from a proto-southern plantation to nomadic groups moving across the continent, small communities governed by inclusive and democratic councils, to an insular ‘people’s republic’ based on communality (at the expense of individualism), consensus politics, spirituality and the careful harbouring of scarce resources along with the exclusion of most outsiders. The ideal society in this narrative, Cascadia, is never actually reached, possibly suggesting its unattainability. It is only ever hazily sketched as a place where food is locally grown, music and games are played, and the presence of renewable energy and wildlife zones suggest a society in harmony with the environment.

Physicality, masculinity and military histories

As hinted at above and touched on by SCHNEIDER-MAYERSON (2015), a notable characteristic of the leaders in these new orders is the extent to which their emergence is legitimised on the basis of physical strength, the ability to use weapons and technical survival know-how, sometimes gained through military action overseas. In *Shut Down*, where the action centres on the defensible town of Corbett, we learn that a main character's father and 'the Chief are running the show for now so for now we just do what they say' (FLYNN, 2011, p. 174). The 'Chief' is the head of the volunteer fire department and gains his authority from the respect of his peers and his physical bulk. The town is unincorporated and therefore has no officially elected officials - but sheer physical stature and ability is more important here:

He was 6'2", a solid 195 pounds and an enthusiastic supporter of the town's only school and especially its impressive athletic department. Like most people in Corbett, he was in excellent physical shape for his age, regularly biking to the top of Larch Mountain with his friends; a tough 30-mile round trip for a person of any age. He did not need to stand on a box as he spoke. When he talked his voice rang loud and people listened. He was considered one of the few unofficial town leaders along with Reverend Scott Golphenee and Joseph Hancock (FLYNN, 2011, p. 183).

Physical stature and strength underpin his political authority and most of the characters who take leadership roles are described in terms which celebrate their physical strength or their ability to use firearms or other weapons. The Chief explains to a town meeting that the government has broken down and that they are on their own. Fuel use is rationed and if anyone is seen driving, he tells them, 'I'll personally rip 'em apart'. When challenged by an

‘obese’ rich landowner, the Chief’s sidekick, Joseph, verbally abuses the man, ridiculing his weight and his inability to do manual work. After this showdown of physical prowess, he then tells the crowd that anyone who wastes fuel or takes more than their fair share of food will be banished (FLYNN, 2011, p. 188). In *Retrieved from the Future*, the characters who eventually take on the mantle of legitimate government are those who have fought a guerrilla campaign for freedom against an oppressive occupying military force; they are men with physical strength and practical know-how, such as in organic farming, sailing and hunting. The narrator in *World Made by Hand* gains political authority after experiencing violence on a trip to the city where he is forced to kill a man with a handgun. Support for his regime comes from the New Faith followers, some of whom are ‘Holy Land vets’ (KUNSTLER, 2008). As in *Retrieved from the Future*, *World Made by Hand* and *Last Light* characters’ experience in previous military action overseas appears to provide legitimacy for, if not leadership, then a central role in the perpetuation of the community.

Several commentators have highlighted how some post-apocalyptic novels allow existing class, race and gender divisions to persist (CURTIS, 2012; MANJIKIAN; 2012; 2016; SCHNEIDER-MAYERSON, 2013; 2015). This is also seen in several of the post-peak oil fictions, where the main characters and the leaders are male. In *Shut Down* one competent female character uses a firearm and shares in the defence of the town, but generally in these novels, women take on traditional gender roles, as also noted by SCHNEIDER-MAYERSON (2015), such as nurturing, healing and growing food, suggesting an assumption of a return to pre-20th century social and political norms in the absence of plentiful oil supplies. The exception is *The Bone Clocks* where the novel’s heroine is a woman and in *Crossing the Blue* (BUCK, 2008) where it is the female character, Juliet, who takes the lead and guides her male companion across the landscape. It is her knowledge of terrain, diplomacy and weaponry which helps the pair negotiate their path towards Cascadia, the promised land. Her leadership

subverts previous patriarchal structures and the fact that her role goes unquestioned by other characters in the novel suggests the catastrophic change opens up the possibility of re-structuring current gender relations to create more progressive and egalitarian futures in this respect.

In summary, following the break-down of governance, in many of these post-peak oil narratives we see, variously, small areas of territory secured, ‘natural’ leaders (almost entirely male) emerge, based on their physical prowess and their experience of violence or their practical know-how, and locally-legitimised forms of government established over small land areas.

Return to the rural

The benefits of a rural/pastoral, as opposed to an urban/industrialised, society have long been a central feature of apocalyptic, dystopian and utopian fiction (MANJIKIAN, 2012) and this dualism is also played out in peak oil fiction (SCHNEIDER-MAYERSON, 2015). In the novels analysed, the relative safety of rural areas is juxtaposed against the dangers of the city. In *Last Light*, for instance, the hero, cognisant of the impending crisis and reflecting on his family’s urban location ‘realised they’d be thoroughly screwed, just like everyone else, if they didn’t prepare’ and considered instead a remote rural location, away from centres of population and surrounded by woodland (2008, p.16). At the end of the novel, as the city becomes unliveable, the surviving family members find sanctuary in a small community in the countryside where they re-master the skills of self-sufficiency. *Shut Down* starts in downtown Portland which quickly becomes too dangerous as gangs rob and murder civilians. The protagonists are forced to retreat to the relatively rural settlement of Corbett and its hinterland of farms and mountains, which may be demarcated, defended and cultivated. At the end of the book, while relative peace is secured in Corbett, we learn that ‘it remained far too dangerous to enter most major cities’ but that small groups had banded together to defend

themselves and ‘eked out a living’ in some more isolated rural areas (FLYNN, 2011, p. 306). In *Retrieved from the Future* (1996) there is a clear divide between the rural and the urban, ‘townsmen’ and ‘countrymen’. The urban is depicted as a scene of devastation where civilians have died of starvation and disease; the rural is described as the place of the future, able to feed and clothe its population through organic farming and the re-learning of regional crafts. Townspeople, it is argued, partly because their historic dependence on oil has made them unused to the manual work needed in a post-oil society, are therefore a threat to those who can work the land:

We’re all countrymen in here – in this camp. And our guards are all townsmen.... They’re scared stiff of us – but they know they can’t do without us. When the oil runs out – and it will – someone’s got to work with a hoe and a spade. They know they can’t, they’ll have to. So their only hope is to gather in this army and rule us country people by force – and make us work like serfs to grow their food for them. That’s what it’s got down to. They’ll form a feudal system – you see – they’ll parcel the land out among themselves and rule the rest of us by force and lord it like feudal barons (SEYMOUR, 1996, p. 79).

The struggle in the novel is therefore between country folk and urbanites. As the plot evolves, central metropolitan-based power is curbed and the UK returns to a loose association of autonomous counties governed directly in a pseudo-medieval geographical patchwork of shires and regions, with Wales returned to independence. The self-styled government in Birmingham is dismissed as ‘no more the government of England than my cat’ and self-rule for East Anglia is proposed. The hero of the story, Bob Hurlock, tells his fellows:

It's time you people – the real people of East Anglia – owned your own country for a change. For two thousand years you've been refugees in your own country. First you had the Normans – then the aristocrats and the feudal barons – then the cotton manufacturers and their blasted pheasants – now you've got this lot. And you are going to kick them out and own your own land for a change (SEYMOUR, 1996, p. 97).

This is a tirade against modernity, against urbanisation and the loss of local regional identities and the celebration instead of an idealised pre-industrial past based on rural values, smallholding and self-sufficiency, with government at the local and regional scale. Regional differences such as dialect, local traditional industries and crafts re-surface in this new order and are valued and respected. The urban in this depiction does not dominate but instead 'the town and its surrounding county are interdependent, complementary and existing for one another', again similar to the historical Greek city-state (ELDEN, 2013; SEYMOUR, 1996, p. 218). The parallels with arguments in BOOKCHIN'S seminal text 'Ecology and Revolutionary Thought' (1965/1978) are striking: communities would be small, de-centralised and based on self-sufficiency practised in harmony with particular and diverse ecosystems, allowing for regional differentiation. The return to the rural privileged in these fictions suggests a deep uneasiness with the ability of urban spaces to sustain the holistic needs of human societies.

Re-scaling the global

It has been noted that while some remnants of the physical geography remain, the economic and political geography of the states depicted in much post-apocalyptic fiction is entirely altered and scale changes, such that news is passed on the grapevine and distance becomes relative to non-mechanised means of movement (MANJIKIAN, 2012). This is certainly the

case in *World Made by Hand* where the expansion of space/time is illustrated by the narrators' week-long trip to nearby Albany on horseback during which he feels he is in an 'unknown country – at least country I had not been to in years since we stopped going places in cars' (KUNSTLER, 2008, p. 125).

As distances expand and horizons reduce, what was formerly known as the international largely disappears from post-peak oil fiction. In *The Bone Clocks*, as energy to power international communications runs down, the central characters lament the lack of news from overseas and the severing of connections with loved-ones in distant places. Overseas trade and interaction comes to an abrupt halt following the 'CRASH' in *Retrieved from the Future*. The odd foreign vessel is seen off the coast, but then no more. A 'Fenman' tells the protagonist that America is unable to help Europe: 'They've nothing to offer us or want from us' and the 'Old Commonwealth' similarly: 'We're alone' (SEYMOUR, 1996, p. 78). What news is received by the characters in the book suggests that the breakdown followed by limited oil supplies has had similar impacts in other countries worldwide with only a few smaller countries such as Ireland and Denmark escaping. Later in the novel, when stability is restored in the town, international relations appears in the form of people from other places along the east coast of England seeking help. This suggests a fundamental downscaling in which the previously understood as national becomes international and indicates a shrinking of horizons and an implicit critique of the globalisation of economic and political relations. In this novel, as in Kunstler's fiction, this reduction in scale is presented as a positive in that people, industry and governance become rooted in their vernacular and the pluralism of regional diversity allows for the exchange of ideas between travellers about how best to achieve the 'good life' (SEYMOUR, 1996, p. 175). As the new order becomes embedded, limited international trade re-starts, fashioned on medieval maritime trade with a handful of other European nations, with exchange of salt and herring for Spanish olives, wine

and oranges planned (1996, p. 189). Similarly, in *Crossing the Blue*, some news of similar circumstances in other nations worldwide filters through to the protagonists (2008, p. 53), but the national (the north American continent) becomes the new international with the travellers passing through unconnected and ad hoc assemblages of peoples forming in habitable pockets across the terrain. Juliet, travelling by boat and on foot, bicycle and horse, gathers information and knowledge from, and engages in diplomacy with, these diverse societies - much like a medieval envoy moving between city states. Her job, she explains to Blake, is 'To venture out from Cascadia... and meet people. Network with friendly cities and tribes, make connections....' (2008, p. 112). In this narrative, movement rather than stasis is privileged. Rest areas for travellers are designated meeting places where the mobile can meet, share stories, news and food (2008, p. 109); main travel arteries are kept free from banditry, ancient thoroughfares are re-established (2008, p. 111), and bands of wanderers travel and trade with their horses, yurts and wagons east to west and back 'in our new yet ancient manner' (2008, p. 169), at once restoring nomadism, subverting mobility based on oil, and critiquing the locational fixity and strict territorial division of modern contemporary government. Characters in the novel, experimenting with self-sufficiency and alternative forms of social organisation are wary of organised forms of communication such as a rudimentary postal system - seen by some as a regression to national or federal rule.

In the other novels, as communications fail and anarchy descends, the international is largely erased from the narrative. In *Shut Down*, the reader is informed that countries in Europe, facing sovereign debt crises, reacted by returning to isolationism; and in Latin America elected governments were replaced by military rule. Knowledge of other places ceases and we are told that, as with China 'Within two days India went totally dark, and there was no more news. In many rural villages throughout Asia and Africa no one would know for many years what had really happened as the crisis unfolded' (FLYNN, 2011, p.153). These

fictions, then, largely suggest a re-scaling of international relations with the former state reconfigured as the international and global connections reduced and limited.

Discussion

In the introduction to this article it was suggested that peak oil apocalyptic fictions might be read, not in opposition to, but in the wider context of work suggesting that policies and discussion presenting peak oil and anthropogenic environmental change as catastrophic, inhibit political action. It was suggested that these fictional accounts of apocalypse might provide a conceptual space in which writers and audiences might explore the contingent nature of modern statehood (INCE and BARRERA DE LA TORRE, 2016) and imagine other futures alternative to the status quo. This has some synergy with SCHNEIDER-MAYERSON's (2015) analysis of *World Made by Hand* and a selection of environmental disaster movies, where he suggests that some catastrophic peak oil discourses fantasise the end of capitalism and are based on a romanticised agrarian economy and alternative systems of exchange. The relationship, he suggests, between apocalyptic narratives and political quiescence is complicated, but he appears to argue that while apocalyptic visions allow us to imagine the future, they also tend to close off collective forms of political organisation or reflect visions that reconstitute radical political beliefs in the context of an over-arching neo-liberal society where libertarian views are widespread and anxieties about perceived threats to traditional conceptions of white masculinity are foregrounded. The analysis of the wider selection of peak oil novels presented in the previous section suggests that within the fictional worlds created, the story might be even more complicated. These narratives imagine the complete unravelling of the current socio-political order and allow for the fictional bypassing of the stasis engendered by 'apocalypse forever' (SWYNGEDOUW, 2010) and the imaginary construction of different forms of political life. They do not present a roadmap for the political actions needed to reach these alternative futures. Instead they use the narrative

device of full-scale social collapse to propel the characters into a new (fictional) reality. The post-apocalyptic novels discussed above are of interest because they create fictional responses in which foretold apocalypse has already occurred, in which the unchecked plunder of resources has led to the destruction of the dominant political-economic system, and in which new ways of living and of doing politics can be explored (CURTIS, 2012; MANJIKIAN, 2012) without recourse to the intervening steps necessitating political action.

These fictional responses to concerns over potentially restricted access to fossil fuels and overwhelming anthropogenic environmental destruction are diverse and not all offer entirely progressive or optimistic versions of future societies. Some, like *Shut Down*, gesture to more exclusionary, closed communities; others, like Seymour's *Retrieved from the Future* morph through multiple varieties of political organisation, and others again, like Buck's *Crossing the Blue*, present a 'Cook's tour' of possible political alternatives, including nomadic, egalitarian and religiously-based communities, with the protagonists never reaching the idealised 'Cascadia'. Nonetheless, as will be argued below, they do offer, albeit in a fictional form, an answer to SWYNGEDOUW'S call for 'different stories' if not actual or material 'different socio-environmental futures' (2010, p. 228). As MANJIKIAN has noted in her analysis of the wider genre of apocalyptic fiction, some of these narratives provide the possibility of 'understanding disaster as a site for renewal' (2012, p. 171).

While they vary in their particulars, several similar characteristics and discourses may be identified across several of the novels. These include a suggestion that the current form of nations, states and central government is not sustainable (or desirable). As the heroine in *Crossing the Blue* tells her acolyte: 'The entire empire [The United States of America] was made possible because of carbon energy' (2008, p. 53). Recreating replica socio-political organisations in the absence of oil is, in the post-peak oil novels discussed above, unthinkable. The collapse of state institutions and agency following the restriction of fossil

fuels also represents a deep underlying distrust or disenchantment with the authority and legitimacy of central government. This feature is common to both conservative libertarian thought (SCHNEIDER-MAYERSON, 2015) and anarchist thinking (SPRINGER, 2016). It is in the alternatives to statehood proposed where these philosophies diverge: survival of the fittest individualism in some narratives; the creation of small-scale, participatory and egalitarian communities in others. The new societies formed are often embryonic, fragile, down-scaled, experimental or, in the case of *The Bone Clocks*, elsewhere. Political organisation therein is depicted as not always internally consistent and suggests tensions at times between different political philosophical traditions. The ontology represented in these fictions, as with the wider genre of the post-apocalyptic novel, suggests a wider world where, in the absence of former political structures, violence tends to predominate. These are largely Hobbesian pre-social contract worlds (CURTIS, 2012; MANJIKIAN, 2012) where ‘... during the time that men live without a common Power to keep them all in awe, they are in a condition, that which is called Warre; and such a warre is of every man, against every man... And the life of man, solitary, poore, nasty, brutish and short’ (HOBBS, [1651] 1985, pp. 185-186). Small pockets of civil society and local government are usually only possible where the physical geography, combined with individuals’ combat expertise and survival know-how allow them to gain the endorsement of their fellow citizens, to secure territory, and to exclude outsiders; or in rural areas so distant from urban centres that they are left largely undisturbed. Even in *Crossing the Blue*, it is hinted that the idealised Cascadia is able to flourish because it is separated from the rest of the former territories by unpassable wastelands. Leaders in most of these novels appear to emerge naturally but are often elevated by their masculinity, physical power, and knowledge of violent conflict (SCHNEIDER-MAYERSON, 2015). Their leadership may be legitimised by a crude and ad hoc popular vote in a common meeting place; and processes of recall are instituted to offer further trappings of

democracy. The rural is represented as a place of safety compared to urban settings and as modern communications and transport systems fail, distances expand, the national disappears and the international is rendered largely irrelevant.

Several of these characteristics may be attributed to the traditions of narrative structure. These are, after all, not predictions or polemical tracts but stories designed to engage and, to some extent, entertain. A Hobbesian ontology creates narrative jeopardy; and tension and the protagonist's need to overcome an enemy or obstacle is a classic story-telling device. The hero must use their strength and bravery to overcome adversaries and win the support of the people. The emphasis on armed violence for self-defence in many of these books may also have links to the militaristic and survivalist rhetoric within some peak oil discourses both in the US (SCHNEIDER-MAYERSON, 2015) and to a much lesser extent in the UK (ZAND, 2015). Similarly, the narrative focus on a small geographical area allows for the development and analysis of character and community, although the linear road-trip genre has also been employed (and subverted) in post-apocalyptic American fiction such as CORMAC MCCARTHY'S *The Road* and within post-peak oil novels by *Crossing the Blue*. However, the focus on smallness may also be normative, linking back to thinking on environmental economics that includes ERIC SCHUMACHER'S *Small is Beautiful* (1973) and, more recently, the Transition Towns focus on re-localisation as a response to the perceived dysfunctionality and environmental costs of globalisation (MASON and WHITEHEAD, 2012). What is more, the maintenance of governance and social relations over space is also widely perceived to be maintained by the cheap availability of petrochemicals, which as BETTINI and KARALIOTAS argue have underpinned capitalism and the compression of space/time (2013). A further notable feature of these narratives is the way in which historical vernacular forms of government are drawn upon and these forms may be argued to be related to the re-scaling of government made necessary by the demise of

communications enabled by fossil fuels. In *The Bone Clocks* a character tells Holly: ‘The future looks a lot like the past.... it’s the inevitable result of population growth and lies about oil reserves’ (MITCHELL, 2015, p. 493). And in other novels the empowerment of local mayors and town councils suggests not only a re-scaling and re-localising of governance but also a possible nostalgia for older more proximate, decentralised forms of government. In particular, the direct democracy of the Athenian city state in which the political community was at small enough a scale for all eligible to be represented, is drawn upon in several narratives. The more vernacular, medieval hundreds system is idealised in Seymour’s UK-based fiction, underscoring a return to historical forms of government which are legitimised as locally-appropriate; and in *Crossing the Blue*, the nomadism of earlier indigenous peoples is re-learned and reinvigorated in a post-oil world along with diverse other experiments in political and social organisation.

The pessimistic ontology evident in some of the novels may be directly related to assessments of the current state of global society in which post-cold war hopes for the development of progressive global governance, sustainable development and security seems elusive (MANI, 2015). Writing recently in *International Affairs*, MANI described the contemporary world as one in which ‘the unfettered pursuit of national political and economic interests has created a dystopia where the majority live on the precipice in abject misery or fear, while a tiny minority live in oblivious comfort, and a fraction of them prosper in defiant luxury’ (MANI, 2015, p. 1248). While MANI calls for challenges to the status quo by drawing on rich classical and more modern traditions of utopian political philosophy and through a people-centred creation of utopia, nonetheless the damning diagnosis of contemporary dystopia on the global stage (2015) is perhaps a key element informing the gloomier world views presented in some of the post-peak oil fiction examined above. In this sense these narratives are infused with existential anxiety borne not just of speculation about

a predicted trajectory, but are shot through with re-workings of contemporary horrors currently facing many of the world's citizens (MANJIKIAN, 2012). BRAUN and WAKEFIELD, discussing apocalyptic images of environmental destruction (2014), argue that 'From the perspective of many communities – in polar regions, or in coastal areas – we are already living in a post-apocalyptic condition that is experienced unequally, and where the worst is yet to come' (un-paginated). This material and current catastrophe, they argue, provides the possibility for renewal (BRAUN and WAKEFIELD, 2014) and despite the bleak ontologies presented in most of the post-peak oil novels, these fictions also present spaces in which different ways of being in the world and organising society are explored. This is perhaps most evident in *Crossing the Blue* where, although the fabled and utopian Cascadia is not reached, the travellers pass through societies experimenting with communal, consensus-based, democratic and ecologically-friendly ways of living. In *World Made by Hand*, positive aspects of the new world are heralded, such as the revitalisation of local networks and the re-skilling and re-empowerment of citizens which make possible their existence in a society without oil. In *Retrieved from the Future* the reader is offered a rough blueprint for a low-carbon, organic, localised economy and polity where community is re-invigorated and regional diversity is valued.

Conclusion

The post-peak oil fiction discussed in this paper provides insights into some of the preoccupations, fears and socio-political concerns of writers wrestling with the issue of contemporary reliance on non-renewable energy sources. While the fictional text cannot be simply read as a straightforward reflection of either the authors' views or wider shared social discourses, it can nonetheless provide a canvas across which the impressions of possible future scenarios may be discerned. And although these texts are far from homogeneous, some common characteristics and tensions may be identified. These include a generally pessimistic

outlook regarding the immediate aftermath of any sudden decline in energy availability: western democracies descend rapidly into ungovernable spaces; only the physical geographical features, rural settings and their intimate knowledge by usually male, physically strong and militarily seasoned protagonists allow for the survival of small groups and for the defence of territory; and embryonic community or political structures draw heavily on historical models – largely regression rather than renaissance. However, in several of these novels where pockets of humanity survive, there is also the prospect of drawing on older forms of government to create regionally heterogeneous and small scale participatory governance and roughly sketched proto-types for political society in a future without ready access to oil. The analysis suggests that these texts represent a productive cultural site for the conceptualisation of different forms of society and governance in a future with a radically altered energy landscape.

Acknowledgments

The author would like to express her thanks to current and former colleagues in Geography and in English at Plymouth University who have provided valuable feedback and suggestions on earlier iterations of this article, in particular Richard Yarwood, Ian Bailey, Stephanie Lavau, Kathryn Gray, Mandy Bloomfield and David Sergeant. The author would also like to express her thanks to the anonymous peer reviewers whose comments were invaluable in improving the article; and to the organisers and participants of the session ‘Where Next? Historical Geographies’ of the Future at the RGS (with IBG) Annual Conference 2016 where an earlier version of this paper was presented.

References

- AGNEW, J. (2000). Territoriality. In R. J. Johnston, D. Gregory, G. Pratt, & M. Watts (Eds.) *The Dictionary of Human Geography* (4th ed.) (pp. 823-4). Oxford: Blackwell.
- AGNEW, J. (2009). Making the strange familiar: Geographical analogy in global geopolitics. *Geographical Review*, 99, 426-443. doi:10.1111/j.1931-0846.2009.tb00440.x
- ALEXANDER, N. (2015). On Literary Geography. *Literary Geographies*, 1, 3-6. Retrieved from <http://www.literarygeographies.net>
- ATKINSON, A. (2010). Where do we stand? Progress in acknowledging and confronting climate change and 'peak oil'. *City*, 14, 314-322. doi.10.1080/13604813.2010.482284
- ATWOOD, M. (2015, July 30). It's not climate change...it's everything change. *The Independent*, p. 31-33.
- BAILEY, I., HOPKINS, R., & WILSON, G. (2010). Some things old, some things new: The spatial representations and politics of change of the peak oil relocalisation movement. *Geoforum*, 41, 595-605. doi:10.1016/j.geoforum.2009.08.007
- BARRETT, B. (2011). *Reality of Peak Oil Enters Our Fiction* [online] Our World from the United Nations University. Retrieved from: <http://ourworld.unu.edu/en/reality-of-peak-oil-enters-our-fiction>
- BATES, A. (2006). *The Post-Petroleum Survival Guide and Cookbook: Recipes for Changing Times*. Gabriola Island, BC: New Society Publishers.
- BEER, D. (2015). Fiction and Social Theory: E-Special Introduction. *Theory, Culture & Society*, E-Issue 2, 1-11. doi:10.1177/0263276415595912

BETTINI, G., & KARALIOTAS, L. (2013). Exploring the limits of peak oil: Naturalising the political, de-politicising energy. *The Geographical Journal*, 179, 331-341.

doi:10.1111/geoj.12024

BLACKSELL, M. (2006). *Political Geography*. Routledge Contemporary Human Geography Series. London and New York, NY: Routledge.

BOOKCHIN, M. (1978). Ecology and Revolutionary Thought. Republished (1985) in *Antipode*, 10-11, 21-21. doi:10.1111/j.1467-8330.1985.tb00337.x

BRAUN, B., & WAKEFIELD, S. (2014). Inhabiting the Post-Apocalyptic City. *Society and Space*, [Online]. Retrieved from: <http://societyandspace.com>

BROSSEAU, M. (1994). Geography's literature. *Progress in Human Geography*, 18, 333-353. doi:10.1177/030913259401800304

BUCK, H.J. (2008). *Crossing the Blue: A post-petrol, post-America road trip*. Milton Keynes: Lightning Source.

COBB, K. (2010). *Prelude: A novel about secrets, treachery and the arrival of peak oil*. Portage, MI: Public Interest Communications.

CURTIS, C. (2012). *Postapocalyptic Fiction and the Social Contract*. Lanham, MD: Lexington Books.

CRANSTON, M. (1968). Introduction to ROUSSEAU, J-J. *The Social Contract*. Harmondsworth: Penguin Books.

ELDEN, S. (2012). Literary Geographies - Virtual Theme Issue. *Society and Space*, [Online]. Retrieved from: <http://societyandspace.com>

ELDEN, S. (2013). *The Birth of Territory*. Chicago, IL: University of Chicago Press.

EDWARDS, C. (2015). Peak Oil in the popular imagination. *Alluvium*,4, Retrieved from <http://www.alluvium-journal.org>

FALL, J. J. (2010). Artificial states? On the enduring geographical myth of natural borders. *Political Geography*, 29, 140-147. doi:10.1016/j.polgeo.2010.02.007

FLYNN, W. R. (2011). *Shut Down: A Story of Economic Collapse*. Charleston, SC: CreateSpace.

GHOSH, A. (2015). *Art of Change Fellow Amitav Ghosh Discusses 'The Great Derangement: Fiction, History, and Politics in the Age of Global Warming'* [Berlin Family Lectures Online] Retrieved from: <http://artofchange.is/art-of-change-fellow-amitav-ghosh-discusses-the-great-derangement-fiction-history-and-politics-in-the-age-of-global-warming/>

GHOSH, A. (2016). *The Great Derangement: Climate Change and the Unthinkable*. Chicago, IL and London: The University of Chicago Press.

GIBSON-GRAHAM, J. K., & ROELVINK, G. (2009). An Economic Ethics for the Anthropocene. *Antipode*, 41, SI. 320-346. doi:10.1111/j.1467-8330.2009.00728.x

GRUBB, A. (2011). *Peak Oil Primer* [Online]. Retrieved from: <http://www.resilience.org>

HARTMANN, B., & SAJI, S. (2016, March 28). *What Low Oil Prices Really Mean*. [Harvard Business Review Online]. Retrieved from: <https://hbr.org>

HELD, D. (2006). *Models of Democracy* (3rd ed.). Stanford, CA: Stanford University Press.

HIRSCH, R. L., BEZDEK, R., & WENDLING, R. (2005). *Peaking of World Oil Production: Impacts, Mitigation and Risk Management*. [Online]. Retrieved from: <http://www.resilience.org/primer>

- HITCHCOCK, P. (2010). Oil in an American Imaginary, *New Formations*, 69, 81-97.
doi:10.3898/NEWF.69.04.2010
- HOBBS, T. (1985 [1651]). *Leviathan*. Harmondsworth: Penguin Classics.
- INCE, A., & BARRERA DE LA TORRE, G. (2016). For post-statist geographies. *Political Geography*, 55, 10-19. doi.org/10.1016/j.polgeo.2016.04.001
- INCE, A. (2012). In the shell of the old: Anarchist geographies of territorialisation. *Antipode*, 44, 1645-1666. doi:10.1111/j.1467-8330.2012.01029.x
- KAMINSKI, F. (2008). *The post-oil novel: a celebration!* [Online]. Retrieved from:
<http://www.resilience.org>
- KUNSTLER, J. H. (2008). *World Made by Hand*. New York, NY: Atlantic Monthly Press.
- LEMENAGER, S. (2012). Aesthetics of Petroleum after *Oil!* *American Literary History*, Advance online publication. doi:10.1093/alh/ajr057
- LEMENAGER, S. (2014). *Living Oil: Petroleum Culture in the American Century*. Oxford: Oxford University Press.
- MANI, R. (2015). From 'dystopia' to 'Ourtopia': Charting a future for global governance. *International Affairs*, 91, 1237-1258 doi:10.1111/1468-2346.12458
- MANJIKIAN, M. (2012). *Apocalypse and Post-Politics: The Romance of the End*. Lanham, Boulder, CO, New York, NY, Toronto, Plymouth: Lexington Books
- MASON, K., & WHITEHEAD, M. (2012). Transition Urbanism and the Contested Politics of Ethical Place Making. *Antipode*, 44, 493–516. doi:10.1111/j.1467-8330.2010.00868.x

MCBAY, A. (2006). *Peak Oil Survival: Preparation for Life After Gridcrash*. Guildford, CT: Lyons Press.

MCCARTHY, C. (2009). *The Road*. London: Picador.

MITCHELL, D. (2014). *The Bone Clocks*. London: Sceptre.

O'HEAR, N., & O'HEAR, A. (2015). *Apocalypse now: our incessant desire to picture the end of the world*. [The Conversation Online]. Retrieved from: <http://theconversation.com/uk>

Ó TUATHAIL, G., & AGNEW, J. (1992). Geopolitics and discourse: practical geopolitical reasoning in American foreign policy. *Political Geography*, 11, 190-204. doi:10.1016/0962-6298(92)90048-X

PATERSON, M. (2005). Green Politics. In S. Burchill, A. Linklater, R. Devetak, J. Donnelly, M. Paterson, C. Reus-Smit, & J. True (Eds.) *Theories of International Relations* (pp. 235-257). Basingstoke: Palgrave MacMillan.

ROGOFF, K. (2016). *What's behind the drop in oil prices*. World Economic Forum [Online]. Retrieved from: <https://www.weforum.org>

ROUSSEAU, J-J. (1968). *The Social Contract*. Harmondsworth: Penguin Books.

SAID, E. (2003). *Orientalism* (Revised ed.). London: Penguin Classics.

SCARROW, A. (2007). *Last Light*. London: Orion.

SCHNEIDER-MAYERSON, M. (2013). From Politics to Prophecy: Environmental quiescence and the 'peak oil' movement. *Environmental Politics*, 22, 866-8. doi:10.1080/09644016.2013.818303

- SCHNEIDER-MAYERSON, M. (2015). *Peak Oil: Apocalyptic Environmentalism and Libertarian Political Culture*. Chicago, IL: University of Chicago Press.
- SCHUMACHER, E. (1973). *Small is Beautiful*. London: Vintage.
- SEYMOUR, J. (1980). *On My Own Terms* (Revised ed.). Plymouth: Latimer Trend.
- SEYMOUR, J. (1991). *Changing Lifestyles: Living as Though the World Mattered*. London: Victor Gollancz.
- SEYMOUR, J. (1996). *Retrieved from the Future*. London: Island Press.
- SPRINGER, S. (2013). Anarchism and Geography: A Brief Genealogy of Anarchist Geographies. *Geography Compass*, 7, 46-60. doi:10.1111/gec3.12022
- SWYNGEDOUW, E. (2010). Apocalypse Forever?: Post-political Populism and the Spectre of Climate Change. *Theory, Culture & Society*, 27(2-3), 213-232. doi: 10.1177/0263276409358728
- TRANSITION NETWORK. (2015). *Where*. [online] Retrieved from: <https://www.transitionnetwork.org>
- URRY, J. (2016). *What is the Future?* Cambridge and Malden, MA: Polity.
- WATKINS, J. (2015). Spatial Imaginaries Research in Geography: Synergies, Tensions and New Directions. *Geography Compass*, 9, 508-522. doi:10.1111/gec3.12228
- WHOSE AFRAID OF CHEAP OIL? (2016, January 23). *The Economist*. Retrieved from: <http://www.economist.com>
- ZAND, B. (2015). The British people preparing for the end of the world. BBC [online] Retrieved from: <http://www.bbc.co.uk/news/magazine-34637377>

