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SUSTAINABILITY, WELLBEING AND THE POSTHUMAN TURN

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ISBN 978-3-319-94077-9 ISBN 978-3-319-94078-6 (eBook)
https://doi.org/10.1007/978-3-319-94078-6

Library of Congress Control Number: 2018946163

Cover illustration: © Melisa Hasan

Printed on acid-free paper

This Palgrave Pivot imprint is published by the registered company Springer International Publishing AG part of Springer Nature
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface and Acknowledgements

This book has been written to provide an overview of some important trends in the contemporary environmental social sciences and humanities, particularly within human geography, development studies and political ecology. My hope is that it will be of direct interest to the work of academics and research postgraduates in the aforementioned fields, as well as being of use for discussion on advanced undergraduate and master's degree curricula. The text was written as a response to a gap evident in the sustainable development literature, which has failed to deal with recent developments taking place across the social sciences, away from humanistic and objectifying modes of theorising and towards the 'post-human' or 'more-than-human'. My hope is that such issues are explored in a manner which is rigorous, yet hopefully accessible and introductory.

By accessibly engaging in cross-disciplinary debates, this is the first monograph to draw together the implications of recent posthuman and new materialist thought with more traditional scholarship on sustainable development. The text is divided into four chapters, primarily exploring how two terms which are central to the study of sustainable development—sustainability and wellbeing—are more contested and problematic than they are often presented to be. These two terms are used in different ways across various social scientific disciplines, including geography, sociology, politics, development studies, economics and psychology, yet this use is, in both cases, increasingly characterised by a narrow lens of humanist individualism, technocratic managerialism and abstract quantification.

To examine this tendency, Chapter 1 will set out the general lay of the land, introducing some key concepts within sustainable development and the Sustainable Development Goals, and developing ideas which underpin the analyses to follow. Chapter 2 will examine what I call the 'abstraction of nature', namely how we are increasingly quantifying our environmental relationships, possibly to the detriment of other ways of conceiving of human-ecological relations. By way of examples, this will involve examining the political ecology and 'ontological politics' of metrics such as the planetary boundaries approach, carbon footprint analyses, payments for ecosystem services (PES), and others. Chapter 3 will undertake a similar task in the realm of well-being research, which has been put forward as a complementary means of shifting social analysis away from GDP and focusing on the 'social' element of sustainability in a way that doesn't cost the earth. However, what both of these developments have become, across both 'wellbeing' and 'environmental sustainability', is a mediation of our very relationship with the environment, through self-disciplining and self-regulation, self-monitoring and self-punishment. Chapters 2 and 3, then, demonstrate how this results in a very particular, and dualistic, way of perceiving the environment, driving an artificial wedge between our species and all that sustains it. Chapter 4 will then take a more constructive line, examining counter-threads and intertwined research trajectories in the social sciences which have worked to overcome this artificial wedge, with differing levels of success, including eco-phenomenology, feminist ethics of care and the new materialism.

I'd like to thank Rachael Ballard and Joanna O'Neill at Palgrave Macmillan for their support, and the anonymous reviewers for their help in developing the ideas proposed. Chapter 3 is based on work published in the journal *Progress in Human Geography*, in a paper titled 'Which 'being' in wellbeing? Ontology, wellness and the geographies of happiness', co-authored with Dr Louise Reid.

Contents

CHAPTER 1

The New Sustainable Development Agenda: An Introduction to Measurement and Conceptualisation

Abstract This chapter traces both the intellectual foundations and practical applications of contemporary ideas relating to sustainability and development. Setting the scene for the rest of the book, it explores key contemporary intellectual framings of development, focusing on the renewed prominence bestowed upon the phrase 'sustainable development' internationally, given the unveiling of the Sustainable Development Goals (SDGs) as the centrepiece of the UN's 2030 development agenda. A more critical exploration, it is argued, must occur if scholars and students of sustainable development are to examine the constitutive role of measuring mechanisms, indicators and metrics in the political realm of sustainability, a field quickly moving down the track of abstraction, quantification and 'neoliberalisation'.

Keywords Sustainable development goals · Sustainability · Metrics Indicators · Development studies

For many, 'sustainable development' is seen as something of a dirty phrase. It can be obfuscatory and vague, often used by those interested in 'sustaining' ecological modernisation and propping up a status quo which, through ecological devastation and social polarisation, is radically undermining its own existence. Such critics do not mince their words. For example, the author and 'recovering environmentalist', Paul Kingsnorth, has noted that the term 'sustainability' 'does not mean

T. S. J. Smith, *Sustainability, Wellbeing and the Posthuman Turn*,
https://doi.org/10.1007/978-3-319-94078-6_1

defending the non-human world from the ever-expanding empire of Homo sapiens, though some of its adherents like to pretend it does, even to themselves. It means sustaining human civilization at the comfort level that the world's rich people—us—feel is their right, without destroying the "natural capital" or the "resource base" that is needed to do so'.[1] While largely agreeing with the sentiment behind this statement—after all, the empire of Homo sapiens has indeed been propped up for too long by apologists, while long since crossing the Rubicon of vast environmental change—I think that turning our backs on such terms is to throw the baby out with the bathwater. It is, perhaps, to avoid the nuanced analysis and parsing which we will need to navigate the uncertain times to come. After all, sustainable development (SD) is a diverse concept with diverse interpretations, with Seyfang and Smith (2007, p. 584) noting that 'Everybody, it appears, is committed to sustainable development. But not everybody is seeking sustainable development in the same way'.

The title of this book deals with these broad topics because, at this critical time, it is necessary to interrogate wide-ranging and interconnected concepts which are foundational to theories and practices of 'development', theories and practices which reach right across disciplines in the social sciences, particularly human geography, development studies and sociology. It is important, from time to time, to step back from the canvas, to trace important historical trajectories and to see what is really emerging from the currently prevailing tendencies and assumptions in human thought and action. As Neil Evernden (1993, p. xii) so aptly noted, amidst the consistent failure of the environmental movement to achieve its goals, 'the source of the environmental crisis lies not without but within, not in industrial effluent but in assumptions so casually held as to be virtually invisible'.

As such, I will here, and elsewhere in the book, trace the practical applications of certain intellectual foundations of contemporary thought on sustainability and development, as it is my view that theory and practice in these realms cannot be meaningfully divorced. While the book contains four chapters, each looking at how the way we conceive of, or measure, the environment changes the way we interact with it, I will largely steer clear of parading statistics to prove the case that the environment is in trouble. Both academic and lay discourse are drowning in such work, and to do so would be contrary to the aim of this book, which is to step back and question the very effect of simply and overwhelmingly

parading statistics in order to prove that the ecological web which maintains our world is being dismantled, strand by strand.

Recent decades have witnessed unprecedented calls for alternative visions of social development, *sustainable development*, a vision which would place less emphasis on pure expansion of consumption and the human empire (usually visible through economic growth as measured by gross domestic product [GDP]) and more on the dual attainment of well-being and sustainability. This provocation or aim, of building a society which cultivates human well-being within ecological constraints, has been termed the 'double dividend' in SD (Jackson 2011) and forms a key underpinning of the analysis to come. Indeed, the book's overarching question has been framed well elsewhere, namely 'how are we supposed to move from the neo-environmentalist world where we just get more efficient at maintaining our current standard of living and destroy the planet a little less rapidly to a world where we're not only consuming fewer natural resources but are actually happy doing so?'[2]

The interrogation of some of the key intellectual infrastructures of development, which I undertake in this book, is particularly timely given the renewed prominence bestowed on the phrase 'sustainable development' internationally, amidst the rolling out of the Sustainable Development Goals (SDGs) as central to the UN's 2030 development agenda. Furthermore, the rise of debates surrounding the Anthropocene and various recent initiatives to enshrine well-being in national policy around the world, as a means of shifting away from the destructive emphasis on economic growth, have also led to the need to reflect on human–environmental interactions and how they are conceived and reworked. These are the issues which will be explored over the next four chapters.

Current conceptualisations of SD appear neutral and are often taken as such (see Chapter 2 for more extended discussions of this 'post-political' terrain), but in fact betray very particular assumptions about the world and the place of this human species in that world. Certain approaches to thinking through core issues in sustainability are changing, however, and less human-centred approaches emerging. I will examine, both here and in future chapters, how a certain calculative and managerial rationality is displacing other ways of knowing and interacting with nature and sustainability. A 'significant conceptual narrowing of the sustainability agenda to politically palatable and quantifiable goals' has occurred, as Rau (2018) has noted, 'most of them in the area of climate

change adaptation and mitigation, and related sustainability assessment (SA) tools'. While I hope to make clear that there is more at stake in our approaches of assessing sustainability than purely neutral knowledge, I should say at the outset that the argument put forward will not be that measurement and metrics are in some sense morally wrong. Rather, I hope to emphasise that we should seriously consider, and question, the consequences of living in a society dominated by numbers. This is a subtle, but important, difference.

I am hesitant, however, to pour more words into the universe on these topics. As it stands, academic output is growing exponentially, doubling every nine years,[3] almost in lockstep with every accelerationist trend leading to the destruction of the environment. An industry of researchers is writing about SD, flying from conference to conference to talk to each other on the topic for fifteen minutes, all while things appear to become immeasurably worse. What is really needed, then, is action, or, at least, praxis—the unity of theory and practice. Without such an emergence, we may not be able to change course in time. Yet, for this praxis to emerge, a taking of stock must occur, if we are not to go too far down the laneway of abstraction, quantification and neoliberalisation, for want of better words. Perhaps the most unique feature of humans is their diversity, and thus, when one way of viewing something becomes overwhelmingly dominant, or there is an incipient 'monoculture of the mind' (Shiva 1993)—as I would argue that there currently is—it is appropriate that we pause to reflect.

I will not argue here that we need a 'consciousness shift', however, as is often broadly called for (see, e.g., Asoka's [2013, p. 73] statement that 'Sustainability and well-being are fundamentally ethical issues calling for a transformation of consciousness and a stronger moral and ethical foundation' or elsewhere that 'A universal ethical code of conduct and a nonviolent methodology as practiced by individuals like Mahatma Gandhi and Martin Luther King Jr. are needed' [p. 78]). That is too dualistic and universalist a formulation of the changes which are needed, seemingly positing that tangible change comes about solely, or primarily, from some sort of consciously held belief. This is reminiscent, indeed, of Al Gore trying to bring about global change by informing people of an 'inconvenient truth', using graphs and metrics and various means of visual and textual education. The benefit of such an approach remains to be seen, so I will instead try to draw on more practical and material questions, pointing the reader towards work on practices and affect

(Coeckelbergh 2015; Gibson-Graham 2003). Furthermore, what such approaches—of hitting people over the head with statistics and facts, as the environmental philosopher Timothy Morton has put it—have failed to examine is the actual constitutive role of measuring mechanisms, indicators and metrics in the political realm of sustainability.

This role is constitutive because certain ways of measuring or analysing always hide or obscure other possibilities and are always based on certain value systems; certain ways allow the non-human to be felt and present, and other ways drive a wedge between our species and all that sustains it. As Kull et al. (2015, p. 123) note, a more political ecological approach 'guides researchers to pay attention not only to the "ecology" or science of the topic at hand, but also to the agency of ideas and the actions of social, economic, and discursive power across scales. The approach pays particular attention to who wins, who loses, and what the impacts are for different parts of society and different components of the environment'. This statement will be examined in more depth in the next chapter, in dialogue, for example, with the rise of the field of 'critical data studies'.

The supposition here is that the way we speak of, measure, and represent our world is performative; that is, these things, and their associated practices, actually *do something* in the world. Rametsteiner et al. (2011, p. 62) state that 'indicators do more than describe current conditions or trends' and thus 'the fundamental challenge of sustainability indicator development is not primarily technical or at least not technical alone. It is political…' I wholeheartedly agree. Measurements rarely come out of a vacuum, with contemporary efforts to measure SD having a very particular history, stemming in part from the United Nations Conference on Environment and Development in Rio de Janeiro (1992) (known as Agenda 21), which called for 'systems for monitoring and evaluation of progress towards achieving sustainable development by adopting indicators that measure changes across economic, social and environmental dimensions' (UN, quoted in Strezov et al. 2017, p. 243). Contrary to my caution above about the performative role of measures, however, Strezov et al. (2017) appear to lament that 'there is still no consensus on a single index that is most acceptable by the scientific and political communities' (ibid.). However, would such a consensus even be desirable? This is what this book will interrogate, before ultimately exploring alternative groundings for SD approaches in Chapter 4.

Let us begin by examining some of the more foundational calculations of SD in use today, amongst a rapidly expanding field of indicators currently numbering around 895 (see Rau's [2018] discussion of the 2015 *Compendium of Sustainable Development Indicator Initiatives*). Nourry (2008) has focused on the compound indicators of SD, that is those that simultaneously examine both human and environmental aspects of the classical view of SD, namely meeting 'the needs of the present without compromising the ability of future generations to meet their own needs'.[4] While these indicators 'must assess human development (i.e. is welfare non-declining?) and sustainability (i.e. is the stock of total capital…or natural capital…intact?)', she notes that 'no single measure does a perfect job at reflecting sustainable development per se' (p. 442). Examining eight such indicators in the French context,[5] Nourry finds that the measures contradict each other entirely and 'do not support the same conclusion about the sustainability of France' (pp. 451–452).

This variability is telling. If we briefly examine one often-used multidimensional development indicator, for example—the UN's Human Development Index (HDI)—we can see how these contradictory findings can arise. The HDI is made up of three equally weighted variables (this equal weighting is itself a contentious topic), namely GDP per capita, life expectancy and education level (measured in terms of adult literacy and educational enrolment rates). The relationship between GDP and 'development' is of course highly contested, perhaps most famously seen with Max-Neef's 'threshold hypothesis' (Jackson 2011; Max-Neef 1995), which demonstrates that while increases in income may have a positive effect on the subjective well-being of people who are very poor in economic terms, after a certain low threshold, material wealth results in little or no greater subjective happiness. This is compounded by the fact that many events, incidences and acts which may be detrimental to welfare on various time scales can drive up GDP in the short term. For instance, as has been pointed out elsewhere, an oil spill may, on balance, generate jobs and other economic benefits in the short term through clean-up job creation,[6] and would thus increase the HDI to an equal extent as would, say, increases in life expectancy or education.

Life expectancy itself, as a proxy for health and welfare, can also be seen to give a somewhat shallow insight into development, let alone 'sustainable development'. While considerations of space preclude the full examination of this topic here, the quantitative focus on life expectancy rules out a meaningful examination of how those lives, whether long or

short, are led. For instance, contrary to the simple upward trajectory of life quality indicated by growing life expectancy, Vigo et al. (2016) have argued that the 'disease burden' of mental illness globally has been drastically underestimated, by more than a third, while mental health now represents the greatest burden of disease globally, in terms of years lived with disability (YLDs) and disability-adjusted life years (DALYs). Finally, and in a rather similar manner, the education metrics underlying the HDI are themselves questionable, given that educational enrolment in many countries rarely equates with completion, attendance, quality teaching or, say, the ability of a populace to be self-determining, empowered and able to think for itself.

The geographer and political ecologist Bruce Braun (2008) has written eloquently on such issues of the importance and performance of conceptualisation. For example, one foundational argument made in much SD thinking over the past three decades is that the realms of economy and society are either interlinked with or, more radically, embedded in the environment. These two perspectives have been famously visualised and demonstrated in the form of Venn diagrams, which show the environment, economy and society either as interlinked and overlapping or, supposedly more radically, as fully nestled within one another. As Braun notes, however, it is not enough to note that the economy is 'embedded' in nature:

> The word 'embedded' carries the idea that there is something that exists prior to, and separate from, the relationships in which something is purportedly embedded. When we think 'embedded', we immediately think 'more or less', using a measure of quantity, rather than quality. Thus, non-humans and social relationships do not help constitute the economy, they merely introduce changes into something that exists separate from them (or 'feedback' in the case of non-human nature or sociotechnical systems). What apparently cannot be broached is the idea that the economy is 'made up' of these mundane everyday things from the outset… (p. 669)[7]

Similar to such discussions of how we measure or represent environmental sustainability and natural resources, Chapter 3 will look at how moving beyond the 'supremacy' (Nourry 2008, p. 441) of GDP[8] as a measure for social 'wellbeing', 'flourishing', 'happiness' or 'quality of life' (the words, as we shall see, are relatively imprecise, yet are proliferating at great speed) has resulted in something of a regress to the

quantification and simplification of social life. While moves towards happiness research are lauded by, and capture the attention of, policy makers and the public alike, I will argue that a very particular form of examination of these topics is being enacted and instantiated, one which treads perilously close to reproducing the very weaknesses of the flat metrics which they were supposed to replace.

All of these introductory issues are well encapsulated in the UN's flagship global development initiatives for the period 2000–2030, the eight Millennium Development Goals (MDGs) and their successors, the 17 Sustainable Development Goals (SDGs), which I will now explore by way of an introduction to the issues to be discussed in more depth below.

The SDGs are purported to be the guiding light for global development in the run-up to 2030, replacing the eight Millennium Development Goals (MDGs) which were established in the aftermath of the UN Millennium Summit in 2000 and which ran until 2015. The UN claims that the SDGs have greater legitimacy than those which preceded them, having been developed through a worldwide consultation process that included governments and civil society, purportedly putting the voices of the poor centre stage. This indeed contrasts with the MDGs, which were famously drawn up by a handful of bureaucrats in the basement of the UN. For example, Mark Malloch-Brown, who was a senior member of the small team who drafted the MDGs, has since spoken of how this team almost entirely forgot to include a goal relating to the environment:

> The document had gone to the printing presses as I passed the head of the UN's environmental programme…I was walking along the corridor, relieved at job done, when I ran into the beaming head of the UN environment programme and a terrible swearword crossed my mind when I realised we'd forgotten an environmental goal…we raced back to put in the sustainable development goal.[9]

The SDGs instead situate environmental sustainability more centrally, albeit suffering from many of the same operational pitfalls as the MDGs. Amongst them, for example, while many attempts to govern global development and environment are based on top-down regulation or market-based approaches, the MDGs and SDGs are entirely consensual and non-binding, with weak international governance institutions to back them up (Biermann et al. 2017). The goals are framed as universal

and apolitical, with the SDG framing document—*Transforming Our World*[10]—for example, asserting that 'All countries and all stakeholders, acting in collaborative partnership, will implement this plan…. It is accepted by all countries and is applicable to all, taking into account different national realities' (pp. 1–2).

However, given this broad scope, the SDGs have been described, variously, as 'vague, weak or meaningless' (Holden et al. 2017, p. 214), proliferating from the relatively limited scope of the MDGs (with eight goals, 23 targets and 60 indicators) to include 17 goals, 169 targets and, at the time of writing, 232 indicators, covering topics as disparate as global hunger and the sociocultural importance of sporting activities. One article labelled them derisively as the '169 Commandments',[11] while they have elsewhere been pithily characterised as 'No targets left behind'.[12]

The rhetoric of the goals is indeed broad, calling for 'a plan of action for people, planet and prosperity' which 'seeks to strengthen universal peace in larger freedom' (*Transforming Our World*, p. 1). However, as ever, the devil is in the details. The approach, across both the MDGs and SDGs, leads to methodological questions which highlight well some of the key questions this book asks, regarding the ecological politics of measurement, abstraction and conceptualisation. Such questions have been eloquently raised by Hickel (2016) for example, who notes that claims for success in a number of goals are founded on questionable assumptions. For example, while the UN claimed success in *nearly* meeting the headline MDG goal of halving poverty and hunger worldwide, these claims were 'misleading at best and intentionally inaccurate at worst' (p. 750). For example, the UN system had originally focused on reducing the numbers of poor and hungry individuals in *absolute* terms, while the Millennium Declaration which established the MDGs switched to *proportions* of the global population, making it 'easier to achieve than an equivalent goal based on the parameters of the Rome Declaration would have been, simply because it could take advantage of population growth' (p. 751):

> Because the population of the developing world is growing at a faster rate than that of the world as a whole, this subtle shift in methodology allowed the MDGs to take advantage of a faster-growing denominator. On top of this there was a second significant change: the starting point of analysis was moved from 2000 back to 1990. This gave the UN much more

> time to accomplish the goal, extended the period of denominator growth, and allowed it to retroactively claim gains in poverty reduction that were achieved long before the MDGs actually began. This backdating took particular advantage of gains made by china during the 1990s, when hundreds of millions of people were lifted out of extreme poverty, and tallied this as a victory for the MDGs, even though they had nothing to do with it. (ibid.)

This sleight-of-hand was compounded by the use of a global poverty line which lacks contextual sensitivity, reinforcing the fact that 'normative dimensions can thereby be hidden and…the indicator set becomes biased towards one or the other dimension of SD which lies in the interest of certain political actors' (Rametsteiner et al. 2011, p. 62). For example, as Hickel notes, the World Bank estimated in 2011 that India had 300 million people living below the International Poverty Line (IPL—$1.25/day) and claimed a gradually decreasing level of poverty in the country while, simultaneously, 900 million people—comprising nearly 75% of the population—consumed less than 2100 calories per day. Aside from such enormous inconsistencies, the MDGs were also characterised by suspiciously convenient methodological changes on the part of the UN, leading to the MDG indicators ultimately looking better than they otherwise would have (see also Jerven 2013).

The measurement of hunger across the UN system, as used in the MDGs and SDGs, also raises a number of conceptual questions, not least the quantitative fixation on bare calories, rather than the more qualitative questions of diet quality, micronutrient or vitamin intake, or the actual experience of suffering from malnutrition. Further, Hickel (2016, p. 759) has noted that the caloric requirements are calculated based on the average height of a population: 'the threshold is lower for people in Timor-Leste because they are shorter – and therefore presumably require fewer calories – than people in the Netherlands'. However, this logic is circular, with short stature in a population often being a sign of undernourishment, and declining average stature indicating the need for more, not fewer, calories. Similarly, many of the world's poor do not live the sedentary lives characteristic of the West and thus need even more than the Food and Agriculture Organisation's (FAO) suggested minimum caloric threshold. As Hickel notes, 'the average rickshaw driver in India…requires around 3000–4000 calories per day', while 'people who are hungry for months at a time are…not counted as hungry, since

the definition of hunger only captures hunger that lasts for over a year' (p. 760).

The availability of data is a very basic limitation here also. In the case of the SDGs, the 232 indicators have recently been grouped into three tiers according to their data availability and methodological approach (see Diaz-Sarachaga et al. 2018), with just 98 falling into Tier I, a category indicating data and methodologies which are generally regularly available. Instead, 50 fall into Tier II, meaning there is scarce data availability but clear methodological frameworks, while 79 belong to Tier III, lacking both data and statistical assessment approaches (15 indicators are yet to be assigned). Indeed, Diaz-Sarachaga et al. (2018) conclude that around 60% of the measures designed to monitor progress in SD through the SDGs are of little value.

A related example is that of the MDGs for water and sanitation, as examined by Satterthwaite (2016). While UN reports regularly noted that the MDG drinking water target had been surpassed, with the WHO/UNICEF Joint Monitoring Programme, amongst others, claiming that it had been met as early as 2010, this was simply not true. The MDG in question had called explicitly for progress towards safe and sustainable water access. However, the only globally available statistics, and those which were used to make such optimistic claims, related only to access to 'improved' water sources, many of which are anything but safe, reliable or easily accessed. For instance, as Satterthwaite (2016, p. 102) notes, '81 per cent of Nigeria's urban population and 57 per cent of its rural population had improved provision for water in 2015 – but only 3 per cent of the urban population and 1 per cent of the rural population had water piped on premises', noting that 'if it is accepted that for urban areas, water piped on premises is a far more valid indicator for assessing MDG progress…this completely changes the extent of provision and the extent of progress in regard to MDG targets'. Indeed, globally, between 1990 and 2015, there was no increase at all in the proportion of the urban population with water piped on premises, with the figure in certain areas—sub-Saharan Africa, most notably—actually falling in this time.

While the above hints at some of the methodological issues involved in the measurement of SD, the very conceptualisation of the environment in such work, for example in the SDG document, *Transforming Our World*, is also worth noting. Despite paying some lip service to 'Mother Earth' (p. 13), the taking of action on global unsustainability is framed in singularly instrumental and largely

anthropocentric terms, 'so that [the environment] can support the needs of the present and future generations' (p. 2). For example, Item 33 (p. 9) states:

> We recognize that social and economic development depends on the sustainable management of our planet's natural resources. We are therefore determined to conserve and sustainably use oceans and seas, freshwater resources, as well as forests, mountains and drylands and to protect biodiversity, ecosystems and wildlife. We are also determined to promote sustainable tourism, to tackle water scarcity and water pollution, to strengthen cooperation on desertification, dust storms, land degradation and drought and to promote resilience and disaster risk reduction.

Underpinning the entire edifice of the SDGs, this approach leads to their clear positioning under the umbrella of 'ecological modernisation', a form of ecological thought which fetishises and valorises economic growth to a problematic extent (albeit often prefaced with fluffy, descriptive terms such as 'inclusive' and 'sustainable'). This is evident, for example, in the UN's desire to 'Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries'. Elsewhere, amidst vague generalisations, the statement is made that 'We recognize that domestic resources are first and foremost generated by economic growth, supported by an enabling environment at all levels (p. 29)'.

This faith in the role of growth has a long history, dating back to the initial conception of GDP by the economist Simon Kuznets in the 1930s, and relies on the notion that economic growth will 'trickle down' to the poor—a controversial and poorly evidenced proposition (Akinci 2018). Indeed, apart from being a metric which entirely sidesteps the environmental question, as Hickel (2016, p. 761) notes:

> Of all the income generated by global GDP growth between 1999 and 2008, the poorest 60% of humanity received only 5% of it. According to David Woodward, at this rate it will take more than 100 years to eradicate poverty through growth. GDP growth is not an adequate solution to poverty and hunger – at least not without strong redistributive measures.

Furthermore, should this growth-led approach be taken, at current rates it would require the global economy to grow to 175 times its current size,[13] which is out of the question if current rates of inequality and resource use are sustained, which appears likely without significant systemic change. The UN does seek to 'decouple' economic growth from the environmental destruction with which it has been inseparable from, in recent decades, though an accumulation of evidence suggests that such decoupling is something of a quixotic quest (Stern 2004). Beyond ignoring the reality of worldwide decoupling of GDP from environmental destruction, Section 8.4 of the UN document also calls for progressive improvement in 'global resource efficiency in consumption and production', with 12.2 further calling for the 'sustainable management and efficient use of natural resources'. This approach to achieving SD entirely ignores the counter-intuitive (albeit well-documented) 'rebound effect' or 'Jevons Paradox'—named after the nineteenth-century English economist William Stanley Jevons—whereby increases in technological and management efficiency often increase the demand for and rate of consumption of a resource (Sorrell 2009; this is a complex topic, the full exploration of which is not possible here, although see York and McGee (2016) for a good introduction). This rebound effect has recently been seen, for example, with the proliferation of low-energy LED lighting worldwide. The predicted energy savings and concomitant environmental gains for lighting have been quickly wiped out by the increased use of such lights in ways which were previously unforeseen or unnecessary. Indeed, as Sorrell (2009, p. 1466) notes, much evidence 'points to economy-wide rebound effects being larger than is conventionally assumed and to energy playing a more important role in driving productivity improvements and economic growth than is conventionally assumed'. Thus, as Hickel has written, in a piece titled *The Problem with Saving the World*, 'The SDGs are not just inadequate, they are dangerous; they will lock in the global development agenda for the next fifteen years around a failing economic model that requires urgent and deep structural changes'. The UN's agenda appears to rely on numbers which can't be counted and, even when they can be, they are manipulated in order to show the situation in the most favourable light possible. This assertion of a rising, yet problematic, quantification, then, will be worked out in the subsequent two chapters, while the book's concluding chapter attempts a break from current technocratic understandings, rethinking foundational

SD concepts in the light of a recent turn towards new materialism and posthumanism across the humanities and social sciences.

Conclusion

While exact motivations in the complex and often political realm of international development are difficult to ascertain, this chapter—using the SDGs and the 2030 development agenda as its touchstone—has explored some of the dubious and questionable attempts to quantify SD and opened the issue of statistical manipulation up for discussion. Through the lens of the UN's SD agenda, this chapter has introduced some of the key issues to be discussed over the ensuing chapters, particularly focusing on what Böhringer and Jochem (2007) have described as 'measuring the immeasurable'. This book works against a growing attempt to entirely replace subjectivity with science in the field of SD, ultimately re-balancing these discussions in the direction of the human-scale sense of ecological loss and change which has historically underpinned environmental thought. The major focus of much SD thought, as exemplified in this chapter in the case of the MDGs and SDGs, is on quantification and measurement, understandably. Yet, this strong focus is carried out in very particular ways, which, as we shall see, often work to exclude other possibilities.

Notes

1. http://old.paulkingsnorth.net/confessions.html.
2. https://lareviewofbooks.org/article/waiting-for-the-end-of-the-world/.
3. http://blogs.nature.com/news/2014/05/global-scientific-output-doubles-every-nine-years.html.
4. The classic 1987 definition drawn from the report, *Our Common Future*, better known as the Brundtland Report.
5. Including Green National Net Product, Genuine Savings, Ecological Footprint, Genuine Progress Indicator and Indicator of Sustainable Economic Welfare, a 'green extension' of the Human Development Index and the French Dashboard on sustainable development.
6. http://www.ips-dc.org/spending_is_not_growth_the_case_against_gdp/.
7. To counter the instrumentality of such notions of 'humanity' embedded in 'nature', Braun considers a similar move to the one I will make in Chapter 4, towards the inventiveness of life, the new materialism and a

sort of material vitalism. This thought, however, I will leave undeveloped here, for further discussion in that chapter.

8. Nourry (2008, p. 441) cites a statement from the 1992 UN Conference on Environment and Development in Rio de Janeiro as an early indication of the limitations of GDP as a measure of development (sustainable or otherwise). This statement noted that 'common indicators such as gross domestic product and measures of different resources or pollution flows do not assess the sustainability of economic systems'.
9. https://www.theguardian.com/global-development/2012/nov/16/mark-malloch-brown-mdgs-nuclear.
10. http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
11. https://www.economist.com/news/leaders/21647286-proposed-sustainable-development-goals-would-be-worse-useless-169-commandments.
12. https://psmag.com/environment/why-are-the-uns-sustainable-development-goals-stalling.
13. https://www.jacobinmag.com/2015/08/global-poverty-climate-change-sdgs/.

References

Akinci, M. (2018). Inequality and Economic Growth: Trickle-Down Effect Revisited. *Development Policy Review, 36,* 1–24. https://doi.org/10.1111/dpr.12214.

Bandarage, A. (2013). *Sustainability and Well-Being—The Middle Path to Environment, Society and Economy.* London, UK: Palgrave Macmillan.

Biermann, F., Kanie, N., & Kim, R. E. (2017). Global Governance by Goal-Setting: The Novel Approach of the UN Sustainable Development Goals. *Current Opinion in Environmental Sustainability, 26–27,* 26–31. https://doi.org/10.1016/j.cosust.2017.01.010.

Böhringer, C., & Jochem, P. E. (2007). Measuring the Immeasurable—A Survey of Sustainability Indices. *Ecological Economics, 63*(1), 1–8.

Braun, B. (2008). Environmental Issues: Inventive Life. *Progress in Human Geography, 32*(5), 667–679.

Coeckelbergh, M. (2015). *Environmental Skill: Motivation, Knowledge, and the Possibility of a Non-romantic Environmental Ethics.* New York and London: Routledge.

Diaz-Sarachaga, J. M., Jato-Espino, D., & Castro-Fresno, D. (2018). Is the Sustainable Development Goals (SDG) Index an Adequate Framework to Measure the Progress of the 2030 Agenda? *Sustainable Development.* https://doi.org/10.1002/sd.1735.

Evernden, L. L. N. (1993). *The Natural Alien: Humankind and Environment*. Toronto: University of Toronto Press.

Gibson-Graham, J. K. (2003). An Ethics of the Local. *Rethinking Marxism, 15*, 49–74. https://doi.org/10.1080/0893569032000063583.

Hickel, J. (2016). The True Extent of Global Poverty and Hunger: Questioning the Good News Narrative of the Millennium Development Goals. *Third World Quarterly, 37*(5), 749–767. https://doi.org/10.1080/01436597.2015.1109439.

Holden, E., Linnerud, K., & Banister, D. (2017). The Imperatives of Sustainable Development. *Sustainable Development, 25*(3), 213–226. https://doi.org/10.1002/sd.1647.

Jackson, T. (2011). *Prosperity Without Growth: Economics for a Finite Planet*. London: Routledge.

Jerven, M. (2013). Briefing: For Richer, for Poorer: GDP Revisions and Africa's Statistical Tragedy. *African Affairs, 112*(446), 138–147. https://doi.org/10.1093/afraf/ads063.

Kull, C. A., Arnauld de Sartre, X., & Castro-Larrañaga, M. (2015). The Political Ecology of Ecosystem Services. *Geoforum, 61*, 122–134. https://doi.org/10.1016/j.geoforum.2015.03.004.

Max-Neef, M. (1995). Economic Growth and Quality of Life: A Threshold Hypothesis. *Ecological Economics, 15*(2), 115–118. https://doi.org/10.1016/0921-8009(95)00064-X.

Nourry, M. (2008). Measuring Sustainable Development: Some Empirical Evidence for France from Eight Alternative indicators. *Ecological Economics, 67*(3), 441–456. https://doi.org/10.1016/j.ecolecon.2007.12.019.

Rametsteiner, E., Pülzl, H., Alkan-Olsson, J., & Frederiksen, P. (2011). Sustainability Indicator Development—Science or Political Negotiation? *Ecological Indicators, 11*(1), 61–70. https://doi.org/10.1016/j.ecolind.2009.06.009.

Rau, H. (2018). Minding the Mundane: Everyday Practices as a Central Pillar of Sustainability Thinking and Research. In M. Boström & D. Davidson (Eds.), *Environment and Society: Concepts and Challenges*. London: Palgrave Macmillan.

Satterthwaite, D. (2016). Missing the Millennium Development Goal Targets for Water and Sanitation in Urban Areas. *Environment and Urbanization, 28*(1), 99–118. https://doi.org/10.1177/0956247816628435.

Seyfang, G., & Smith, A. (2007). Grassroots Innovations for Sustainable Development: Towards a New Research and Policy Agenda. *Environmental Politics, 16*(4), 584–603.

Shiva, V. (1993). *Monocultures of the Mind*. Chicago: University of Chicago Press. Retrieved from http://www.press.uchicago.edu/ucp/books/book/distributed/M/bo20850841.html.

Sorrell, S. (2009). Jevons' Paradox Revisited: The Evidence for Backfire from Improved Energy Efficiency. *Energy Policy, 37*(4), 1456–1469. https://doi.org/10.1016/j.enpol.2008.12.003.

Stern, David. I. (2004). The Rise and Fall of the Environmental Kuznets Curve. *World Development, 32*(8), 1419–1439.

Strezov, V., Evans, A., & Evans, T. J. (2017). Assessment of the Economic, Social and Environmental Dimensions of the Indicators for Sustainable Development. *Sustainable Development, 25*(3), 242–253. https://doi.org/10.1002/sd.1649.

Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the True Global Burden of Mental Illness. *The Lancet Psychiatry, 3*(2), 171–178. https://doi.org/10.1016/S2215-0366(15)00505-2.

York, R., & McGee, J. A. (2016). Understanding the Jevons Paradox. *Environmental Sociology, 2*(1), 77–87. https://doi.org/10.1080/23251042.2015.1106060.

CHAPTER 2

Our Calculable Earth: The Abstraction of Nature and the Death of Environmental Politics

Abstract This chapter examines the calculative rationality displacing other ways of knowing and interacting with 'nature'. Several increasingly dominant approaches to representing our environment are discussed, including the planetary boundaries approach, ecological footprint measures, ecosystem services (ES) and payments for ecosystem services (PES), and carbon trading. It is argued that contemporary environmental research and the environmental movement more broadly appear to be increasingly dominated by a type of 'environmental accounting'. This abstraction and the rise of 'numerical environmentalism' have resulted in important, broader questions being foreclosed. For instance, climate change is increasingly seen simply as a technical issue involving too much carbon in the atmosphere and the transgression of planetary boundaries seen simply as a technical matter of retreating within a 'safe space'.

Keywords Planetary boundaries · Environmental footprints
Ecosystem services · Payments for ecosystem services · Abstraction
Post-political

T. S. J. Smith, *Sustainability, Wellbeing and the Posthuman Turn*,
https://doi.org/10.1007/978-3-319-94078-6_2

> It was a warm autumn day, and the ecosystem service providers were buzzing in the natural capital. The foliage was consuming the light. Anders was sitting in his usual chair. Sophie and Sasha were on their way, and this afternoon he would go with Sasha to an area of outstanding natural beauty to forge a closer familial connection while recreationally walking.
> Nick Hunt, Green Bang[1]

The German philosopher Martin Heidegger[2] (1977) made a famous observation regarding the trajectory of modern technological society in his late work *The Question Concerning Technology*. He noted that, rather than being simply made up of an assemblage of physical equipment, modern forms of technology are actually a mode of 'revealing'—or interacting with the world—which turns our environment into what he called 'standing-reserve [*Bestand*]'. Standing-reserve refers to the abstraction of mere resources which are quantified and assessed and prepared for extraction. Take, for example, his distinction between modern technology and the older technology of the windmill:

> The revealing that rules in modern technology is a challenging [Herausefordern], which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such. But does this not hold true for the old windmill as well? No. Its sails do indeed turn in the wind; they are left entirely to the wind's blowing. But the windmill does not unlock energy from the air currents in order to store it.

This analysis then continues in relation to land use and cultivation, with 'the earth now [revealing] itself as a coal mining district, the soil as a mineral deposit'. Indeed, Heidegger goes so far as to state that 'Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering'. In the twentieth and twenty-first centuries, this process even extends to the human being itself (which he recognised through the rise of such terms as 'human resources'), a topic to which I will turn my attention in the next chapter. Here, however, I wish to examine what I propose to be the increasing conversion of the non-human and 'environment' to effective standing-reserve, through a variety of processes increasingly actualised under the rubric of 'sustainable development'. Once converted in this manner, technocratic managerialism comes to the fore, instantiated in various forms of eco-bean counting and quantified monitoring.

The chapter will examine a number of recent, increasingly influential and hegemonic ways of conceiving our environment—from planetary boundaries and ecological footprints, to ecosystem services (ES)—which serve to mediate human–non-human connections and which, I will propose, perform a very particular metaphysical approach to the 'environment'. While, in many cases, the reconfiguration of our environment into a 'mathematical object' (Beuret 2017, p. 1165) can prove useful to campaigners and policy makers, the argument put forward here is that, like the wellbeing measures examined in Chapter 3, this way of thinking about the reality of sustainability is not as 'neutral' as it would appear, as we have already begun to see in Chapter 1. Indeed, writing about one particular technique to be examined here, Kull et al. (2015, p. 123) note that:

> Concern over environmental transformations and environmental protection long precedes 'ecosystem services'. And ES is only one out of many possible ways of framing environment–society relationships. This begs a number of questions. What explains its meteoric rise as a dominant tool to think about environment—society relations? What does it reflect about today's society? What are its advantages and disadvantages? Who gains from it, who loses? Is it an indispensable tool to save nature in the modern world, a further appropriation of nature by capital, or something else altogether?

These are particularly apt questions. After examining the means by which such 'scientific' approaches are being applied in contemporary social science, across geography and other fields, I will draw conclusions regarding precisely what it is that we're doing when we try to help the 'planet' or the non-human by pushing it further away. Indicators, after all, are a 'sense-making tool' (Bell and Morse 2014, p. 154), simplifying complexity for a certain end, yet they have 'received very little attention amongst researchers. Instead, the overwhelming focus has been upon technical issues of producing 'good' indicators and coming up with some means by which they can be presented' (p. 149).

The case for environmental sustainability has increasingly been made in overwhelmingly abstract and quantitative terms of late, largely displacing previous philosophical and moral concerns in environmental thought, for example with regard to 'ecocentrism' and 'intrinsic worth'. Indeed, as Marquardt (2016, p. 303) notes, statistics are a 'kind of power-knowledge', further (p. 305) remarking that 'the "grid" of calculation

in turn brings forward new understandings of space, a re-visioning of territory…territory itself – in its qualitative aspects – [has] become a calculable object'. In concluding then, I will note the 'post-political' tendencies of recent environmental and sustainability analyses, drawing from work by scholars such as the geographer Eric Swyngedouw (e.g. see Swyngedouw 2010a).

Planetary Boundaries and Ecological Footprints

As Hornborg (2017, p. 97) notes, 'most of the literature on global environmental change over the past few centuries has been content to describe the observed ecological transformations, without providing any explicit theoretical framework with which to understand them'. Continuing, he notes, 'there has been extensive empirical documentation of processes such as deforestation, biodiversity loss, soil depletion, eutrophication, the spread of invasive species, chemical pollution, changes in land use such as industrialization and urbanization, changes in energy use, greenhouse gas emissions, climate change, and ocean acidification. However, these accounts of biophysical processes have generally not been juxtaposed with social theory'. One exceedingly influential form (judged in terms of citations and literature proliferation, for instance) of this empirical documentation has been that of the 'planetary boundaries approach', formulated by Johan Rockström, Will Steffen and numerous other colleagues based around the Stockholm Resilience Centre (Rockström et al. 2009; Steffen et al. 2015). The approach takes nine key indicators (climate change, ocean acidification, stratospheric ozone depletion, global freshwater use, land system change, amongst others) and attempts to represent to what extent human activity is currently exceeding these. While often treated as such, the approach is not particularly new or novel. As Biermann (2012, p. 5) notes, for instance, the examination of planetary boundaries is similar in approach to earlier notions of 'guard rails' and 'tolerable windows', developed in the late 1990s by the German Advisory Council on Global Change, and earlier approaches such as 'limits to growth' and 'carrying capacity' (see Häyha et al. 2016).

Given its simplicity and ease of visual representation to enhance basic understanding, however, use of the planetary boundaries framework has proliferated across the spectrum of environmental thought. While not explicitly mentioned in the SDG 2030 agenda, Häyha et al. (2016,

p. 61) point out that the SDGs do, however, 'integrate the concept of a biophysically safe operating space within the much broader concept of sustainable development'. The approach has more recently been taken up by the economist Kate Raworth (2012) in her work on 'doughnut economics' (since turned into a best-selling popular economics text), in which she outlines 'social floors' and 'environmental ceilings' which must not be transgressed (also reflecting the dual focus of this book on environmental and social conceptions), and thus 'creating a closed system that is bounded by both human rights and environmental sustainability' (p. 5). This language of planetary boundaries has become popular across a broad spectrum of environmental thought, including amongst theorists of 'degrowth', who cite the work of Rockstrom and colleagues. Van den Bergh and Kallis (2012, p. 910), for example, note that 'Degrowth is the intentional limiting and downscaling of the economy to make it consistent with biophysical boundaries', elsewhere stating that degrowth foundationally consists of 'an equitable downscaling of economic production and consumption to assure that society's throughput – resource use and waste – stays within safe ecosystem boundaries'.

Famously formulated as representing a 'safe operating space for humanity' (Rockström et al. 2009), from its initial formulation the approach could be seen as betraying a dualistic philosophy whereby humans operate in some secluded area, unconcerned with environmental factors until the point at which they can be scientifically determined to be under threat. Regarding such dualism, that Heideggerian term of concern—'resources'—comes up in the dualistic and telling language used by Wijkman and Rockström (2012) in the book *Bankrupting Nature: Denying Our Planetary Boundaries*. The authors note (p. 5), in a chapter titled '*The environmental space is limited*', that 'we are rapidly eroding the living ecosystems and the natural resources that ultimately form the basis for future human welfare. We find ourselves on a *collision course with nature*'[3] (emphasis added).

Indeed, amidst this 'collision course' with *something out there* called nature, the very definition of 'safe' raises numerous crucial questions regarding what baseline of safety is used, how realistic this is, and for whom the approach provides a 'safe operating space' for? From a social equity perspective, for example, the approach presents the earth's critical thresholds as an undifferentiated whole—much like the term 'Anthropocene', whose use is also rapidly proliferating (Swyngedouw and Ernston 2018)—failing to adequately capture the enormous inequalities

in resource use evident amongst the world population (Raworth 2012). As Swyngedouw (2010a, p. 221) notes, 'the climate change conundrum is not only portrayed as global, but is constituted as a universal humanitarian threat. We are all potential victims. "THE" Environment and "THE" People, Humanity as a whole in a material and philosophical manner, are invoked and called into being'.

As such, the boundaries not only represent an existing reality in a very particular way, but also contain (or veil?) innumerable possibilities for societal trajectories through which to engage in sustainable development. The boundaries are, then, 'despite all accuracy in…measurement, in the end also a social construct' (Biermann 2012, p. 6). Remarkably, however, Biermann asserts the supposed neutrality of the boundaries approach, arguing that 'While the concept of planetary boundaries is normatively neutral, its operationalization is not'. This, of course, is a restatement of the classic fact/value divide, which has itself been extensively debated, and brought into question, throughout the history of philosophy.

Leaving that larger debate aside, however, as it stands and even without transcending many of the boundaries, much of the world population is in a position of intense poverty and marginality (indeed, it is in recognition of this that Raworth has coupled the boundaries with a human rights-based approach). Within this socially constructed approach, 'richer societies might prefer a risk-averse approach, conserving the world as it is, and preventing any harm' (ibid.). The globality of conceptualisation of the planetary boundaries approach, furthermore, and lack of nuance around locality or context, also encourages a perspective which regards viable solutions as tending towards the global. It is no surprise, therefore, that the approach has coincided very closely with an increasingly prominent 'global stewardship' approach, which sees humanity as taking a global management role in terms of earth systems (Steffen et al. 2011).

Indeed, the notable and inconspicuous overlap in proponents and personnel, in terms of those earth systems scientists with links to the planetary boundaries approach and those increasingly calling for geoengineering at global scales (Clark 2014), is unsurprising if we take into account calls for global-scale solutions, such as that of Steffen et al. (2011, p. 741) to transcend 'national boundaries and cultural divides', describing the present situation as 'the collision of the human enterprise with the rest of nature', as if they were two entirely separate and homogeneous entities (see also Clark 2014). Beuret (2017, p. 1173) has

discussed this eloquently, noting that such approaches work to artificially reinforce 'the autonomy of the global technosphere'. Similar issues of dualism also underlie the 'nature needs half' argument (see natureneedshalf.org), put forward of late by prominent scientists, such as the sociobiologist E.O. Wilson.[4]

However, there is perhaps an even more profound and troublesome level to the question of 'safety' implied under the rubric of planetary boundaries, as currently conceived or applied. This is the sense of where we set the baseline of safety, given a planet which is in perennial ecological and environmental instability and flux. As Häyhä et al. (2016, p. 61) note:

> The planetary boundaries framework defines fundamental conditions for the Earth system to remain in a Holocene-like state (Rockström et al. 2009). Its authors assume that the Holocene-like state of the world ensures sufficient stability and resilience for ecosystems to support human wellbeing. They argue for a precautionary approach in setting boundary values at a safe distance from possible tipping points and regime shifts…

Raworth (2012, p. 7) takes a very explicitly normative stance on this question, when she states that 'many Earth-systems have critical natural thresholds or gradients of increasing risk – such as climate change, biodiversity loss, and land use change – which *must not be crossed* if the Earth is to remain in its current stable state, known as the Holocene, which has enabled many human civilizations to arise, develop, and thrive' (emphasis added; see also Steffen et al. 2011).

However, if the nature of our earth is to change, then one way or another, we are bound to enter some 'unsafe' operating spaces (and it will be the aim of Chapter 4 to examine how those kinds of spaces can perhaps be more effectively navigated). After all, the Holocene, our current geological epoch—if we momentarily bracket debates over the Anthropocene—is recognised by geologists as an 'interglacial', something of a stable and hospitable blip on a geological timescale, which allowed our complex civilisation to be built on the cultivation of a few very sensitive annual crops (rice, wheat and corn, mainly) (Ruddiman 2010). The underlying assumption of the planetary boundaries is problematic, then, in its goal of maintaining the planet in this static state indefinitely (Swyngedouw 2011), for the sole sake of protecting the way of life of one species. The present is different from the past, and the

future will be different from the present. Surely, we must instead create adaptable lifeways based on this reality, rather than trying frantically to freeze earth history in time.

A related trend towards environmental quantification and managerialism is evident in another related and increasingly prominent approach to assessing human–environmental interactions: the ecological footprint. While many readers will be very familiar with the idea of an ecological footprint, given its general ubiquity, the rise of this conceptual approach is surprisingly recent, first proposed by Rees and Wackernagel in 1994 (Nourry 2008). As with the planetary boundaries framework, the footprint is an ecological indicator which measures impact—traditionally in terms of land units—'defined as the amount of biologically productive land area required to support the consumption of a given population' (p. 445), though increasingly in terms of 'carbon' footprints. While an eye-catching approach, Nourry identifies a number of limitations to this, not least that it requires the conversion of heterogeneous forms of data into the single metric of carbon or physical land units, thus often replacing rigour for simplified headline figures.

Acknowledging this simplicity, Taylor Aiken (2015, n.p.) has written that 'numbers often achieve their seeming clarity by removing the surrounding messy context. Yet more often than not concerns for environmental justice or climate change emerge from the messiness of life, not a list of clean-cut numbers'. Thus, mobilising the case of Scotland, he notes that while countries may appear to reduce their 'footprint', the reality is that this has been achieved only through the outsourcing of dirty production and industry to countries elsewhere, such as China. As such, at a per capita or per household level, especially, the calculation of footprints tends to lack consistency and is certainly more art than science (Padgett et al. 2008).[5]

Furthermore, I noted above that the planetary boundaries approach has tended to encourage the conception of global-scale responses to environmental damage, such as geo-engineering, for better or for worse. So too does the footprints approach, when used—as it most commonly is—on a per capita or household basis, result in a slightly different perspective on sustainability, being mostly a question of changing the attitudes and choices of solitary, individualised actors. Their focus, when used in this manner, tends towards swaying supposedly 'rational' people with better arguments and leaving individualistic assumptions about the nature of social change untouched (Rau 2018). The duality of both of

these assumptions (undifferentiated globality and individualised locality) shall be challenged in the final chapter of this book, though it is more important at this stage to simply note their effects. For example, Taylor Aiken (2015, n.p.) goes on to note this as part of the 'increasing metrification of everyday life…[emphasising] carbon footprints rather than connection with environmental others'. In a study of environmental community groups, he states that 'Once accountancy and numbers became a core means, the end of a community of belonging, togetherness and living justly with environmental others was sidelined'. The proliferation and popularity of footprint calculators, then, is a symptom of human–environment interactions being conceived around an individualistic and cognitivistic self-regulating subject who is fixated on numbers. As Miller (2001, p. 380) notes in a paper titled '*Governing by Numbers: Why Calculative Practices Matter*', drawing on the field of 'critical data studies', statistics can be utilised 'to create the responsible and calculating individual…[to] induce individuals to think of themselves as calculating selves…[and] to enrol individuals in the pursuit of prescribed and often standardized targets'.

Fundamental to both the planetary boundary and footprint-based approaches in particular is that they are conceptualised in accordance with something akin to John Stuart Mill's 'harm principle',[6,7] effectively accepting behaviours until the point at which they cause harm (or transcend boundaries, say). This, then, subtly reinforces a distinction between human society 'in here' and its surrounding ecologies 'out there', which we must not 'impact on', or interfere with, too much. As Barry (2006, p. 137) notes, 'Greens promote negative duties and refraining from action in achieving provisional harmony and human "management" of the(ir) environment. That is, a Green view of managing our metabolism with nature is one based explicitly on precaution and as a "coping mechanism" rather than any final and definitive "solution" to the "human-nature" dynamic'. This ecological 'harm principle', then, encourages a subtle duality between destructive humans 'in here' and a nature 'out there' which is in need of protecting. This dualism is seen in the focus of much environmental policy on negative 'harm reduction' or control and management, whether reducing certain 'impacts' (such as pollution or carbon emissions), say, or in evaluating measurements such as environmental 'footprints'. Policy in this vein is then formulated as if the environment were something quantifiable and apart from us, which we harm or impact from the outside (Rip 2006).

Coeckelbergh (2015) has also critiqued the manner in which this culture/nature or human/environment duality is doubly reinforced in much environmental thought. His philosophical work, which will become relevant in Chapter 4, instead tries to work towards 'a new environmental ethics, which shifts from a modern approach focusing on "nature" (external and internal) and recommending self-control, a strong will, independent thinking, liberation, purity, knowledge (know-that), rationality, feeling, naturalness, and authenticity, to a non-modern, more relational approach that starts with recognising our "being-in-the-world" and which recommends skilled engagement with the environment' (p. 201). Now, however, I want to examine a further highly influential, yet more controversial, means through which our natural environment has been made calculable: the concept of ES.

PES and Carbon Trading

Perhaps the most striking and heretofore controversial development in the 'neoliberalisation of nature' (Braun 2015) has been the increased prominence given to the concept of ES and its derivative, payments for ecosystem services (PES). Distilled and somewhat simplified, the fundamental premise of PES is that rather than keeping the environment (and its destruction) as an externality of global capitalism—that is, as a by-product or unaccounted-for outside reality—there is more to be gained from giving 'nature' its rightful acknowledgement in (usually) monetary terms, so that it can be adequately appreciated and valued (Costanza et al. 1997).

This approach to our natural environment, advocated for influentially in a widely cited *Nature* paper by Costanza et al. (1997), is specifically neoliberal 'in that their advocates contend that market-based management will yield optimal gains because markets allocate scarce conservation resources more efficiently than "command-and-control" regulation by states or international treaties' (McAfee and Shapiro 2010, p. 580). Often confusing 'value' with 'price', this faith in the primacy of the market and market transactions amongst environmental movements and institutions reflects broader policy moves towards competition, the foregrounding of private entities and private property in policy decisions, voluntarism and, above all, the supposed lack of any viable alternatives to an ever-expanding global capitalist order. Indeed, McAfee and Shapiro

(ibid.) also note this 'commodification of nature [as] a leading environmental policy trend', with the exponential rise of these concepts being evident from the calculation undertaken by Kull et al. (2015), which indicates that between the year 2000 and the year 2012, publications with the term 'ecosystem services' in the title, keyword, or abstract, rose exponentially, from nearly zero to over 1200.

Increasingly advocated by influential international NGOs and governmental bodies, what can perhaps be seen as the apotheosis of the ES and PES paradigm came in 2005 and 2006, with the respective high-profile releases of the UN-led *Millennium Ecosystem Assessment (MEA)* and the UK's *Stern Review on the Economics of Climate Change* (so-called as it was chaired by Sir Nicholas Stern) (Luck et al. 2012). The MEA involved more than 1360 experts worldwide over four years and was ostensibly set up 'to assess the consequences of ecosystem change for human well-being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contributions to human well-being'.[8] Assessing 24 ES in total, the report found that 15 are being degraded or used unsustainably (Steffen et al. 2011).

The link between ecosystem change and human well-being was conceived through the lens of ES and built on the influential division of ES into four main categories: supporting functions, provisioning functions, regulating functions and cultural functions. These overarching categories overlap somewhat, though, in principle, 'supporting functions' refer to long-term processes such as nutrient cycling and soil formation; 'provisioning functions' refer to direct material benefits to humanity, such as food, water and fuel; 'regulating functions' refer to benefits such as climate regulation and flood regulation; and 'cultural services' are aesthetic, spiritual, educational and recreational. These categories vary in their anthropocentrism (i.e. their orientation towards the human), though all conceive of the environment in utilitarian terms regarding what they provide for humans, directly or indirectly. As Kull et al. (2015, p. 128) note:

> The four commonly used ES meta-categories promoted in the MEA (2005a)…are awkward, for they crisscross ontological and epistemological barriers. Some include single-variable items that are easily measurable under a capitalist logic (e.g. timber production), others are more difficult, multivariate, complex 'services' informed by climatological or ecological

> theory (e.g. climate regulation). Yet others are non-quantifiable conceptions rooted in human experience (e.g. landscapes of ritual significance). This diversity poses problems for aggregation and comparison across categories. Obviously, any classification scheme for ecosystem services reflects its purposes and uses, and these can be debated.

The 700-page Stern Report, in turn, took an approach much more explicitly grounded in PES, arguing, for example, that a scenario of 2–3 °C warming would be equivalent to a 'permanent loss of around 0-3% in global world output compared with what could have been achieved in a world without climate change', though this loss could reach to above 20%.[9] Furthermore, the Stern Report put the costs of mitigation at around 1% of GDP, which is 'small relative to the costs and risks of climate change that will be avoided'. By making such arguments, the core assumptions or premises taken for granted by PES advocates, then, are that:

> (1) monetary values of ES can be calculated or, at least, estimated; (2) ES can be measured and offered for sale or remuneration; (3) market demand can be generated from those who benefit from ES; and (4) the transfer of revenues from ES beneficiaries to those who manage the ES-producing landscapes will slow the degradation of these ecosystems. (McAfee and Shapiro 2010, p. 582)

Critiques of the pricing of nature have taken various forms since the 1990s, at various levels of philosophical and theoretical abstraction (Vatn 2000), and have been particularly sharp given that these very market mentalities may be precisely those responsible for our environmental difficulties (Nelson 2001). As with our discussion of planetary boundaries, ecological footprints and the SDGs above, the more interesting considerations in relation to PES relate to a deeper conceptual level, whereby McAfee and Shapiro (2010, p. 581) note that 'Neoliberal environmentalism begins from the conceptual separation of nature and society and then reconnects them by reductively constructing "nature" so that it can be encompassed within "economy"'.

However, as we saw with the often-problematic calculation of ecological footprints, this approach can, in practical terms, descend into simplistic absurdity when it encounters the need to quantify and predict actual natural processes and, for instance, often-intransigent non-humans

(ibid.). PES tends to assume that ecosystem functions can be shorn of context and can thus be just as fungible (i.e. mutually interchangeable or exchangeable) as the money into which they are converted, a clear symptom of neoliberal market ideologies. An influential early paper by Costanza et al. (1997), for example, famously estimated 17 global 'ecological services' to value in the range of US$16–54 trillion annually, at an average of US$33 trillion per year; a headline figure with many critics and which raises a number of methodological questions. Ultimately, however, this assessment's resemblance to earlier attempts to determine the current worth of a human, for example, 'by adding up the market value of the materials which make up the body' (Evernden 1993, p. 10)[10] is notable.

By narrowing down complex ecosystems to particular 'services' (itself problematic in the assumption that some processes can be shorn from other ecological processes), the approach needs to assume clear 'users' or beneficiaries of these services (usually humans), who are not always easily delineated. Furthermore, the approach assumes the possibility of actually producing a single exchange value through which to assess the value of such ES. Kosoy and Corbera (2010, p. 1228) compare this process to 'commodity fetishism', Marx's famed description of 'the masking of the social relationships underlying the process of production', with humans imprinting certain values on natural relations and taking them as an adequate representation of reality. Once complete, one wetland ecosystem in one part of the world becomes functionally equivalent to (and thus symbolically exchangeable with) a wetland ecosystem in another part of the world.

Heidegger's concept of standing-reserve, of course, presaged well the development of eco-instrumentalism in the form of the ES approach. Providing a prime example, proponents of the approach, Costanza et al. (1997, p. 259) write that ES 'provide an important portion of the total contribution to human welfare on this planet. We must begin to give the natural capital stock that produces these services adequate weight in the decision-making process…' Elsewhere, Steffen et al. (2011, p. 740) tellingly mobilise the language of productivity, capital and goods and services, whereby 'humanity now acquires more than the ongoing productivity of Earth's ecosystems can provide sustainably, and is thus living off the Earth's natural capital in addition to its productivity.…These could be called Earth System goods and services'.

Given such statements, the anthropologist Alf Hornborg has pointed out that the simple existence of such reductive and extensive 'fungibility' or 'exchangeability'—'the idea that everything is interchangeable on the same market' (Hornborg 2016, p. 62)—is a very particular and situated cultural norm, and that 'the illusion of abstract equivalence among incomparable qualities – the very foundation of capitalist social organization – is as misleading in terms of its implications for social justice as it is in terms of ecological sustainability' (p. 62). That is to say that the taken-for-grantedness of ES and PES approaches would be incomprehensible—and is incomprehensible—to many other societies across time and space, particularly those more peripheral to the global system, and is symptomatic of the penetration of a certain market mentality right to the heart of Western society. Of course, certain things are normatively off limits to the market even in the West, and 'protest responses' to research in this area have been very common, demonstrating a broader unwillingness to attribute monetary value to the non-human world (Luck et al. 2012).

The extensive abstraction of nature through 'commodity fetishism', or what Kosoy and Corbera (2010, p. 1231) refer to as 'the commodification of primary production' then leads to some of the uneven geographies of the market-based environmental mechanisms which have become prominent in sustainable development over recent years. These environmental mediators include the clean development mechanism (CDM), carbon offsetting and carbon trading, for example, which all, in their own ways, result in pollution or degradation in one part of the world being dealt with through an apparent equivalence elsewhere.

The principles underlying the CDM, for example, are telling. This was the primary 'Flexible Mechanism' defined under the Kyoto Treaty, signed in 1997 and which entered into force in 2005. The CDM was supposed to be win-win, allowing sustainable development in the country which hosts the relevant projects, and assisting countries of the Global North (known as Annex I countries, in the parlance of the Treaty) to reduce their emissions in a cost-effective way. Specifically, countries with emissions reduction or limitation commitments under the Kyoto Protocol could implement carbon offsetting projects in 'developing countries' and thus earn 'saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO2'.[11] However, the ultimate workings and outcomes of this offsetting scheme have been deemed underwhelming at best, with much emphasis on low-cost carbon emission reductions, at the expense of any holistic focus on sustainable

development in the host country (Sutter and Parreño 2007; Watts et al. 2015). Furthermore, the African continent, home to some of the world's most endemic poverty, has largely missed out on such CDM investment, in favour of richer areas (Watts et al. 2015).

The contextually impoverished approach taken in the initiatives outlined above tends to lead to unforeseen consequences, including—but not limited to—a shallow focus on numerical representations of carbon (Beuret 2017). This can happen, for example, when the selection of certain quantified metrics results in some decisions being taken over others:

> The itemisation of ecosystems' net primary production has already led towards the conservation and planting of certain tree species above others, such as those with the largest carbon content or higher growth rates. Ongoing carbon forestry projects in Ecuador and Mexico have encouraged the plantation of fast-growing tree species in already standing forests or in the high paramo, thereby changing current species richness and density, and disrupting water flows…Furthermore, in the future, the global interest in enhancing primary production, jointly with the existence of a more mature and potentially more lucrative market for this service may lead governments, private firms and landowners to invest preferably in tree plantations more than encouraging the restoration or conservation of complex tropical and sub-tropical ecosystem. (ibid.)[12]

In part, the negative consequences written about here stem from the often singular focus on, and analytical priority given to, levels of atmospheric carbon dioxide over the past couple of decades, in the face of intensifying climate change. As Moolna (2012, p. 4) notes, 'We must not lose sight of what we are trying to protect: the Earth and our environment, not an arbitrary atmospheric CO_2 level that is a snapshot of an atypical point in the planet's history'. When not undertaken carefully, however, this prioritisation—whether of money or tonnes of carbon—can result in the ignoring of other important variables, such as biodiversity, water quality, beauty and aesthetics, spiritual dimensions and many others (Cooper et al. 2016). Indeed, it has been estimated that 50% of studies in this area focus on a sole service and fail to factor in the interactions between services (Kull et al. 2015). Furthermore, it is widely recognised that monetary valuations of species and ecosystems (which often take the form of surveys asking residents how much they would pay to protect a particular service/species—known as Willingness To Pay) have an inherent bias towards particular species and ecosystems rather than

others, not to mention that wildlife itself, of course, cannot respond to interviews and surveys (Evernden 1993). It has been shown, then, that 'visible and well-known species' (Luck et al. 2012, pp. 1022–1023) such as the giant panda or mountain gorilla, being so-called *charismatic animals*, attract a higher willingness to pay than insects and micro-organisms which may play crucial ecological roles.

In sum, then, just like planetary boundaries and footprints, ES act as a type of framing imagery or metaphor (Raymond et al. 2013; Kull et al. 2015), in this case portraying the 'natural environment' as a sort of service provider, akin to a utility company, and slowly normalising the process of converting such services into monetary terms. This should be a cause for concern. Luck et al. (2012, p. 1021), for example, have noted that an 'overreliance on economic metaphors in discussions about the value of nature may erode noneconomic motivations for conservation'. This has been termed in the literature as a 'crowding out' of important alternative means of interacting with and valuing the human species' environment (Vatn 2000, 2010), foregrounding a very particular instrumental approach and ignoring ecocentric and non-anthropocentric environmental ethics (which shall be discussed further in Chapter 4). As Karl Polanyi memorably wrote in *The Great Transformation*, 'The economic function is but one of many vital functions of land. It invests man's [*sic*] life with stability; it is the site of his habitation; it is a condition of his physical safety; it is the landscape' (quoted in Luck et al. 2012, p. 1023). However, in a culture increasingly obsessed with quantification, notions such as habitation or landscape fall by the wayside, replaced by the cherry-picking of those variables which are easiest to measure or assess. Aesthetic and spiritual appreciation gets reduced to money spent on tourism, for example, or environmental impact gets reduced to tonnes of carbon dioxide mitigated. 'The result is a lop-sided, incomplete view of ES, privileging what can be counted and ignoring what cannot', note Kull et al. (2015, p. 130).

Conclusion

Contemporary environmental research appears to be increasingly dominated by a type of 'environmental accounting'. This term is used in a literal sense, for example in the case of PES. Indeed, those of us who have nothing to do with the profession of accountancy are now oddly familiar with its various terms—budgets, costs, balance sheets, return on investment, opportunity cost and resources—which percolate through

contemporary life. Environmental research and action have not been immune to this. As Miller (2001, p. 391) notes, this shift in language has occurred 'to an extent that would have seemed improbable to an observer of economic and social life half a century ago'. Non-human processes are increasingly calculable and calculated, incorporated into the market, financialised and caught up in seemingly unending iterations of primitive accumulation (Braun 2015).

The Dark Mountain Manifesto correctly notes, then, that 'the facts of environmental crisis we hear so much about often conceal as much as they expose. We hear daily about the impacts of our activities on 'the environment' (like 'nature', this is an expression which distances us from the reality of our situation)'. I would like to draw this chapter to a rather extended conclusion by framing its discussions in terms of this distancing, which takes a form of post-political environmentalism (North et al. 2017; Shove and Walker 2007). As such, a line on a graph, crossing a threshold or planetary boundary or indicating a shift in monetary value, is very different—perhaps irremediably different—from a deep and nuanced recognition of the unsustainability of capitalist (and other exploitative) modes of production.

The desire for perennial climate equilibrium and calls for a 'global-scale solution that transcends national boundaries and cultural divides' (Steffen et al. 2011, p. 749) are symptomatic of this post-political development. As Swyngedouw (2010b, p. 192) has powerfully noted, 'a politics of sustainability predicated upon a radically conservative and reactionary view of a singular – and ontologically stable and harmonious – Nature is necessarily one that eradicates or evacuates the "political" from debates over what to do with natures…The fantasy of "sustainability" imagines the possibility of an originally fundamentally harmonious Nature, one that is now out-of-synch but, which, if "properly" managed, we can and have to return to by means of a series of technological, managerial, and organisational fixes'. Abstraction and the rise of numerical environmentalism have resulted in broader questions being foreclosed. Climate change, for instance, is seen simply as a technical issue involving too much carbon in the atmosphere (Moolna 2012), the sustainability implications of social and everyday practices become forgotten (Rau 2018), and the transgression of planetary boundaries is seen simply as a technical matter of retreating back within a 'safe space' where we can presumably once again relax into our technological supremacy. 'The desired sustainable environmental future', as Swyngedouw

(ibid., p. 195) puts it, 'has no name and no process, only a state or condition'. Furthermore, there is almost an about-face in terms of the old view that the environment was too big for humans to ever really damage. It seems now that there is no environment left which is beyond human damage. This is something of a disempowering and humanistic narrative. Even the naming of the Anthropocene belies this approach of driving a wedge between humanity and their ecologies (Clark 2014).

As such, environmental post-politicality shuts down debates which may lead to more radical, more-than-human enactments of our environmental future, enactments which may challenge capitalism or neoliberalism or which consider the value of localisation, alternative technology and degrowth, amongst other nascent approaches (ibid.). Instead of contestation and real alternatives, we have witnessed the rise of the technocrat and the 'policy maker', leading to the vague, universalised and supposedly consensual statements of the SDGs,[13] for example, which were examined in Chapter 1, or the various inter-governmental agreements such as the Kyoto Protocol, the Paris Agreement, the Rio Summit, and so forth, *ad nauseam*. Finally, as we saw in the case of the planetary boundaries approach, this work can produce a global 'synoptic logic' (Beuret 2017, p. 1165) that obscures or diminishes more localised action, prioritising things like geo-engineering.

The calculation of the earth is a matter of both science and norm creation (Evernden 1993; Rametsteiner et al. 2011), and thus, as Brown and Toadvine (2012, p. xi) have argued, 'those approaches to nature that strip it of all experienced qualities leave us with an unrecognizable abstraction, and certainly not with any version of nature that could have inspired our initial appreciation'. It is to this initial appreciation that I will turn in Chapter 4, in order to think through alternatives to the trend towards quantification and managerialism which are currently hegemonic in environmental social science. Firstly, however, I want to examine how this instrumentalist and calculative trend has reached into the realm of human 'nature' too, focusing on recent attempts to make the study of well-being 'scientific'.

Notes

1. http://nickhuntscrutiny.com/fiction/short-stories/green-bang.
2. Heidegger's thought is increasingly discussed alongside a debated history of reactionary politics, including his association with the Nazis in the

1930s. This debate on Heidegger and the link between his philosophy and politics over time has gained renewed vigour with the publication of his so-called *Black Notebooks*. Here, however, I will sidestep that discussion somewhat, selectively using one small sliver of his thought, from one essay, while acknowledging this problematic background here.

3. Although, just a few lines later they note that 'humans are inextricably linked with nature' and that 'it should then be possible to develop a better model, a model where there is harmony between humans and nature'.
4. This approach, while raising important conceptual issues regarding conservation and non-human autonomy, has been framed literally as 'half for us, half for them'. See https://www.smithsonianmag.com/science-nature/can-world-really-set-aside-half-planet-wildlife-180952379/.
5. Indeed, one blogger found a truly breath-taking disparity in estimates when testing out various calculators for the *same* lifestyle: results ranged from 2.9 tonnes to 23 tonnes. See http://scienceline.org/2010/01/how-well-do-carbon-footprint-calculators-estimate-your-impact/.
6. https://plato.stanford.edu/entries/mill-moral-political/#HarPri.
7. See https://libcom.org/blog/human-nature-16032016 for a further discussion of this human/nature dualism implicit in the 'footprint' approach.
8. https://www.millenniumassessment.org/documents/document.356.aspx.pdf.
9. P. ix, http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf.
10. A figure which was $12.98 at the time that Evernden was writing.
11. http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php.
12. Links have also been drawn between the planting of vast tracts of trees plantations and the decontextualising tendencies of the planetary boundaries approach. See https://www.scientificamerican.com/article/tree-farms-will-not-save-us-from-global-warming/.
13. Page 10 of *Transforming Our World*, for example, states that the scale of the SDG agenda 'requires a revitalized Global Partnership to ensure its implementation…This Partnership will work in a spirit of global solidarity, in particular solidarity with the poorest and with people in vulnerable situations. It will facilitate an intensive global engagement in support of implementation of all the Goals and targets, bringing together Governments, the private sector, civil society, the United Nations system and other actors and mobilizing all available resources'.

References

Barry, J. (2006). Straw Dogs, Blind Horses and Post-humanism: The Greening of Gray? In J. Horton & G. Newey (Eds.), *The Political Theory of John Gray* (pp. 131–150). London: Routledge.

Bell, S., & Morse, S. (2014). Groups and Indicators in Post-industrial Society. *Sustainable Development, 22*(3), 145–157. https://doi.org/10.1002/sd.531.

Beuret, N. (2017). Counting Carbon: Calculative Activism and Slippery Infrastructure. *Antipode, 49*(5), 1164–1185. https://doi.org/10.1111/anti.12317.

Biermann, F. (2012). Planetary Boundaries and Earth System Governance: Exploring the Links. *Ecological Economics*, *81*(Supplement C), 4–9. https://doi.org/10.1016/j.ecolecon.2012.02.016.

Braun, B. (2015). THE 2013 ANTIPODE RGS-IBG LECTURE New Materialisms and Neoliberal Natures. *Antipode, 47*(1), 1–14. https://doi.org/10.1111/anti.12121.

Brown, C. S., & Toadvine, T. (Eds.). (2012). *Eco-phenomenology: Back to the Earth Itself*. New York: SUNY Press.

Clark, N. (2014). Geo-politics and the Disaster of the Anthropocene. *The Sociological Review, 62*, 19–37. https://doi.org/10.1111/1467-954X.12122.

Coeckelbergh, M. (2015). *Environmental Skill: Motivation, Knowledge, and the Possibility of a Non-romantic Environmental Ethics*. New York and London: Routledge.

Cooper, N., Brady, E., Steen, H., & Bryce, R. (2016). Aesthetic and Spiritual Values of Ecosystems: Recognising the Ontological and Axiological Plurality of Cultural Ecosystem "Services". *Ecosystem Services, 21,* 218–229. https://doi.org/10.1016/j.ecoser.2016.07.014.

Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., … van den Belt, M. (1997). The Value of the World's Ecosystem Services and Natural Capital. *Nature*, *387*(6630), 253–260. https://doi.org/10.1038/387253a0.

Evernden, L. L. N. (1993). *The Natural Alien: Humankind and Environment*. Toronto: University of Toronto Press.

Häyhä, T., Lucas, P. L., van Vuuren, D. P., Cornell, S. E., & Hoff, H. (2016). From Planetary Boundaries to National Fair Shares of the Global Safe Operating Space—How Can the Scales Be Bridged? *Global Environmental Change*, *40*(Supplement C), 60–72. https://doi.org/10.1016/j.gloenvcha.2016.06.008.

Heidegger, M. (1977). *The Question Concerning Technology, and Other Essays* (1st ed.). New York: Harper & Row.

Hornborg, A. (2016). Post-Capitalist Ecologies: Energy, "Value" and Fetishism in the Anthropocene. *Capitalism Nature Socialism, 27*(4), 61–76. https://doi.org/10.1080/10455752.2016.1196229.

Hornborg, A. (2017). Artifacts Have Consequences, Not Agency: Toward a Critical Theory of Global Environmental History. *European Journal of Social Theory, 20*(1), 95–110. https://doi.org/10.1177/1368431016640536.

Kosoy, N., & Corbera, E. (2010). Payments for Ecosystem Services as Commodity Fetishism. *Ecological Economics, 69*(6), 1228–1236. https://doi.org/10.1016/j.ecolecon.2009.11.002.

Kull, C. A., Arnauld de Sartre, X., & Castro-Larrañaga, M. (2015). The Political Ecology of Ecosystem Services. *Geoforum, 61,* 122–134. https://doi.org/10.1016/j.geoforum.2015.03.004.

Luck, G. W., Chan, K. M. A., Eser, U., Gómez-Baggethun, E., Matzdorf, B., Norton, B., et al. (2012). Ethical Considerations in On-Ground Applications of the Ecosystem Services Concept. *BioScience, 62*(12), 1020–1029. https://doi.org/10.1525/bio.2012.62.12.4.

Marquardt, N. (2016). Counting the Countless: Statistics on Homelessness and the Spatial Ontology of Political Numbers. *Environment and Planning D: Society and Space, 34*(2), 301–318. https://doi.org/10.1177/0263775815611421.

McAfee, K., & Shapiro, E. N. (2010). Payments for Ecosystem Services in Mexico: Nature, Neoliberalism, Social Movements, and the State. *Annals of the Association of American Geographers, 100*(3), 579–599. https://doi.org/10.1080/00045601003794833.

Miller, P. (2001). Governing by Numbers: Why Calculative Practices Matter. *Social Research, 68*(2), 379–396.

Moolna, A. (2012). Making Sense of CO_2: Putting Carbon in Context. *Global Environmental Politics, 12*(1), 1–7. https://doi.org/10.1162/GLEP_a_00094.

Nelson, A. (2001). The Poverty of Money: Marxian Insights for Ecological Economists. *Ecological Economics, 36*(3), 499–511. https://doi.org/10.1016/S0921-8009(00)00248-2.

North, P., Nurse, A., & Barker, T. (2017). The Neoliberalisation of Climate? Progressing Climate Policy Under Austerity Urbanism. *Environment and Planning A, 49*(8), 1797–1815. https://doi.org/10.1177/0308518X16686353.

Nourry, M. (2008). Measuring Sustainable Development: Some Empirical Evidence for France from Eight Alternative Indicators. *Ecological Economics, 67*(3), 441–456. https://doi.org/10.1016/j.ecolecon.2007.12.019.

Padgett, J. P., Steinemann, A. C., Clarke, J. H., & Vandenbergh, M. P. (2008). A Comparison of Carbon Calculators. *Environmental Impact Assessment Review, 28*(2), 106–115. https://doi.org/10.1016/j.eiar.2007.08.001.

Rametsteiner, E., Pülzl, H., Alkan-Olsson, J., & Frederiksen, P. (2011). Sustainability Indicator Development—Science or Political Negotiation?

Ecological Indicators, 11(1), 61–70. https://doi.org/10.1016/j.ecolind.2009.06.009.

Rau, H. (2018). Minding the Mundane: Everyday Practices as a Central Pillar of Sustainability Thinking and Research. In M. Boström & D. Davidson (Eds.), *Environment and Society: Concepts and Challenges*. London: Palgrave Macmillan.

Raworth, K. (2012). A Safe and Just Space for Humanity: Can We Live Within the Doughnut. *Oxfam Policy and Practice: Climate Change and Resilience, 8*(1), 1–26.

Raymond, C. M., Singh, G. G., Benessaiah, K., Bernhardt, J. R., Levine, J., Nelson, H., … Chan, K. M. A. (2013). Ecosystem Services and Beyond: Using Multiple Metaphors to Understand Human–Environment Relationships. *BioScience*, *63*(7), 536–546. https://doi.org/10.1525/bio.2013.63.7.7.

Rip, A. (2006). A Co-Evolutionary Approach to Reflexive Governance–and Its Ironies. In J.-P. Voss, D. Bauknecht, & R. Kemp (Eds.), *Reflexive Governance for Sustainable Development* (pp. 82–100). Cheltenham, UK: Edward Elgar.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S. I., Lambin, E., … Foley, J. (2009). Planetary Boundaries: Exploring the Safe Operating Space for Humanity. *Ecology and Society*, *14*(2). https://doi.org/10.5751/ES-03180-140232.

Ruddiman, W. F. (2010). *Plows, Plagues, and Petroleum: How Humans Took Control of Climate*. Princeton, NJ and London: Princeton University Press.

Shove, E., & Walker, G. (2007). CAUTION! Transitions Ahead: Politics, Practice, and Sustainable Transition Management. *Environment and Planning A, 39*(4), 763–770.

Steffen, W., Persson, Å., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., … Svedin, U. (2011). The Anthropocene: From Global Change to Planetary Stewardship. *AMBIO: A Journal of the Human Environment*, *40*(7), 739–761. https://doi.org/10.1007/s13280-011-0185-x.

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., … Sörlin, S. (2015). Planetary Boundaries: Guiding Human Development on a Changing Planet. *Science*, *347*(6223), 1259855. https://doi.org/10.1126/science.1259855.

Sutter, C., & Parreño, J. C. (2007). Does the Current Clean Development Mechanism (CDM) Deliver Its Sustainable Development Claim? An Analysis of Officially Registered CDM Projects. *Climatic Change, 84*(1), 75–90. https://doi.org/10.1007/s10584-007-9269-9.

Swyngedouw, E. (2010a). Apocalypse Forever? *Theory, Culture & Society, 27*(2–3), 213–232. https://doi.org/10.1177/0263276409358728.

Swyngedouw, E. (2010b). Impossible Sustainability and the Post-political Condition. In M. Cerreta, G. Concilio, & V. Monno (Eds.), *Making Strategies in Spatial Planning* (pp. 185–205). Dordrecht: Springer. https://doi.org/10.1007/978-90-481-3106-8_11.

Swyngedouw, E. (2011). Depoliticized Environments: The End of Nature, Climate Change and the Post-political Condition. *Royal Institute of Philosophy Supplements, 69*, 253–274. https://doi.org/10.1017/S1358246111000300.

Swyngedouw, E., & Ernstson, H. (2018). Interrupting the Anthropo-ObScene: Immuno-biopolitics and Depoliticizing Ontologies in the Anthropocene. *Theory, Culture & Society*, 0263276418757314. https://doi.org/10.1177/0263276418757314.

Taylor Aiken, G. (2015). Community Number Capture. *Soundings, 58*(Winter). Retrieved from http://orbilu.uni.lu/handle/10993/20027.

van den Bergh, J. C. J. M., & Kallis, G. (2012). Growth, A-Growth or Degrowth to Stay Within Planetary Boundaries? *Journal of Economic Issues, 46*(4), 909–920. https://doi.org/10.2753/JEI0021-3624460404.

Vatn, A. (2000). The Environment as a Commodity. *Environmental Values, 9*(4), 493–509.

Vatn, A. (2010). An Institutional Analysis of Payments for Environmental Services. *Ecological Economics, 69*(6), 1245–1252.

Watts, D., Albornoz, C., & Watson, A. (2015). Clean Development Mechanism (CDM) After the First Commitment Period: Assessment of the World's Portfolio and the Role of Latin America. *Renewable and Sustainable Energy Reviews, 41*, 1176–1189. https://doi.org/10.1016/j.rser.2014.07.146.

Wijkman, A., & Rockström, J. (Eds.). (2012). *Bankrupting Nature: Denying Our Planetary Boundaries*. Abingdon: Routledge.

CHAPTER 3

Our Calculable Selves: The Rise and Hegemony of Well-Being Discourse

Abstract This chapter examines the rise of well-being research, a leading contemporary means of shifting social analysis away from Gross Domestic Product (GDP) and which attempts to focus on the 'social' aspects of sustainable development in a way that doesn't cost the earth. However, this approach has recently been critiqued by a broad range of researchers from across the social sciences for its utilitarian, individualistic and quantified approaches to wellness, for its universalistic assumptions, as well as its failure to give adequate attention to culture and context. In tandem with the analysis of prominent environmental metrics and indicators outlined in the previous chapter, then, I will examine some of the consequences of quantifying human 'wellness' in sustainable development, a field which also appears highly resistant to the power of numbers.

Keywords Well-being · Gross Domestic Product (GDP) · Hedonia Eudaimonia · Happiness · Metrics

Sustainable development, as we saw in Chapter 1, has come to prominence as an attempt to simultaneously hold both environmental and social sustainability goals in view. This is seen, for example, in the classic Brundtland Report definition of 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. As such, with mounting evidence that increased wealth hasn't translated into increased social flourishing, and thus that

T. S. J. Smith, *Sustainability, Wellbeing and the Posthuman Turn*,
https://doi.org/10.1007/978-3-319-94078-6_3

Gross Domestic Product (GDP) is an inadequate reflection of how these 'needs' are being met, notions of well-being have come to the fore in recent decades. The rise of well-being as an alternative discourse has resulted in an explosion of popular and academic work on the topic, including best-selling books, dedicated journals (such as the *Journal of Happiness Studies* and the *Journal of Happiness and Well-Being*) and high-profile national statistical commissions (such as the French government's *Report by the Commission on the Measurement of Economic Performance and Social Progress*, led by Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi). Furthermore, influential policy initiatives such as the Kingdom of Bhutan's famous metric of 'Gross National Happiness' and Ecuador's constitutional emphasis on 'buen vivir' also exemplify this trend. This chapter will examine such approaches to the measurement of social aspects of 'sustainability', arguing that the term 'wellbeing' is, amidst this proliferation, often taken for granted far more than it should be.

The chapter proceeds as follows. Historical and philosophical conceptions of well-being will be introduced, which have, since the ancient Greeks, been broadly split between hedonic and eudaimonic approaches, with the former emphasising the outcome of affective happiness, while the latter focuses more on the virtues of 'happiness-plus-meaningfulness'. The current relevance of these philosophical discussions will then be traced, for example through the work of Utilitarians such as John Stewart Mill and Jeremy Bentham. With this scene set, I will then introduce how the supposedly more holistic notion of well-being has overwhelmingly been made relevant to policy makers through quantitative analysis in the disciplines of psychology and economics. Predominantly falling under the 'hedonic' school, such work draws predominantly on the survey-based composite measurement of something called subjective well-being (SWB). This approach has recently been critiqued by a broad range of researchers from across the social sciences for its narrow, individualistic and hedonistic definition of wellness, drawing on universalistic assumptions, as well as its failure to give adequate attention to culture and context.

In tandem with the analysis of prominent environmental metrics and indicators in the previous chapter, I want to question some of the consequences of quantifying realms of life which appear highly resistant to the power of numbers. For instance, what work is being done when a widely cited paper in *American Psychologist* claims that the ratio of positive to negative emotions required for human flourishing is precisely 2.9013

to 1 (Fredrickson and Losada 2005)? This claim is not too different from that seen above, whereby the annual worth of the world's ecosystem services was estimated to be US$16–54 trillion, and indeed, Robert Costanza, who we encountered above as a prominent early advocate of such ecosystem service valuation, has also been a strong proponent of quantifying well-being to replace GDP (see Costanza et al. 2014). This brings to mind Douglas Adams' claim in *The Hitchhiker's Guide to the Galaxy* that the meaning of life is, to be precise, 42. As the biologist and philosopher of science Massimo Pigliucci has written regarding Frederickson and Losada's paper, 'Such precision ought to be suspicious at face value, even setting aside that the whole notion of the existence of an ideal, universal ratio of positive to negative emotions is questionable in the first place'.[1] As this chapter shall demonstrate, managerialism and quantification have not just been evident in the environmental social sciences, but are also increasingly being turned towards the human subject as well, with some perverse consequences.

Hedonia and Eudaimonia

We have been in the midst of a 'happiness turn' across the social sciences, posits feminist scholar Sara Ahmed (2010, p. 2), with Carlisle and Hanlon (2007) noting the publication of more than 3000 studies on the topic since the 1960s. An already-vast and multidisciplinary literature has continued to expand since the turn of the millennium, gaining dedicated journals, including the *International Journal of Wellbeing* and the *Journal of Happiness Studies*, which present disciplinary perspectives not only from economics and psychology (Scott and Bell 2013), but also from sociology, politics, anthropology, development studies, philosophy and education.

Amongst government bodies, independent think tanks and the public, a high-profile interest in operationalising happiness and well-being research has also been widely evident (Eckersley 2008; Costanza et al. 2014; Frey and Gallus 2016), though the extent of actual policy consequences—beyond high-profile reports and speeches—is debated (Bache and Reardon 2016). This interest is reflected, for instance, in a plethora of place-based 'happiest town' indices, inter-country comparison scales such as the 'Happy Planet Index' (Bache et al. 2015), or national frameworks such as Ecuador's *National Plan for Buen Vivir 2009–2013* (White 2017). More recently, the UK Office for National Statistics

launched a comprehensive *Measuring National Wellbeing Programme* in 2010 (Bache et al. 2015; Oman 2016), while France saw the release of the *Stiglitz Report*, commissioned by President Sarkozy (Deneulin and McGregor 2010), as mentioned above.

These varied moves towards the measurement of well-being have been proposed largely in recognition of the inadequacies of the previous measurement of social development, by proxy, generally in the form of GDP (Scott 2012; White 2016). For example, theorists of the capabilities approach (Nussbaum and Sen 1993; Sen 1999) posit capabilities, or the freedoms and capacities people have to live a fulfilling life, as a more valid end of development than economic output. The fields of alternative and green economics have also played a vital role in the formulation of such criticisms, arguing that the imperative for economic growth, built into the foundations of capitalist economies, simultaneously undermines ecological sustainability and social flourishing (Daly 1996; Jackson 2011; Austin 2015).

Momentarily taking current research at face value, a famous, yet much-debated, empirical 'paradox of affluence' is held to exist, also known as the Easterlin Paradox (Easterlin et al. 2010; Conradson 2012), whereby micro-level cross-sectional studies (that is, studies taken amongst subjects at one particular time) generally show a modestly positive relationship between happiness and income, while long-term macro time-series (of around 10 or more years) show no relationship between happiness and income (also see discussion of the 'threshold hypothesis' in Chapter 1). Inequality within societies, rather, is found to be a large influence on life satisfaction, with peer comparisons and rank in income distribution sometimes being a greater correlational factor in this domain than income (Eckersley 2008; Kahneman and Krueger 2006).

In this active research environment, well-being scholarship has predominantly revolved around the philosophical distinction between hedonic and eudaimonic approaches, a distinction with a long historical pedigree. The former approach equates wellness with pure hedonic 'happiness' while the latter instead emphasises broader notions of human flourishing and life satisfaction over time (Deci and Ryan 2008). Usually traced back to the classical Greek philosophies of Aristippus of Cyrene and Aristotle, respectively, hedonic and eudaimonic philosophies have given rise to largely distinct but overlapping paradigms of present-day empirical enquiry (Carlisle et al. 2009, p. 1557; Waterman 1993).

The hedonic perspective posits that only that which can be deemed pleasant or has pleasant consequences is intrinsically good (Delle Fave 2013). Foreshadowing utilitarian approaches in more contemporary scholarship, for example, Aristippus of Cyrene held that 'pleasure is the *sole* good, but also that only one's own physical, positive, momentary pleasure is a good, and is so regardless of its cause' (Waterman 1993, p. 678). As Ryan et al. (2013, p. 117) have noted, hedonic perspectives, with their broadly outcome-based conceptualisation, appear to lend themselves particularly well to 'scientific' measurement and have thus constituted the majority of studies in the increasingly hegemonic 'science of happiness' field. Indeed, they have been particularly prominent amongst scholars in the disciplines of economics and psychology (Scott 2015; Frey and Gallus 2016). SWB is the dominant formulation used by hedonic researchers in this economic and psychological literature (David et al. 2013, p. 3; White 2016) wherein 'subjective wellbeing (SWB) [is assessed] in terms of three components: the presence of positive mood, the absence of negative mood, and life satisfaction' (Carlisle et al. 2009, p. 1557).

Eudaimonic understandings of well-being, on the other hand, add a sense of complexity by looking at the processes which enable self-fulfilment, meaning, and purpose (Deci and Ryan 2008). That is to say, eudaimonic approaches look for what has been defined as happiness-plus-meaningfulness (Carlisle et al. 2009). Returning to its philosophical origins in ancient Greece, eudaimonia refers to living in accordance with what Aristotle referred to as the *daimon* or 'true self' (Waterman 1993, p. 678). The realisation of the daimon, or human potentiality, 'represents the greatest fulfilment in living' of which any individual is capable (ibid.).

Lambek (2008, p. 116) holds that the eudaimonic condition is one 'that enables people not only to act well but to cultivate positive moral character in carrying out their practices'. In Aristotle's *Nicomachean Ethics,* the classic early exposition of eudaimonic thought, for example, the philosopher challenges hedonists who view happiness as 'some plain and obvious thing, like pleasure, wealth, or honor' (Ryff and Singer 2013, p. 99). Rather, Aristotle expressed disdain towards this desire for 'the life of gratification', one characterised as 'completely slavish, since the life they decide on is a life for grazing animals' (cited in Waterman 1993, p. 689). Amartya Sen (1985, p. 188) has similarly underlined the

eudaimonic impetus of his influential capabilities-based research programme, by way of contrast with the purported shallowness of hedonic perspectives:

> If a starving wreck, ravished by famine, buffeted by disease, is made happy through some mental conditioning…the person will be seen as doing well on this mental-state perspective, but that would be quite scandalous… It is hard to avoid the conclusion that although happiness is of obvious and direct relevance to well-being, it is inadequate as a representation of well-being.

Ryan et al. (2013, p. 141), central proponents of contemporary psychological research in the eudaimonic tradition, similarly argue that the urge to simply maximise hedonic pleasure is 'too often associated with dead-end routes to wellness such as selfishness, materialism, objectified sexuality, and ecological destructiveness, thus demonstrating how easily a map derived from hedonic thinking can mislead'. Moreover, they assert that the empirical relationship between eudaimonic and hedonic happiness is such that the former appears to yield a 'more stable and enduring' (ibid., p. 142) sense of well-being. Eudaimonic research has itself undergone critique, however, in part due to claims of its paternalistic and often prescriptive tendencies, while its depth as a research programme has been brought into question with the rise of various 'components approaches' which reduce this complex issue to a limited number of discrete and pre-defined categories and numerical variables (Atkinson 2013). As we will see below, this tendency has led to a very particular ontology—or theory of being—of the 'wellbeing' subject (White 2010).

The Science of Well-Being

As already noted, the move beyond GDP as the primary measure of well-being, for example towards the ostensibly more people-centred measurement of SWB, has been hailed as an important and valuable shift of perspective (David et al. 2013; Deaton 2012). It is the novelty of this shift, for example, that captured imaginations in 1972 when Bhutan's fourth Dragon King, Jigme Singye Wangchuck, announced his intention to place a key emphasis on Gross National Happiness, lauded as a groundbreaking attempt to weave development around people, rather than the other way around (Priesner 2004). The shift in emphasis,

ostensibly towards a people-centred gauge of development, was to be continually reinforced in subsequent decades by other approaches, including post-colonial conceptualisations of development, green economics and the elaboration of the capabilities approach (Sen 1999).

In spite of the radical potential of such developments, the realisation of research explicitly referring to concepts of 'wellbeing' and 'happiness' in recent decades has been noted to have been one-sided, tending towards what has been called a 'science of happiness' perspective which prioritises the quantitative measurement of happiness (Eckersley 2008; Ahmed 2010; White 2016). As Vittersø (2013, p. 238) has put it, 'Economists are often criticized for transforming the variety of human goodness to a flat metric of money. Wellbeing research may fall prey to a similar criticism by trading one shaky reduction for another'. Drawing on evidence generated through large-scale surveys and, less commonly, experimental approaches (Carlisle et al. 2009; Huppert et al. 2008; Kahneman and Krueger 2006), this tradition is preoccupied with identifying the variables that enhance or diminish self-reported well-being through the use of pre-formed, quantified measurements (Duncan 2007, 2013; Ryan and Deci 2001; Ryff 1989; Ryff and Singer 2013).

Writing from a feminist post-colonial perspective, Ahmed (2007, p. 8) holds that elements of this science of happiness are, on reflection, 'far from new' and, in many ways, simply reconstitute 'the nineteenth-century tradition of English Utilitarianism in which the task of government is to maximise happiness' (cf. Kahneman and Krueger 2006). For Ahmed and other critics, we are back to measuring complex philosophical and political concepts numerically, re-affirming classical models of development with little allowance for the diversity of human lifeways (Loera-Gonzalez 2014; Thin 2012; White 2010). Indeed, while the endeavour of measuring well-being in this positivistic manner has obvious appeal in terms of its ready applicability, it has been noted as being detrimental to other ways of knowing and understanding human well-being (Eckersley 2008; White 2016; White et al. 2012). As we shall see, current approaches which aim at finding out what the state of well-being 'really is' can deaden our understanding of the variations of well-being experiences, which, it will be argued in Chapter 4, we must work to bring back to life.

The mention of nineteenth-century English Utilitarianism has much contemporary valence in terms of contemporary trends towards happiness research. Take, for example, the recent resurrection of the

idea of the Hedonometer, first proposed by late nineteenth- and early twentieth-century political economist Francis Ysidro Edgeworth. While Utilitarianism was stymied by a lack of tangible means of quantification, by using social media data, Edgeworth's idea for a machine which would accurately measure and represent pleasure has become something of a reality. Peter Dodds and Chris Danforth of the University of Vermont have developed a modern-day Hedonometer, 'an instrument that measures the happiness of large populations in real time',[2] and which works by randomly sampling 50 million messages daily (only in English, however) from the social network Twitter, with a happiness score derived from 'the average happiness score of the words contained within'. Happiness scores for these words were found by having people (recruited through Amazon's Mechanical Turk service) rate words on a 'nine point scale of happiness: (1) sad to (9) happy'.[3]

Carlisle and Hanlon (2007) question whether many findings, particularly with regard to 'science of happiness' (Eckersley 2008) and components approaches (Atkinson 2013), are not something of a reflection of the domain from which the research is emanating—predominantly North American campuses (Fleuret and Atkinson 2007; Loera-Gonzalez 2014; Lolle and Andersen 2015; Lomas 2015). Their concern is that, in the home of 'positive psychology'—the USA—happiness is increasingly a 'cultural ideal and 'cheerfulness' obligatory…negative emotions tend to be seen as evidence of failure, requiring treatment' (Carlisle and Hanlon 2007, p. 10; Duncan 2013; Held 2004). While these critics point out that the values cultivated by such a culture of individualism may overlap poorly with other cultural understandings, the results of such studies are exported as universal human characteristics (Izquierdo and Mathews 2010; Panelli and Tipa 2007; Eckersley 2008; Lolle and Andersen 2015).

Delle Fave (2013, p. 7) notes the important differences which may exist between individualistic cultures used to using subjective cues and individuals raised in what she calls—simplistically and problematically, of course—collectivistic contexts 'who build their self-definition according to interpersonal and group dimensions' (Carlisle and Hanlon 2008; Eckersley 2008; Walker and Kavedžija 2015). SWB, for example, places the focus of well-being on the individual, while 'interpersonal dimensions of reality and the self are downplayed in favour of a view of the self as independent and autonomous' (Carlisle et al. 2009, p. 1558). Hence, at this point, that which was supposed to signal a move beyond

the dogma of reductive quantification and abstraction begins to sound remarkably familiar (Scott et al. 2016).

Stepping back even further from this growing research topic, we could even query why it is, at this cultural moment, that we have decided to valorise happiness or well-being—variously interpreted—instead of the perhaps infinite variety of other emotions which arise, as we muddle our way through life. As Nozick has written, 'We want experiences, fitting ones, of profound connection with others, of deep understanding of natural phenomena, of love, of being profoundly moved by music or tragedy, or doing something new and innovative, experiences very different from the bounce and rosiness of happy moments' (quoted in Walker and Kavedžija 2015, p. 4).

As Izquierdo and Mathews (2010, p. 8) put it, 'the very act of measurement presumes a common cultural scale…[D]oesn't any effort to create such a scale inevitably privilege some cultural conceptions over others? And doesn't it reify what can be measured, and ignore what cannot be measured?' (Loera-Gonzalez 2014). White et al. (2012), writing as part of the UK *ESRC Research Group on Wellbeing in Developing Countries,* have expressed similar concerns regarding the biases underpinning much well-being research to date, recounting concrete empirical examples from fieldwork undertaken in India and Bangladesh:

> Faced with general questions ('Do you have people who help you in times of need?') people asked for specific examples ('What kinds of need do you mean?'). Faced with abstract terms, they sought to bring them down to earth. This made us realise that what seems straightforward and self-evident in one context might not be so in another, that the wellbeing approaches assume a culture of questioning that is by no means generally shared. Directness is another aspect of this. Wellbeing and quality of life surveys ask direct questions and seek direct answers, but people in our research communities were often unused to talking in such a way, especially about intimate matters. Our questions might then be met by stories, rather than straight answers, or people would imply something about their own situation through a general exclamation: 'the woes of women!'. (cf. Lolle and Andersen 2015)

At this stage, it becomes clear that a tendency towards a positivistic science in the economics and psychology of happiness can often assume a single mode of well-being, measurable in the world (Graham 2005), and may repackage many conventional framing assumptions about human

behaviour (White 2016). This theme has been further highlighted in widely cited work by Sointu (2005) which underlines shifts in well-being discourses in past decades, from a focus on what she calls the 'body politic' to the 'body personal'. Alongside other scholars, Sointu raises concerns regarding individualistic and neoliberal framings, whereby individuals become responsible for their own well-being condition, displacing a previous concern for community-based welfare (Duncan 2007; Lambek 2008; Scott 2015). While sensitivity to personal difference is not negative per se, the manner in which this shift has taken place, in the context of neoliberal capitalism, is telling, reflecting the wider social tendencies of the same era.

In happiness and well-being research, then, *Homo economicus*, the monadic, self-interested individual of late capitalist market societies, all-too-quickly reverts to *homo felix*, the monadic, self-interested pleasure-maximiser. Western citizens in particular, then, have become what Cabanas (2016) describes as 'psytizens'; that is, self-governing and 'emotionally rational' individuals whose consumption choices, and thus the management of their 'human capital' (Cabanas and Sánchez-González 2016; note the similarity here to the Heideggerian point regarding 'standing reserve' made in the previous chapter), are closely tied to their supposed well-being. There is, then, a further distinct irony to be noted in the subsequent monetising of fundamental emotions that has occurred; that the very idea which was supposed to transcend GDP and show that there is more to life than capitalism, and more than one way to build more sustainable worlds (Walker and Kavedžija 2015), has been co-opted from being a rather radical and anti-capitalist ideal, and become a highly profitable industry in itself (Davies 2015). Furthermore, through extensive and pervasive corporate wellness programmes for employees, the concept is increasingly used to directly promote the profitability of capitalist enterprises (Hull and Pasquale 2018).

It is not just in its increasing commodification that the well-being agenda has been critically judged. The themes of the new science of happiness, at least in their current form, demonstrate a built-in reactionary political potential, emphasising the subject's thought process as being problematic, and potentially moving the focus away from situated inequality, oppression and systematic causes (Ahmed 2007; Carlisle and Hanlon 2007; Held 2004; Scott 2015). White et al. (2012, p. 767) have examined this potential for well-being research to obscure social pathologies, pointing out that in contexts of high inequality 'emphasising

satisfaction can carry an inherently conservative weighting. High satisfaction may signify the low aspiration of internalised oppression, rather than the experience of positive fulfilment many people identify with happiness'.

Measures of SWB, then, may simply rebound to reflect an adaptation to, for instance, socio-economic inequality, environmental degradation or political oppression, yet this may make the impetus for change no less urgent (Clark 2009; Deaton 2012). 'A focus on individual wellbeing may view social inequalities as unproblematic; a focus on social or population wellbeing would not', conclude Carlisle and Hanlon (2007, p. 10), a particularly salient point given the uncomfortable history recounted by Ahmed (2010), in which utilitarian justifications of 'the greatest happiness for the greatest number' play a crucial role in the furtherance of intertwined colonial and commercial interests. 'For happiness to become a mission', she notes (p. 124), 'the colonized other must first be deemed unhappy'.

This discussion means we must move from the political and epistemological to the ontological, drawing out the implications of this research paradigm for our understanding of human 'being'. After all, as Scott (2012, p. 16; see also Walker and Kavedžija 2015) notes, 'Theories of wellbeing or quality of life cannot be disengaged from theories of what it is to be human and what life is for…So while it is common and understandable for researchers to claim 'neutrality' in measuring wellbeing, the idea is really a nonsense'.

For example, as part of the happiness research industry, the polling agency Gallup has undertaken a daily telephone survey of 1000 randomly sampled Americans since 2 January 2008, who are asked 'how their lives are going, whether they are satisfied with their standard of living, and whether they experienced a range of feelings on the previous day' (Deaton 2012, p. 2). This largely retrospective approach takes for granted, for example, the reliable knowability of satisfaction by an individual, the measurability of this on a linear scale, or even that this unambiguous satisfaction, even happiness, exists in the first place (Ahmed 2007).

So too do core concepts from within the eudaimonic and hedonic traditions, examined above, such as the *daimon* or eudaimonic 'true self' and self-reported measures of SWB, betray a fundamental ontological assumption of an independent pre-existing subject, to some degree existing in isolation from spatial context. According to leading scholars

in this tradition, well-being is an individual or subjective state, 'a person's cognitive and affective evaluations of his or her life' (Diener et al. 2004, p. 63), encapsulated in terms of cognitive states (such as satisfaction with one's marriage, work and life) and ongoing affect. Population-level analyses, in turn, comprise an aggregation of these individual scores (Izquierdo and Mathews 2010; Eckersley 2008).

This assumed individualism is understandable for garnering large-scale average statistics but conceals an underestimation of the performative impact of place, activity, age and contextual events on psychological conditions (Atkinson and Scott 2015; Haybron 2011; Tucker 2011). Haybron (2011, p. 244), for example, reflects on how sensitive humans are to situational cues in the environment, calling it 'affective ignorance' (AI), and argues that our conception of the human is gradually shifting away from wholly rationalistic models (Andrews et al. 2014). Haybron (2007, p. 395) instead posits something of an oblique nature to the grasp we can have on the affective attributes of our lives. AI doesn't mean we are entirely devoid of insight into our current condition, but rather he speculates that a greater element of AI than we normally suppose is likely to be important to our habitual existence in a rapidly evolving world (Dewsbury 2012; Lea et al. 2015). 'The fact is', notes the late Teresa Brennan (2004, p. 2), 'that the taken-for-grantedness of the emotionally contained subject is a residual bastion of Eurocentrism in critical thinking, the last outpost of the subject's belief in the superiority of its own worldview over that of other cultures'.

Contradictory findings from survey-based studies of SWB in different cultural contexts may further reflect these methodological problematics (Eckersley 2008; Tucker 2012). For example, well-being researchers have pointed to the sensitivity of such questionnaire methods to contextual factors, not least their own phrasing (Schwarz 1999; Lolle and Andersen 2015; White 2016), an issue discussed in a widely cited paper by Kahneman and Krueger (2006, p. 6):

> In an elegant demonstration of the power of context, Schwarz (1987) invited subjects to the lab to fill out a questionnaire on life satisfaction. Before they answered the questionnaire, however, he asked them to photocopy a sheet of paper for him. A dime was placed on the copy machine for a randomly chosen half of the sample. Reported satisfaction with life was raised substantially by the discovery of the coin on the copy machine—clearly not an income effect. Other research indicates that reported life

> satisfaction is influenced by the current weather (higher on nicer days); although if individuals are first asked explicitly about the weather, the weather does not influence their reported life satisfaction (Schwarz and Clore, 1983). Reported satisfaction or happiness is also often strongly affected by earlier questions in a survey.

While it is necessary to acknowledge the existence of diversity within psychology, Tanggaard (2014) has posited an inherent dualism in experimental psychology, the home of much 'happiness' research, built on a tendency to make psychology a 'natural science' in which 'the human being was treated more and more as a natural object'. With many psychological studies in this 'natural scientific' vein showing poor replication rates (Open Science Collaboration 2015; Smedslund 2009, 2015), an opportunity presents itself to reflect on the adequacy of such scientism and ontological dualisms. Indeed, this is an opportunity which some psychologists have taken up. Smedslund (2015, pp. 193–194), for example, summarises that:

> Only by ignoring the implications of irreversibility, infinity of contexts, pseudo-empiricality, and social interactivity, can the project of studying the generalized human mind continue, but then as a closed esoteric academic discipline, and at the expense of little contact with everyday life and psychological practice… It is becoming increasingly apparent that one cannot noticeably improve psychological practice by assembling data and theorizing about average responses from groups of unknown persons in special conditions.

Tucker (2011), also writing from within psychology, emphasises the importance of geographical perspectives in particular in fostering a non-essentialist, less quantitative and non-reifying ontology of 'psychological phenomena' (ibid., p. 232). Such phenomena, he asserts 'are produced as relational acts, which are constituted spatially. This destabilises traditional psychological concepts such as emotion and directs us towards viewing them as relational practices rather than stable foundations of psychological life' (ibid., p. 234; Tucker 2012; Duff 2014). 'Location is key', posits Haybron (2011, p. 235), continuing that 'it matters where you are, for where you are shapes not just what you do but how you feel and think; indeed, it molds your very personality' (ibid., p. 236). Geographers will particularly understand the complexity of grasping what

this 'location' is, how cultures relate to it, and how human and non-human co-constitute it, questions which we turn our attention to in the next chapter (Conradson 2003; Panelli and Tipa 2007).

Conclusion

It is clear that much is missed in current conceptualisations of well-being, with this conceptual lacuna extending into empirical studies. In various ways, the concerns outlined above indicate an insensitivity to place and context, the very dualism between human and non-human which we encountered in Chapter 2 on the rise of environmental quantification and neoliberal environmentalism. We are still mistaking quantity for quality, albeit in new ways. Well-being is all-too-often conceived in terms of a static, articulate and abstracted individual (Haybron 2007; Cabanas 2016; Austin 2015), and the individual who fails to conform to standard understandings of happiness is seen as maladjusted or in some way deviant (Cabanas 2016). These approaches demonstrate a determined humanism and underline the importance of developing more pluralistic research agendas. Such agendas, then, are where attention will now be turned, in order to recover a non-quantifiable and non-dualistic approach to the important questions raised in the chapters above.

Notes

1. https://blog.apaonline.org/2018/01/25/the-problem-with-scientism/. The paper in question was eventually partially retracted. See https://retractionwatch.com/2013/09/19/fredrickson-losada-positivity-ratio-paper-partially-withdrawn/.
2. http://hedonometer.org/about.html.
3. Ibid.

References

Ahmed, S. (2007). The Happiness Turn. *New Formations, 63*(1), 7.

Ahmed, S. (2010). *The Promise of Happiness.* Durham: Duke University Press.

Amartya Sen. (1985). Well-Being, Agency and Freedom: The Dewey Lectures 1984. *The Journal of Philosophy, 82*(4), 169.

Andrews, G. J., Chen, S., & Myers, S. (2014). The 'taking place' of health and wellbeing: Towards non-representational theory. *Social Science & Medicine, 108*, 210–222.

Atkinson, S. (2013). Beyond Components of Wellbeing: The Effects of Relational and Situated Assemblage. *Topoi, 32*(2), 137–144. https://doi.org/10.1007/s11245-013-9164-0.

Atkinson, S., & Scott, K. (2015). Stable and Destabilised States of Subjective Well-Being: Dance and Movement as Catalysts of Transition. *Social and Cultural Geography, 16*(1), 75–94. https://doi.org/10.1080/14649365.2014.950689.

Austin, A. (2015). On Well-Being and Public Policy: Are We Capable of Questioning the Hegemony of Happiness? *Social Indicators Research, 127*(1), 123–138. https://doi.org/10.1007/s11205-015-0955-0.

Bache, I., & Reardon, L. (2016). The "Wicked Problem" of Wellbeing: Theorising the Prospects for Policy Change. In T. Tachibanaki (Ed.), *Advances in Happiness Research* (pp. 23–38). Tokyo, Japan: Springer. https://doi.org/10.1007/978-4-431-55753-1_3.

Bache, I., Reardon, L., & Anand, P. (2015). Wellbeing as a Wicked Problem: Navigating the Arguments for the Role of Government. *Journal of Happiness Studies*, 1–20. https://doi.org/10.1007/s10902-015-9623-y.

Brennan, T. (2004). *The Transmission of Affect*. Cornell: Cornell University Press.

Cabanas, E. (2016). Rekindling Individualism, Consuming Emotions: Constructing "Psytizens" in the Age of Happiness. *Culture & Psychology, 22*(3), 467–480. https://doi.org/10.1177/1354067X16655459.

Cabanas, E., & Sánchez-González, J.-C. (2016). Inverting the Pyramid of Needs: Positive Psychology's New Order for Labor Success. *Psicothema, 28*(2), 107–113.

Carlisle, S., & Hanlon, P. (2007). The Complex Territory of Well-Being: Contestable Evidence, Contentious Theories and Speculative Conclusions. *Journal of Public Mental Health, 6*(2), 8–13.

Carlisle, S., & Hanlon, P. (2008). 'Well-being' as a focus for public health? A critique and defence. *Critical Public Health, 18*(3), 263–270.

Carlisle, S., Henderson, G., & Hanlon, P. W. (2009). "Wellbeing": A Collateral Casualty of Modernity? *Social Science and Medicine, 69*(10), 1556–1560.

Clark, D. A. (2009). Adaptation, Poverty and Well-Being: Some Issues and Observations with Special Reference to the Capability Approach and Development Studies. *Journal of Human Development and Capabilities, 10*(1), 21–42. https://doi.org/10.1080/14649880802675051.

Conradson, D. (2003). Spaces of Care in the City: The Place of a Community Drop-In Centre. *Social and Cultural Geography, 4*(4), 507–525. https://doi.org/10.1080/1464936032000137939.

Conradson, D. (2012). Wellbeing: Reflections on Geographical Engagements. In S. Atkinson, S. Fuller, & J. Painter (Eds.), *Wellbeing and Place* (pp. 15–34). Farnham, Surrey, Burlington, VT: Ashgate.

Costanza, R., Kubiszewski, I., Giovannini, E., Lovins, H., McGlade, J., Pickett, K. E., … Wilkinson, R. (2014). Development: Time to Leave GDP Behind. *Nature*, *505*(7483), 283–285. https://doi.org/10.1038/505283a.

Daly, H. E. (1996). *Beyond Growth: The Economics of Sustainable Development*. Boston, MA: Beacon Press.

David, S. A., Boniwell, I., & Ayers, A. C. (2013). Introduction. In S. A. David, I. Boniwell, & A. C. Ayers (Eds.), *The Oxford Handbook of Happiness* (pp. 1–8). Oxford: Oxford University Press.

Davies, W. (2015). *The Happiness Industry: How the Government and Big Business Sold Us Well-Being*. London: Verso Books.

Deaton, A. (2012). The Financial Crisis and the Well-Being of Americans 2011 OEP Hicks Lecture. *Oxford Economic Papers, 64*(1), 1–26.

Deci, E. L., & Ryan, R. M. (2008). Hedonia, Eudaimonia, and Well-Being: An Introduction. *Journal of Happiness Studies, 9*(1), 1–11. https://doi.org/10.1007/s10902-006-9018-1.

Delle Fave, A. (2013). Past, Present, and Future of Flow. In S. A. David, I. Boniwell, & A. C. Ayers (Eds.), *The Oxford Handbook of Happiness* (pp. 60–72). Oxford: Oxford University Press.

Deneulin, S., & McGregor, J. A. (2010). The Capability Approach and the Politics of a Social Conception of Wellbeing. *European Journal of Social Theory, 13*(4), 501–519. https://doi.org/10.1177/1368431010382762.

Dewsbury, J. (2012). Affective Habit Ecologies: Material Dispositions and Immanent Inhabitations. *Performance Research, 17*(4), 74–82. https://doi.org/10.1080/13528165.2012.712263.

Diener, E., Lucas, R. E., & Oishi, S. (2004). Subjective Well-Being: The Science of Happiness and Life Satisfaction. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 63–73). Oxford, UK and New York: Oxford University Press.

Duff, C. (2014). *Assemblages of Health: Deleuze's Empiricism and the Ethology of Life*. New York: Springer.

Duncan, G. (2007). After Happiness. *Journal of Political Ideologies, 12*(1), 85–108. https://doi.org/10.1080/13569310601095630.

Duncan, G. (2013). Should Happiness-Maximization Be the Goal of Government? In A. D. Fave (Ed.), *The Exploration of Happiness* (pp. 303–320). Dordrecht, Netherlands: Springer.

Easterlin, R. A., McVey, L. A., Switek, M., Sawangfa, O., & Zweig, J. S. (2010). The Happiness–Income Paradox Revisited. *Proceedings of the National Academy of Sciences, 107*(52), 22463–22468.

Eckersley, R. (2008). Population Measures of Subjective Wellbeing: How Useful Are They? *Social Indicators Research, 94*(1), 1–12. https://doi.org/10.1007/s11205-008-9339-z.

Fleuret, S., & Atkinson, S. (2007). Wellbeing, Health and Geography: A Critical Review and Research Agenda. *New Zealand Geographer, 63*(2), 106–118. https://doi.org/10.1111/j.1745-7939.2007.00093.x.

Fredrickson, B. L., & Losada, M. F. (2005). Positive Affect and the Complex Dynamics of Human Flourishing. *The American Psychologist, 60*(7), 678–686. https://doi.org/10.1037/0003-066X.60.7.678.

Frey, B. S., & Gallus, J. (2016). Happiness: Research and Policy Considerations. In T. Tachibanaki (Ed.), *Advances in Happiness Research* (pp. 9–21). Tokyo, Japan: Springer. https://doi.org/10.1007/978-4-431-55753-1_2.

Graham, C. (2005). Insights on Development from the Economics of Happiness. *The World Bank Research Observer, 20*(2), 201–231.

Haybron, D. M. (2007). Do We Know How Happy We Are? On Some Limits of Affective Introspection and Recall. *Nous, 41*(3), 394–428.

Haybron, D. M. (2011). Central Park: Nature, Context, and Human Wellbeing. *International Journal of Wellbeing, 1*(2), 235–254. https://doi.org/10.5502/ijw.v1i2.26.

Held, B. S. (2004). The Negative Side of Positive Psychology. *Journal of Humanistic Psychology, 44*(1), 9–46. https://doi.org/10.1177/0022167803259645.

Hull, G., & Pasquale, F. (2018). Toward a Critical Theory of Corporate Wellness. *BioSocieties, 13*(1), 190–212. https://doi.org/10.1057/s41292-017-0064-1.

Huppert, F. A., Marks, N., Clark, A., Siegrist, J., Stutzer, A., Vittersø, J., et al. (2008). Measuring Well-Being Across Europe: Description of the ESS Well-Being Module and Preliminary Findings. *Social Indicators Research, 91*(3), 301–315. https://doi.org/10.1007/s11205-008-9346-0.

Izquierdo, C., & Mathews, G. (2010). *Pursuits of Happiness: Well-Being in Anthropological Perspective*. New York: Berghahn Books.

Jackson, T. (2011). *Prosperity Without Growth: Economics for a Finite Planet*. London: Routledge.

Kahneman, D., & Krueger, A. B. (2006). Developments in the Measurement of Subjective Well-Being. *The Journal of Economic Perspectives, 20*(1), 3–24. https://doi.org/10.1257/089533006776526030.

Lambek, M. (2008). Measuring—Or Practising—Well-Being? In A. C. Jimňez (Ed.), *Culture and Well-Being: Anthropological Approaches to Freedom and Political Ethics* (pp. 115–133). London: Pluto.

Lea, Jennifer, Cadman, L., & Philo, C. (2015). Changing the Habits of a Lifetime? Mindfulness Meditation and Habitual Geographies. *Cultural Geographies, 22*(1), 49–65. https://doi.org/10.1177/1474474014536519.

Loera-Gonzalez, J. J. (2014). The Power of Wellbeing Discourses Among Indigenous and Non-Indigenous People in Mexico. *IDS Bulletin, 45*(2–3), 29–42. https://doi.org/10.1111/1759-5436.12081.

Lolle, H. L., & Andersen, J. G. (2015). Measuring Happiness and Overall Life Satisfaction: A Danish Survey Experiment on the Impact of Language and Translation Problems. *Journal of Happiness Studies, 17*(4), 1337–1350. https://doi.org/10.1007/s10902-015-9646-4.

Lomas, T. (2015). Positive Cross-Cultural Psychology: Exploring Similarity and Difference in Constructions and Experiences of Wellbeing. *International Journal of Wellbeing, 5*(4), 60–77.

Nussbaum, M. C., & Sen, A. (Eds.). (1993). *The Quality of Life*. Oxford, UK and New York: Clarendon Press and Oxford University Press.

Oman, S. (2016). Measuring National Wellbeing: What Matters to You? What Matters to Whom? In S. C. White & C. Blackmore (Eds.), *Cultures of Wellbeing* (pp. 66–94). London: Palgrave Macmillan. https://doi.org/10.1057/9781137536457_3.

Open Science Collaboration. (2015). Estimating the Reproducibility of Psychological Science. *Science*, *349*(6251), aac4716. https://doi.org/10.1126/science.aac4716.

Panelli, R., & Tipa, G. (2007). Placing Well-Being: A Maori Case Study of Cultural and Environmental Specificity. *EcoHealth, 4*(4), 445–460. https://doi.org/10.1007/s10393-007-0133-1.

Priesner, S. (2004). Gross National Happiness—Bhutan's Vision of Development and Its Challenges. In P. N. Mukherji & C. Sengupta (Eds.), *Indigeneity and Universality in Social Science: A South Asian Response* (pp. 212–232). Delhi, India: Sage.

Ryan, R. M., & Deci, E. L. (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annual Review of Psychology, 52*(1), 141–166.

Ryan, R. M., Huta, V., & Deci, E. L. (2013). Living Well: A Self-Determination Theory Perspective on Eudaimonia. In A. D. Fave (Ed.), *The Exploration of Happiness* (pp. 117–139). Dordrecht, Netherlands: Springer.

Ryff, C. D. (1989). Happiness Is Everything, or Is It? Explorations on the Meaning of Psychological Well-Being. *Journal of Personality and Social Psychology, 57*(6), 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069.

Ryff, C., & Singer, B. (2013). Know Thyself and Become What You Are: A Eudaimonic Approach to Psychological Well-Being. In A. Delle Fave (Ed.), *The Exploration of Happiness* (pp. 97–116). Dordrecht, Netherlands: Springer.

Schwarz, N. (1999). Self-Reports: How the Questions Shape the Answers. *American Psychologist, 54*(2), 93–105. https://doi.org/10.1037/0003-066X.54.2.93.

Scott, K. (2012). *Measuring Wellbeing: Towards Sustainability?* London: Routledge.

Scott, K. (2015). Happiness on Your Doorstep: Disputing the Boundaries of Wellbeing and Localism. *The Geographical Journal, 181*(2), 129–137. https://doi.org/10.1111/geoj.12076.

Scott, K., & Bell, D. (2013). Trying to Measure Local Well-Being: Indicator Development as a Site of Discursive Struggles. *Environment and Planning C: Government and Policy, 31*(3), 522–539. https://doi.org/10.1068/c10127.

Scott, K, Rowe, F., & Pollock, V. (2016). Creating the Good Life? A Wellbeing Perspective on Cultural Value in Rural Development. *Journal of Rural Studies*. https://doi.org/10.1016/j.jrurstud.2016.07.001.

Sen, A. (1999). *Development as Freedom*. Oxford: Oxford University Press.
Smedslund, J. (2009). The Mismatch Between Current Research Methods and the Nature of Psychological Phenomena What Researchers Must Learn from Practitioners. *Theory & Psychology, 19*(6), 778–794. https://doi.org/10.1177/0959354309345648.
Smedslund, J. (2015). Why Psychology Cannot Be an Empirical Science. *Integrative Psychological & Behavioral Science*. https://doi.org/10.1007/s12124-015-9339-x.
Sointu, E. (2005). The Rise of an Ideal: Tracing Changing Discourses of Wellbeing. *The Sociological Review, 53*(2), 255–274.
Tanggaard, L. (2014). Ethnographic Fieldwork in Psychology Lost and Found? *Qualitative Inquiry, 20*(2), 167–174. https://doi.org/10.1177/1077800413510876.
Thin, N. (2012). Counting and Recounting Happiness and Culture: On Happiness Surveys and Prudential Ethnobiography. *International Journal of Wellbeing, 2*(4). https://doi.org/10.5502/ijw.v2i4.137.
Tucker, I. (2011). Psychology as Space: Embodied Relationality. *Social and Personality Psychology Compass, 5*(5), 231–238. https://doi.org/10.1111/j.1751-9004.2011.00347.x.
Tucker, I. (2012). Deleuze, Sense, and Life: Marking the Parameters of a Psychology of Individuation. *Theory & Psychology, 22*(6), 771–785. https://doi.org/10.1177/0959354312442787.
Vittersø, J. (2013). Functional Well-Being: Happiness as Feelings, Evaluations, and Functioning. In S. A. David, I. Boniwell, & A. C. Ayers (Eds.), *The Oxford Handbook of Happiness* (pp. 227–244). Oxford: Oxford University Press.
Walker, H., & Kavedžija, I. (2015). Values of Happiness. *HAU: Journal of Ethnographic Theory, 5*(3), 1–23. https://doi.org/10.14318/hau5.3.002.
Waterman, A. S. (1993). Two Conceptions of Happiness: Contrasts of Personal Expressiveness (Eudaimonia) and Hedonic Enjoyment. *Journal of Personality and Social Psychology, 64*(4), 678.
White, S. C. (2010). Analysing Wellbeing: A Framework for Development Practice. *Development in Practice, 20*(2), 158–172.
White, S. C. (2016). Introduction: The Many Faces of Wellbeing. In S. C. White & C. Blackmore (Eds.), *Cultures of Wellbeing* (pp. 1–44). London, UK: Palgrave Macmillan. https://doi.org/10.1057/9781137536457_1.
White, S. C. (2017). Relational Wellbeing: Re-centring the Politics of Happiness, Policy and the Self. *Policy & Politics, 45*(2), 121–136. https://doi.org/10.1332/030557317X14866576265970.
White, S. C., Gaines, S. O., & Jha, S. (2012). Beyond Subjective Well-Being: A Critical Review of the Stiglitz Report Approach to Subjective Perspectives on Quality of Life. *Journal of International Development, 24*(6), 763–776.

CHAPTER 4

Ecological Ethics of Care and the Multiple Self: Revisiting the Roots of Environmentalism

Abstract This chapter examines how sustainable flourishing could be reconceptualised in ways which do not posit a radical separation of a sovereign and self-knowing human from their material environment. It begins by critically re-focusing on ecocentric and deep ecological streams of early ecological thought, before positing eco-phenomenology, new materialism and care ethics as interrelated posthuman counter-points to quantification trends in sustainable development. These approaches foreground the true basis of sustainable existence: interconnection with the more-than-human world. The latter is no longer seen to be comprised of resources, or ecosystem services, or dead matter on which we can imprint 'ecological footprints', but is, rather, a multitude of self-willed and autonomous beings, both living and non-living.

Keywords Posthuman · Phenomenology · Ecocentrism · Deep ecology · New materialism · Ethics of care

Introduction

This concluding chapter will examine the book's main question—namely how sustainable flourishing can be reconceptualised in a way which doesn't posit a radical separation of the sovereign self-knowing human from their material environment—from a new angle. It will take

T. S. J. Smith, *Sustainability, Wellbeing and the Posthuman Turn*,
https://doi.org/10.1007/978-3-319-94078-6_4

something of a more positive approach than those which have preceded it. Up to now, we have examined the rise of abstract quantification in sustainable development and how this has foreclosed an appreciation of what we could broadly term 'the liveliness of the world'. This has been a largely negative project, however, critiquing the work of otherwise well-meaning scholars in fields such as payments for ecosystem services or the science of well-being, and noting how 'the persistent marginalisation in sustainability debates…of non-technical, non-quantifiable sustainability solutions…have greatly reduced the mobilising momentum of the sustainability agenda' (Rau 2018). I would like to be more constructive here and examine how a continuum of older and more recent ecological work in the environmental social sciences—work which has included posthumanism, new materialism and feminist 'ethics of care'—could help to re-balance the shallow and hegemonic trends which have been outlined up to this point.

If Chapters 1–3 described approaches which tend towards human/nature dualism, human chauvinism or anthropocentrism, and discrete, 'rational' individualism, then here I will outline an agenda premised on 'the multiple self'. By this, I mean a self which is placed firmly back into the world, whose pro-environmental activities stem from this non-dualistic foundation and whose very well-being depends on an intricate social and ecological web. Indeed, in the light of a recent turns towards a new materialism across the humanities and social sciences, there have been moves away from instrumentalism (Horton and Berlo 2013), and towards a new 'non-anthropocentrism', an increased recognition of the intimate entanglements of the human and non-human. The Manifesto of the Dark Mountain Project has put this eloquently and rather poetically:

> As the financial wizards lose their powers of levitation, as the politicians and economists struggle to conjure new explanations, it starts to dawn on us that behind the curtain, at the heart of the Emerald City, sits not the benign and omnipotent invisible hand we had been promised, but something else entirely.

Before continuing to examine the 'something else' behind the curtain, however, a quick side-note on this 'non-anthropocentrism'. A legitimate question exists as to whether any sentient creature can ever really transcend its own particular perspective, the viewpoint of its species as formed by an almost infinite array of present and past factors. Indeed,

it's unclear what the benefit of this would be, even if it were possible. This form of transcendence, then, isn't what is in question here. Rather, to return to debates which occurred early in the history of 'ecocentric' thought, acknowledgement of a dichotomy between 'strong' and 'weak' anthropocentrism is more relevant here. We will never stop being human, and this isn't what philosophical 'posthumanism' has ever really meant.[1] Rather, at risk of gathering together too broad of a spectrum of thought, I would assert that the various movements around ecocentrism seek to swap 'strong' anthropocentrism (which views humans as the most centrally important things on the Earth) for 'weak' anthropocentrism (which views humans as just one amongst many ecological beings; see Evernden [1993] for a luminary narration of this switch).

Behind the curtain, all along, then, has been the true basis of sustainable existence: interconnection with the more-than-human world. This isn't comprised of resources, or ecosystem services, or dead matter on which we can imprint 'ecological footprints'. This is, rather, a multitude of self-willed and autonomous beings and things, both living and non-living. Braun (2015, p. 1) has summarised this well, noting that, 'at a moment when capital presents itself as coextensive with social, political and ecological life we are reminded of a crucial point: capital is not the source of life, but parasitic on it'. The 'new materialism' leads us by the hand down the path of realising this parasitism, albeit not without revealing its own problems.

The sections which follow elaborate a progression of thought, from broad philosophical questions to narrower ethical ones. That is, I build a philosophical background which explores several foundational issues which have been forgotten in the rise of neoliberal environmentalism and the abstract managerialism of sustainable development. Then, I draw from increasingly abundant empirical scholarly work on one increasingly popular practical implications of these philosophical approaches, namely an 'ethics of care', which has drawn from earlier feminist scholarship. Ultimately, I will conclude by asking what implications this could have for technocratic understandings of sustainability, which often emphasise dematerialisation and protection of an apparently-inert environment 'out there', rather than an ethos of solidarity with a more-than-human world, 'in here'? After all, as Swyngedouw (2011, p. 254) has aptly noted, the era of 'Nature as the externally conditioning frame for human life – an externalization that permitted the social sciences and humanities to

condescendingly leave the matter of Nature to their natural science colleagues – has come to an end'.

Ecocentrism and Deep Ecology

While environmentalism today is increasingly represented by the forms of neoliberal environmentalism discussed in Chapters 1–3, this is far from where the movement originated. Rather than advocacy for (often counter-productive) market-based solutions to environmental problems caused by systemic economic arrangements such as capitalism and state socialism, early environmentalism was a more pluralistic, philosophically diverse and contested realm. Capturing much of the underpinnings of this book, in terms of outlining distinct paradigms of ecological thought, the philosopher Arne Naess (1973, p. 95) notes at the start of his foundational essay on 'deep ecology'—*The Shallow and the Deep, Long-Range Ecology Movement. A Summary*—that 'Ecologically responsible policies are concerned only in part with pollution and resource depletion. There are deeper concerns which touch upon principles of diversity, complexity, autonomy, decentralization, symbiosis, egalitarianism, and classlessness'. Under Naess's schema, the policies which were described up to this point in the book could be said have their roots in the 'shallow' ecology, which, he wrote, is an ecology which is focused on the affluence of people and, more specifically, preserving the lifestyles of those people living in so-called 'developed' countries. By contrast, Naess's 'deep' ecology[2] (or ecosophy, a term which was also coined independently by French philosopher Félix Guattari) trades the 'man-in-environment image in favour of *the relational, total-field image*' (p. 95; see also Devall 1980). Whilst agreeing with many of the actual conservation aims of shallow ecology (Devall 1980), such as the need to reduce pollution and human degradation of ecosystems, deep ecology focuses instead on respect and veneration for non-human modes of being, not their quantification and abstraction into numerical or monetary forms. By doing so, it attempts 'to transcend the short-sighted instrumental pragmatism of the resource-management approach' (Salleh 1984, p. 339).

As a movement against professionalised and post-political environmentalism, then, Shaw and Taylor Aiken (2017, p. 107) have noted how ecosophy offers an approach which instead 'starts with how humans relate to nature and non-human at its core, alongside a strong ethical foundation for action'. Arguing that the field of geography has not yet

sufficiently engaged with the imbrication of ecological crises and 'other forms of social and psychological crises' (p. 112), they make the case for an appreciation of 'ecosophical geographies as the spatial and scalar implications of existing practices and ideas which seek to reorient subjectivities towards the ecological' (p. 110), contrasting with the technical solutions proposed by many biologists, earth scientists and meteorologists (Brown and Toadvine 2012). In some ways, then, and somewhat ironically, the 'posthumanist' approaches discussed in this chapter focus even more on the human than do the dualistic approaches previously discussed, but they do so with a vastly different, more relational and ecological flavour (as Naess has noted, 'to take more care about non-humans does not necessarily imply to take less care of humans' [quoted in Light 1997, p. 73]).

Part of deep ecology's aversion to abstraction and quantification is the acknowledgement of complexity and a level of unknowability which produces an unavoidable sense of ineffability. After all, 'organisms, ways of life, and interactions in the biosphere in general, exhibit complexity of such an astoundingly high level as to colour the general outlook of ecologists. Such complexity makes thinking in terms of vast systems inevitable. It also makes for a keen, steady perception of the profound *human ignorance* of biospherical relationships and therefore of the effect of disturbances' (Naess 1973, p. 97). More sensitivity, that is, 'towards our state of ignorance' (p. 98).

In 1984, Naess and the philosopher George Sessions outlined the eight-point Deep Ecology Platform as follows:

1. The well-being and flourishing of human and non-human life on Earth have value in themselves (synonyms: inherent worth, intrinsic value, inherent value). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.
4. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
5. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of non-human life requires such a decrease.

6. Policies must therefore be changed. The changes in policies affect basic economic, technological and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent worth) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to participate in the attempt to implement the necessary changes.[3]

There are various notable aspects of this list.[4] One, for example, given Chapter 3's discussion of well-being and standard of living indicators, is Naess and Session's grasping for a more nuanced sense of 'life quality' immersed in 'situations of inherent worth', rather than grasping for more stuff, more GDP, or more of some other quantified realm for growth. I will return to this topic below. Secondly, the 'value' of both human and non-human entities as being 'independent of the usefulness of the non-human world for human purposes' is notable. This sits uneasily, as we have seen in previous chapters, with the approaches to sustainable development which have been hegemonic in the first decades of the millennium. Also sitting uneasily with the current SD model is the call for a change in policies, away from 'shallow' ecology and towards 'deep' ecology, which would result in a very different status quo.

In the age of the Anthropocene, characterised by the increased prevalence of irreducibly complex models, feedback loops and ecological tipping points, for example, more than ever is the ineffability and complexity sought by Naess reflective of 'an abyss whose reality becomes increasingly uncanny, not less, the more scientific instruments are able to probe it' (Morton 2012, p. 233; see also Clark 2014). While many congruencies appear to exist, then, between early ecological thought, such as that of Naess, and work in contemporary 'new materialism', the reality is that even deep ecology is itself heavily indebted to an historical 'minority tradition, a quiescent utopian social movement' (Glasser 2011, p. 58) including such figures as the Buddha, Chuang Tzu, Henry David Thoreau, John Muir and Aldo Leopold.[5,6]

Of course, deep ecology has received its fair share of criticism since its foundation, ranging from a supposedly inherent misanthropy,[7] often instantiated by focusing too much on human population (as in point

five of the Deep Ecology Platform above), to apt criticisms from eco-feminists for failing to fully appreciate the gendered aspects of environmental change. Furthermore, deep ecological thought has been seen as too 'spiritual' and intuitional, and thus not rational or political enough. One further regular criticism has been its supposed focus on morality and individual consciousness change ("if you can't change the world, change yourself", as Barry [2006, p. 143] puts it), rather than institutional or structural change. However, as Glasser (2011, p. 62) summarises, such critiques perhaps rely on caricatures, lending too little credence to the depth, practicality and politicality of this philosophical approach (see also Naess's statements on socialism in Light [1997]):

> Deep ecology centers on transforming individual behavior, policy, and practice by challenging us to: re-examine our perceptions, re-conceptualize our place in nature and relationship to all life, articulate our fragmentary total views, connect the abstract problems of philosophy to issues of contemporary social and political conflict, and engage in meaningful efforts to improve the state of affairs.

Eco-phenomenology and Post-phenomenology

Arne Naess has quoted the (apocryphal) quote from Martin Luther—'Here I stand. I cannot do otherwise.'—as one apparent inspiration for his elaboration of deep ecology (Diehm and Naess 2004). Such phrasing is important as it highlights the role of situatedness in deep ecological thought, and particularly hints at Naess's forays into phenomenology—a school of philosophical thought grounded in human experience. Such phenomenological leanings, demonstrates Diehm (2004), built on Naess's early writing and teaching about thinkers such as Kierkegaard, Heidegger and Sartre, who played a key role in his subsequent attempts to understand and propagate a new ontology for the 'West'. Indeed, foundational deep ecological thinkers such as Naess and Devall called for an eco-phenomenology (Brook 2005; Brown and Toadvine 2012), and I would like to discuss such calls here, in an attempt to re-humanise (or re-post-humanise) environmental thought. The very issues which have been discussed in previous chapters, in fact, are very close to the interests of early phenomenologists, who were originally inspired to examine the implications of dualistic (often scientific) abstraction away from experience (Brown and Toadvine 2012; Thomson 2004).[8]

Indeed, in spite of the strangeness of the term 'phenomenology' for anyone unfamiliar with it, the roots of the environmental movement can be said to be steeped in the insights of this philosophical school. For instance, the origins of contemporary environmentalism are often drawn to *Silent Spring*, the powerful book by Rachel Carson (2002 [1962]). While it is undoubtedly overstating it to say that this was actually *the* start of contemporary environmentalism, its release was clearly a very influential moment in the raising of environmental consciousness. It is important to note, however, the phenomenological basis of that work, which complemented its thorough examination of the science of pesticide use, evident in its very title *Silent Spring*. Indeed, Carson notes in her acknowledgements for that book that the realisation that she had to write it had occurred in 1958, on the receipt of a letter she received telling her of the 'bitter experience of a small world made lifeless'. This foundational role for human experience is then compounded, and expanded on, in the first pages of the book, before any facts or figures are introduced, whereby she famously writes of a 'spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh'.

As Diehm (2004, p. 22) writes, phenomenological reflection 'discovers the subject already at home in the world, immediately involved with a richly textured, meaningful "lifeworld" whose "concrete contents" are the secondary and tertiary qualities'. Instead of aggregating humans into statistics or maps, for instance, phenomenological work in human geography and other fields of the social sciences focuses on the human as the medium of experiences and embodiment (Lea 2009). Thus, as Abram (1997, p. 47) has noted, the work of the early phenomenologists aimed 'not to explain the world as if from the outside, but to give voice to the world from our experienced situation *within* it, recalling us to our participation in the here-and-now, rejuvenating our sense of wonder at the fathomless things, events and powers that surround us on every hand'.

While Naess claims some distance from Abram's inspiration for this statement—the work of early phenomenologist Maurice Merleau-Ponty—for Merleau-Ponty's evident failure to extend his philosophy to something actionable or activist (Diehm 2004)—it is the latter philosopher's thought which has, within the realm of eco-phenomenology, been most commonly discussed in relation to the environment and sustainability (see, e.g., Cataldi and Hamrick 2007). For example, Merleau-Ponty's

notion of 'flesh' has been seen as a central attempt to overcome the environmental dualism of Cartesian Western thought, noting that subject and object 'are not joined because they are the held and the holding in our consciousness, but because both are grounded, prior to any conceptual division, in the same stuff' (Brook 2005, p. 356; see also Cochran 2014). We are then, as ecologists and others have been saying for decades, the earth aware of itself, understanding itself and sensing itself:

> So how might this notion of flesh transform our thinking about environmental questions? It doesn't make me into a thing like a mountain and it doesn't make a mountain into a thing like me, but it does seem to be pointing to a relationship of some sort, a sharing that breaks down a solitary self-enclosedness, both between me and other humans and between me and non-humans, and even between me and the inanimate. (p. 361)

Given this perspective then, the environmental crisis and accelerating change behoves us not only to measure and quantify our way out of a problem, but to begin sensing and thinking (for the two are not separate) in new ways (Clark 2014; Vakoch and Castrillón 2014). Jones's (2017) concept of *embodied cognitive ecosophy* emphasises the importance of connecting embodied thought and ecology, linking deep ecological and phenomenological approaches with work on embodied and extended cognition over recent decades, which has shown the irrevocable embodiment and 'en-vironment' of human thought (see also, e.g., the anthropological work on 'dwelling' by Ingold [2000]). While increasingly taken seriously, work on embodied and extended cognition too reaches back to the early phenomenologists, with the famous 'blind man's stick' example, used by Merleau-Ponty and others to query where the boundaries between body, mind and perception might actually exist (and echoed, for instance, in Heidegger's concept of *Zuhanden* or ready-to-hand). When we consider the role and capability of the stick for a blind person, for instance, we realise that things such as perception and thought, as well as the means by which we offload thought to our environment, are irreducible (Jones 2017). In the face of such work, the classic environmentalist invocation of 'Thinking like a mountain' (drawn from Aldo Leopold's classic, *A Sand County Almanac*) takes on new layers of meaning (see also Bateson 1973 on the 'ecology of mind').

Of perhaps most relevance to the aims of this chapter, in the past two decades the term 'post-phenomenology' has been increasingly used in

fields such as science and technology studies and human geography (Lea 2009). This, as Ash and Simpson (2016, p. 49) note, 'is an attempt to escape the subject-centred nature of classical phenomenological thought', weaving elements of post-structuralism into phenomenology (hence the name 'post-phenomenology' [Lea 2009]). Rather than rejecting the work of foundational phenomenological thinkers, this re-reading of phenomenology tries to rectify some of the shortcomings of the former, broadening its scope by incorporating more up-to-date theoretical insights and approaches.

For post-phenomenologists, the subject and the analysis of consciousness comes after the world, not prior to it, and is thus in a permanent state of phenomenological formation (Ash and Simpson 2016). The latter includes, of course, the impact of socialisation, and thus post-phenomenology tries to overcome the idea of the de-socialised individual and universal/transcendental consciousness that characterised much early work in this area, ignoring factors such as gender, ethnicity, and so forth (indeed Puhakka [2014] indicates the role of socialisation, citing research that indicates the very situated decline of nuanced abilities to distinguish sounds and colours in 'advanced' urban societies). Similarly, rather than working with any abstract academic notions of materiality in its attempts to transcend the overly 'subjective' tendencies of its predecessors,[9] post-phenomenology deals with the actual 'things' which appear at a given moment (Ingold 2007). As such, 'post-phenomenology recognizes that much of the phenomenon known as 'human consciousness' does not take place 'in' the bodies of the human but 'with' the dense scaffolding of things that enables and shapes human thought' (Ash and Simpson 2016, p. 63). As they conclude:

> [The] emphasis on being-with rather than a more solitary being-there points to the ecological embeddedness of human beings – with a whole range of 'others' – and can help deal with the politics of non-human relations…It is about exploring what Quentin Meillassoux (2009) terms 'the great outdoors' – an excessive world that lies outside of the human-environment correlate but which is central to shaping human capacities, relations and experiences.

Indeed, post-phenomenology cannot signal any significant break with the main branch of the discipline, as such developments are very much aligned with Husserl's famous phenomenological rallying cry, 'To the

things themselves!' (quoted in Brown and Toadvine 2012, p. xi). As such, the entire school of thought ('back to the Earth itself' as Brown and Toadvine's book is sub-titled) admirably attempts to overcome our separation from a nature which, like a Möbius strip, always remains both outside us and within us simultaneously, unorientable and inseparable.

I would, then, encourage readers to seek out eco-phenomenological thought and examine the nuanced differences that exist amongst phenomenological thinkers (e.g. see Thomson [2004] for an excellent discussion), making up their own minds on the issue, as this sketch of it has been limited by space constraints. I have attempted here, though, to outline broader patterns and links, rather than details, in order to provoke thought (Evernden 1993). However, linked with our discussions of deep ecology, this has served to set the context for the book's final section, which will tie together the themes discussed thus far, examining the relevance of the 'new materialism' in social science to this collection of ideas that we call 'sustainable development'.

New Materialism and Care Ethics

A key theme which links deep ecology and eco-phenomenology is the theme of care, running back as far back as the metaphysical work of Heidegger (Thomson 2004). In more contemporary terms, the nascent shift from seeing ourselves as objects removed from the environment—as instantiated in neoliberal environmentalism (Bakker 2010)—to actual feeling bodies situated within an environment, results in the human animal being seen as 'fields of care' (Brook 2005). As Evernden (1993, p. x), the progenitor of that phrase has written, 'our perceptions and expectations of environment are inseparable from our moral commitment to particular beliefs and institutions'. Thus, the basis of, or motivation for, an interest in sustainable development, or environmentalism of almost any stripe, even the counter-productive tendencies towards abstraction and managerialism, is often 'care' or 'concern' (ibid.). This is a rather broad statement, but one which has thankfully received a lot more precise attention of late, having been fleshed out by two threads of scholarship developed over recent years in large part by feminist scholars—'new materialism' and 'care ethics' (Puig de la Bellacasa 2017). I will first focus on what claims are made by scholars of the new materialism and then discuss concrete links with the more practical topic of care ethics,

given criticisms that the former approach has 'refocused the object of scholarly attention away from humanity, but [has] arguably proliferated actors without fundamentally changing our imaginations of the relations between them' (Shaw and Taylor Aiken 2017, p. 111). Instead, I will argue, care ethics directly focuses on the ethical aspects of more-than-human relations.

Drawing to various extents on work by scholars such as Karen Barad, Donna Haraway, Nigel Thrift and Bruno Latour, the new materialism takes as its non-anthropocentric starting point the idea that non-human forces have a greater constitutive role and agency in the social world than is normally acknowledged. I want to caution at the outset, however, that, in spite of its name, much of the 'new' materialism can be seen as being far from novel. While this has rarely been noted,[10] and while that school of thought is often treated as an innovative 'turn' in social theoretical thought (Coole and Frost 2010), many themes from the new materialism predate that movement, being evident in early ecological thought, as we have already seen above, not least in ecocentrism, deep ecology and phenomenology.

New materialism stems from dissatisfaction with a substantial stream of scholarship which dominated the social sciences and humanities until relatively recently, variously referred to as the linguistic turn, the semiotic turn, the interpretative turn, or the cultural turn (Barad 2003). Barad and others criticise the overwhelming dominance, from the 70s and 80s onwards, of deconstruction, discourse analysis and other lingua-centric approaches, a viewpoint which for many is aptly summarised in Derrida's assertion that 'there is nothing outside the text' (Derrida 1998).[11] Many scholars noted that by focusing on language as the true house of being, much of the material world was being rendered mute (Bryant 2011), in favour of work that amounted to strong anthropocentrism.

This focus on moving past anthropocentrism is not the only similarity between new materialism and deep ecology, however, with both having been criticised on a number of similar fronts. For instance, they are accused of a certain apoliticality, and of failing to deal robustly with issues such as class and capitalist structures (Braun 2015). This critique, however, is inadequate and largely off-the-mark. For instance, while deep ecology generally distrusts working with and through large bureaucracies and organisations, as early as the 1970s, Arne Naess (1973, p. 97) had incorporated an analysis of class into his writings on Deep Ecology, noting that 'Diversity of human ways of life is in part due to…

exploitation and suppression on the part of certain groups…The principles of ecological egalitarianism and of symbiosis support the same anti-class posture. The ecological attitude favours the extension of three principles to any group conflicts, including those of today between developing and developed nations'. Furthermore, while both are regularly accused of anti-humanism (that is, an active attempt to denigrate the human subject), it isn't clear why it is often taken for granted by critics of approaches such as deep ecology and new materialism that greater care and concern for non-humans implies less concern for, or an intentional downgrading of, humans (Glasser 2011). Indeed, the very opposite is more likely to be the case, as we saw above, whereby human flourishing will ultimately only be stymied more by anthropocentric approaches.

The anti-Cartesian idea that the materiality of the world plays a more active role than has recently been given its due has been perhaps most influentially and accessibly put forward by Jane Bennett's (2010) book *Vibrant Matter*, who has written lucidly on the topic:

> Everyday events - blackouts, traffic jams, power surges, upset stomachs, mood swings - repeatedly indicate the presence of a wide variety of actants, some that are personal and some that don't take the form of persons. But even persons are always engaged in an intricate dance with non-humans, with the urgings, tendencies, and pressures of other bodies, including air masses, minerals, microorganisms, and for some people, the forces of fate, divine will, or karma. (Bennett 2005, p. 454)

The political project Bennett proposes is quasi-phenomenological, encouraging the cultivation of a vital materialist ethics through perceptivity, which encourages engagements with the lively, active and constitutive things amidst which we are always located (see also Gibson-Graham 2003). She calls for us to 'cultivate the ability to discern non-human vitality, to become perceptually open to it' (Bennett 2010, p. 14), while Coole and Frost (2010, p. 4) have noted that what is at stake in new materialist thought is 'nothing less than a challenge to some of the most basic assumptions that have underpinned the modern world, including its normative sense of the human and its beliefs about human agency, but also regarding its material practices such as the ways we labor on, exploit, and interact with nature'. Bruno Latour has also famously worked of late in a similar vein to argue that we must learn how to 'be affected' by the more-than-human, expanding the capacities of the body, at the limits of knowledge, to sense the vital non-human.[12]

Immersed affectively in the world's becoming in this manner, then, I will argue, we can move away from simplistic visions of sustainable development premised on the individual who harms 'nature' and begin to pay more attention to the social practices, affects and more-than-human 'doings' which both contribute to our well-being *and* simultaneously cultivate an ethos of ecological connection. I will conclude by arguing for a more qualitative recognition of how humans and non-humans are co-constituted, allowing researchers to take seriously the 'softer' questions of care, affect, emotion, (ecological) loss, nostalgia, joy and hope which stem from this understanding.

As such, I would like to close the book by linking this deep ecology-eco-phenomenology-new materialism trajectory together through the medium of feminist 'ethics of care', which has been gaining increasing prominence in academic circles since its inception in the early 1980s (Gilligan 1982; Cox 2010; Popke 2006; Tronto 2009), accentuating the role of 'interdependency and involvement' (Puig de la Bellacasa 2017, p. 17). Rather than the masculinist approaches to ethics which had largely predominated in philosophy previously—often focusing on rational and 'autonomous' ethical actors, the formulation of ethical rules, etc.—feminist ethics, much like the new materialism, has focused more on the cultivation of connections, affects and care-full dispositions.

An important early statement on the issue, by Fisher and Tronto (quoted in Cox 2010, p. 116) defined care as 'a species activity that includes everything that we do to maintain, continue, and repair our "world" so that we can live in it as well as possible. That world includes our bodies, our selves and our environment, all of which we seek to interweave in a complex, life-sustaining web'. Furthermore, this 'care' is never something unidirectional, only flowing out from us towards other beings, human and non-human. Rather, we are both care givers and receivers (Tronto 2009), always already caught up in relations of care, as much as neoliberal environmentalism and the penetration of the market into our lives, for instance, works to veil this (Cox 2010). Tying closely with the new materialism outlined above, Puig de la Bellacasa (2017, p. 16) notes that thinking through care can offer 'possibilities for thinking commitment and obligation as nonnormative forms of ethical engagement that could be more attuned to the decentering of human agency and privilege in contemporary thinking of technoscience and naturecultures'.

A direct response to the increasing encroachment of marketisation and liberal political philosophy into everyday realms of social life (Lawson 2007; Popke 2006), Barad has described this 'ethics of mattering' as 'not about right responsibility to a radically exterior/ized other, but about responsibility and accountability for the lively relationalities of becoming of which we are a part' (quoted in Alaimo 2012, p. 563). This is to say that such ethics switch 'rights' for 'relationship' and 'calculations' for 'concern'. Furthermore, the links between feminist ethics, ecophenomenology, deep ecology and the new materialism make themselves evident in the way in which all of these approaches make 'the ontological assumption that the more connected the self is to others, the better the self is…that the more particular, concrete, partial, and emotional knowledge is, the more likely it represents the way in which people actually experience the world'.[13] Throwing sand in the wheels of a bewilderingly isolating way of life, this genuine connectedness is, in a sense, a potentially powerful counterweight to the increasingly disparate, unethical and impersonal structures which we find our lives exposed to in a rapidly globalising world (Popke 2006).

Feminist ethics of care rightly confound the false dichotomy of whether we appeal to the heart or the head in working for pro-environmental social change (Glasser 2011). After all, appealing to the head rarely works, as we know from work on the value-action gap in sustainability, whereby people who understand fully the consequences of their actions often don't translate this into pro-environmental 'behaviour'. Rather than rational argument, then, Puhakka (2014, p. 11) describes intimacy as a 'wellspring of care', continuing that 'when separation is experienced, such a spontaneous action does not take place even when it may be held as a moral, ethical, or rational ideal. When there is loss of a direct and palpable connection between self and other, neither moral ideals nor rational arguments or scientific evidence have the power to persuade one to care for the other…' Taking direct inspiration from the foundational feminist principle that 'the personal is political', this work in feminist ethics often takes the form of shifting ethical considerations towards the micro-scale and every day, rather than the exceptional and conscious which dominates academic ethics today (Puig de la Bellacasa 2010).[14]

While concerns have been voiced that such an approach is in danger of diluting true ethics (after all, if everything is ethical, then is nothing truly ethical?), care ethicists insist that we think about 'the politics of bodily, corporeal and material existence' (Puig de la Bellacasa

2010, p. 157) while also trying to push the boundary of care beyond human kin or fellow citizens organised in concentric circles of varying distance from the self.

While this discussion has been rather abstract, I would like to highlight some brief snapshot examples drawn from scholarship on the sphere of environmentalism. Namely, I will draw attention to Hawkins (2006) and Haluza-DeLay's (2008) speculations on recycling, Puig de la Bellacasa's (2010) work on permaculture as care ethics, and work by Cox (2010) and others on care ethics in relation to Alternative Food Networks. Subsequently, to bring the book to a close, a number of conclusions will be drawn.

Let us start with rubbish. The question of waste is often framed in contemporary thinking on sustainable development as an issue of infrastructure, incentives and policies, and thus I would like to start here by just briefly examining how the broadly new materialist approach emphasised above could advance our understanding of this area. Rather than being merely a sociotechnical issue, calling for the efficient elimination of waste, say, Hawkins (2006, p. vii) has noted 'the minefield of emotions and moral anxieties that waste can provoke'. As such, Hawkins points out that any attempt to grapple with the global waste crisis which ignores such questions of bodies, affect, disgust, repulsion, joy, virtue and attraction, will be deficient in some way. After all, it is something more than purely rational utilitarian calculation that causes someone to carry an aluminium can for hundreds of metres to a recycling bin, rather than throwing it in an immediately adjacent rubbish bin (Haluza-DeLay 2008). Rather, what has been developed in many societies is a practical sense of, and feeling of care and responsibility for, the necessity of recycling. This may act in tandem with infrastructure provision, social pressure and educational campaigns, of course, but it cannot be reduced to these factors:

> Waste things become incorporated into new movements and habits as the body becomes open to waste. This doesn't necessarily make us think about how most of the waste we make comes from exploited labor and goes to an exploited nature. But it does entangle us in new relations and bodily practices that could be the first small step toward a more radical ethics of waste that is based on corporeal generosity rather than just "doing the right thing." (Hawkins 2006, p. 155)

Puig de la Bellacasa (2010) examines similar kinds of questions through the lens of permaculture, a globally distributed form of sustainable design methodology and sustainable food production technique which aims to reflect ecological patterns, and which originated in the work of Bill Mollison and David Holmgren in Australia in the 1980s (though it draws from many older forms of subsistence). There are three primary permaculture ethics: care for the earth, care for people and return of the surplus. As she notes, however, permaculture contributes to a concrete and 'situated ethics' premised on a key motto of 'it depends':

> As such, the actualisation of principles of caring are always created in an interrelated doing with the needs of a place, a land, a neighbourhood, a city, a particular action. Here, 'personal' agencies of everyday care are inseparable from their collective ecological significance. (p. 162)

It is no surprise, then, that one of the most successful and widely-applied permaculture manuals for use in a temperate climate is called the *Earth Care Manual* (Whitefield 2004), which compares 'environmentalism' which is fundamentally hindered by its conceptualisation of the non-human world as something which simply 'environs' or surrounds us, with permaculture's more immersive ethics:

> Environmentalism is essentially part of the humanitarian ethic. It sees caring for the Earth as a matter of human self-interest. Indeed caring for the Earth is in our interest, not only for our ultimate survival but for our quality of life in the short term, and as a human I find it only natural to consider my own kind before all others. Yet at a deeper level I know that it is fundamentally right to care for the Earth, whether it benefits us or not. (p. 6)

The practical implications of this care ethic result in a comprehensive design system focusing mainly on more diverse and polycultural food systems (that is, exhibiting a designed complementarity and complexity between constituent plants and animals) which differ greatly from conventional monocultures in terms of fossil fuel input intensity, but has also stretched into all realms of the construction of human habitats. As such, and as Whitefield makes clear in the *Earth Care Manual*, permaculture places an emphasis on bottom-up change, recognising that many of the destructive aspects of contemporary life are embedded in personal and

interpersonal relations, while not ignoring the limitations and barriers placed on this by larger structural changes in globalism and capitalism.

Relatedly, Cox and colleagues have identified care as underpinning the daily existence of 'alternative food schemes', in terms of cultivating a basis of support—in terms of both a reciprocity between consumer and producer, and between producer and environment—for what are often marginal enterprises. As Cox (2010, p. 118) notes, 'Participants in these schemes displayed care for their families, communities, natural environment (both in general and its particular local expressions) and for unknown others to whom they felt connected through their food. Producers were able to comment on the importance of connection with consumers and the way this then linked to care for the local community and environment'. She quotes the statement of an organics producer thus:

> When you are on your own a lot, and working with the boxes you don't actually get to see anyone that you don't already see everyday like family, so you end up grovelling around in the mud and you think 'well why am I doing this?' And it's not until you go off the farm and speak to people, and they say 'thanks' that you get real meaning, it gives you a sense of satisfaction. Positive feedback gives you the strength to go on.

Wells and Gradwell (2001) have elaborated on this relational feedback of care in their study of Community Supported Agriculture (CSA), noting how motives to engage in such initiatives are qualitatively rich and rarely singular or easily contained, unlike the often simplified and monodimensional aims of neoliberal environmental initiatives. While on the surface it is just a different system of marketing, the CSA food connects with community, which connects with education, which connects with the earth, land, and non-human others. That is, "CSA growers and shareholder-members are moral actors in relation to the world; their practices are rooted in relationships…CSA connections stand in contrast to conventional production agriculture that grows for distant markets with technology that separates the grower from the land, that mines instead of builds the soil, and that treats food as commodity rather than sustenance" (p. 117). While often operating from a very local base, moreover, the study's participants saw this care as both providing protection from the circuits of global power, and extending far beyond their immediate surroundings, to the cultivation of an adequate environment

for the instigation of broader social change (see also Lawson 2007). And finally, rather than focusing on an ethics of command or explicit morality, which places 'nature' outside the rational human actor (in part critiqued elsewhere as the ABC—Attitude, Behaviour, Change—approach [Shove 2010]), starting from an ethics of care ensures that the requisite 'environmental skills' and practices (Coeckelbergh 2015; Gibson-Graham 2008; Tronto 2009) are organically grown in place:

> CSA is a place to begin some dialogue. Even more important is the experience. Without preaching, the experience allows participants the opportunity to walk their way into new ways of eating and relating. For this to really create change, it needs to be paired with careful education, but so much is learned just by doing. We can't brush the reality aside, but neither can we bite off big chunks all at once. We move toward more sustainable lifestyles one step at a time. (Grower 14, quoted in Wells and Gradwell 2001, p. 117)

In a sense then, ethics of care set the scene for broader pro-environmental capabilities. As Tronto (2009, p. 142) notes, 'Rather than seeing people as rational actors pursuing their own goals and maximizing their interests, we must instead see people as constantly enmeshed in relationships of care.' Indeed, the contemporary failure to recognise such relationships has been directly linked by care ethicists to a failure to recognise our dependence on the earth and other earth inhabitants (Cox 2010).

This has relevance for the key sustainable development concept of well-being also, as discussed in Chapter 3. While current approaches to well-being research emphasise our emotional autonomy, the relational aspects of care are being granted increasing attention, albeit mostly amongst qualitative researchers in human geography and elsewhere (Smith 2018; Conradson 2005). Such work sits alongside work in post-phenomenology, for example, emphasising the more-than-human geographies, atmospheric and affective construction of spaces of well-being, focusing on the latter as more of an unstable, phenomenological experience than a stable, predictable, quantifiable and comparable condition. This directly relates back to Naess's point regarding the importance of focusing on 'Life Quality' rather than the often-quantified 'Standard of Living'. By focusing more on the former, we can decouple our ideas around human happiness from quantified growth, as the Degrowth movement has been particularly vocal in advocating of late (Latouche 2010).

As such, this work taps much more into the Old Norse and Middle English etymological roots of happiness, derived from *hap*, which is a more contingent term than contemporary connotations of happiness, and which forms the basis of terms like happenstance and mishap today (Smith and Reid 2017). As such, recovery and well-being have been seen in this work as the building of more- or less-durable webs or assemblages of care (Duff 2014) which are always more-than-human, rather than being a metaphysical condition which someone simply *possesses*. As Popke (2006, p. 505) has written, while 'once viewed largely through the Marxist lens of "super-structure" to the productive "base" or through a territorial welfare approach, social reproduction has more recently been theorised as a landscape of care, suffused with affect and emotion'.

This chapter has examined whether we can recover the beginnings of a form of environmentalism grounded in experience and the body, in bodily finitude, rather than continuing with fundamental assumptions regarding the importance of our ability to represent and abstract. I would encourage the reader to further explore some of the topics which have been touched upon, for example starting with the bibliography and references made, in order to grapple more fully with the nuances contained within. However, I would like to conclude the book here, by drawing together some of the threads which have been presented and summarising the trajectory of the book's argument.

Conclusion

This short book is very indebted to several disciplines and schools of thought, primarily critical human geography and environmental ethics, but also political ecology and sociology. This transdisciplinarity is intentional, with such multiple debts being incurred for a couple of reasons. Firstly, in these times of managerialism and hyper-specialisation, the drawing of often-underappreciated links between disparate fields can provide valuable space for reflection on broader social trajectories and trends. Secondly, as the deep ecologist Bill Devall (1980, p. 310) has written, 'Any attempt to create artificially a "new ecological ethics" or a "new ontology of man's place in nature" out of the diverse strands of thought which make up the deep ecology movement is likely to be forced and futile'. That is, grand claims about new ontologies and new philosophies are too often made without recognising the actual

genealogy of such ways of thinking, both broadly across the academy and in other cultures.

I need to also draw some partial peace agreement here between the two broad approaches to sustainable development which have been written about. While the argument has been made that trends towards the quantification of the environment and ourselves have gained far too much support, amongst academics, policy makers and even activists (Beuret 2017), this isn't about throwing out all scientific approaches to the environment, in toto. It is, of course, important to know where we are at and how quickly things are degrading, although the process of ascertaining this is more problematic than often realised. For example, the use of such indicators seems to perennially fall victim to what has been called 'shifting baseline syndrome' whereby particular time parameters are used (such as stating that a certain percentage of global biodiversity has disappeared in the past ten years, etc.) which mean that we are always losing track of former ecological richness. See, for example, the original article on the topic by Pauly (1995), related to fisheries, where he writes that 'this syndrome has arisen because each generation of fisheries scientists accepts as a baseline the stock size and species composition that occurred at the beginning of their careers, and uses this to evaluate changes' (p. 430).

Putting such issues aside, what I have aimed at here is rather about a re-balancing, a reframing and a recognition of conceptual limitations. Contemporary environmental research appears to be silencing certain approaches over others, and we must be aware of this if we are to recover the ecological way of thinking which was so crucial to foundational ecological thought through the sixties and seventies. Evernden (1993, p. 17) has tapped into this sense when he notes that 'The rite of passage into the scientific way of being centres on the ability to apply the knife to the vocal cords, not just of the dog on the table, but of life itself. Inwardly, he must be able to sever the cords in his own consciousness. Outwardly, the effect must be the destruction of the larynx of the biosphere…In effect, he must deny life in order to study it'.[15]

Evernden's point reiterates that there is more at stake in our approaches of assessing sustainability than purely neutral knowledge. Rather, the apparently widespread belief that approaches such as planetary boundaries, footprints, payments for ecosystem services and well-being metrics are apolitical, uncontroversial and universally applicable is misleading and dangerous in its own way, not least because such

universality elides or obscures much local and ideological differentiation (Beuret 2017; Swyngedouw 2011). This elision is also to be found in recurrent claims that 'we are all in this together', so to speak, in the form of the positing of a new overarching and human-driven geological epoch, the Anthropocene.

There are numerous tendencies and assumptions hidden within such apoliticality which I have outlined, and undoubtedly many more which I have not. For instance, Braun (2015) has further associated the environmental politics of 'limits' with a politics of austerity, while largely bracketing the non-human as a passive entity. Similarly, as discussed in Chapter 2, many approaches to environmental assessment which have become common currency, such as the 'footprints' approach, are remarkably recent and are wedded to a philosophical 'harm principle' which, albeit with noble aims, drives a wedge between the human and the non-human.

What this introductory book has aimed for is to hint towards how our actual embeddedness in environments, our posthuman condition, continues to be the source of our desire to defend the natural world. In the words of the great poet and essayist, Wendell Berry, 'I stand for what I stand on'. This is a principle which is being increasingly forgotten by environmentalists, whose gaze seems increasingly captured by the accountancy-derived ideology of balance sheets, profit and loss accounts, and payments for ecosystem services. For the sake of gaining legitimacy, or not appearing romantic, or any number of other goals, environmentalists have donned suits and tried to speak the language of the very reductionist system which has brought us to this point in the first place. It remains to be seen how effective this will be, especially as nearly all conceivable environmental indicators have been going in the wrong direction at an increasingly rapid pace. It is in recognising ourselves as earth beings that we will come to our senses, not in the ever-increasing calls for us to consolidate our dominance, to steward the earth, or view ourselves as gods (Lynas 2011). My hope, then, is that readers will be encouraged to seek out a more pluralistic, experiential and qualitatively rich sense of what sustainable development can and should be about.

Notes

1. Practical posthumanism is another question entirely however. This quixotic movement of activists, with strong links to Silicon Valley, do indeed seek to rid ourselves of our human corporeality.
2. There have been attempts to separate deep ecology as a philosophical position, from deep ecology as an environmental movement (Light 1997). This is, however, far from a clear-cut distinction, the discussion of which goes beyond the scope of this chapter.
3. These are drawn from the website of the Foundation for Deep Ecology (http://www.deepecology.org/platform.htm); however, the original 1984 version is worth consulting, having some further explanatory material for each point. See also Glasser's (2011) 22-point list.
4. I will sidestep Point 5, on population, as this is an enormous and controversial topic which is not treated with enough nuance or subtlety by Naess and Session's list.
5. It is no surprise that this list is comprised of men. Since its foundation, eco-feminists have taken deep ecology to task for its shallow appreciation of gender and the environment (see Salleh 1984).
6. If such a list were, in turn, to be constructed for the 'shallow' ecological paradigm, this would probably be spearheaded by the early resource conservation and development movement, 'symbolized by the philosophy of multiple use of Gifford Pinchot and the U.S. Forest Service' (Devall 1980, p. 303). Indeed, it is fascinating to return to the writing of Pinchot and see such a close forerunner to contemporary technocratic and anthropocentric environmentalism. Take, for instance, his description of forests as 'manufacturing plants for wood' (Alaimo 2012, p. 558).
7. Such as, for example, an article by Christopher Manes, written under the pseudonym Miss Ann Thropy, which began with the words 'If radical environmentalists were to invent a disease to bring human population back to ecological sanity, it would probably be something like AIDS' (Scarce 2016, p. 92; see also Light 1997).
8. Although Wood (2012) has cautioned, rightly, that deep ecology can overextend into a rigid holism.
9. Brown and Toadvine (2012, p. X), for example, note phenomenology's 'reputation as a highly abstract theoretical inquiry into "consciousness" or "being"'.
10. One example, for instance, is Horton and Berlo's (2013, p. 18) observation that 'once we take indigenous worldviews into account, the "new materialisms" are no longer new' (see also Bignall et al. 2016), although the term 'indigenous' can often be essentialised through such thinking. There exist, of course, perverse incentives in contemporary academia, in

terms of presenting your ideas as completely novel and taking part in the latest trend or 'turn' in social or philosophical thought. To paraphrase a remark made elsewhere, however, there are only so many turns you can take part in before you are too dizzy to function.

11. Though this interpretation of the phrase is disputed as being a mis-translation.
12. To take just one widely-cited example in the literature, as Hinchliffe et al. (2005) have elaborated, in many scientific practices of conservation, a complex series of events are set under way whereby conservationists must learn to be affected, while the 'presence' of an organism is 'coproduced by the practices of the conservationist and the performances of the organism' (Braun 2008, p. 672).
13. https://plato.stanford.edu/entries/feminism-ethics/.
14. See, for example, the flourishing of thought experiments based on the 'trolley problem' and other work on ethical decisions and dilemmas.
15. Evernden is here alluding to the early scientific practice of Descartes, who used to devocalise dogs during biological experiments, seeing the noise as little more than the sound of a machine. Descartes is also regular target of new materialist ire in terms of his dualistic descriptions of the universe (see Coole and Frost 2010).

References

Abram, D. (1997). *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*. New York: Vintage.

Alaimo, S. (2012). Sustainable This, Sustainable That: New Materialisms, Posthumanism, and Unknown Futures. *PMLA, 127*(3), 558–564. https://doi.org/10.1632/pmla.2012.127.3.558.

Ash, J., & Simpson, P. (2016). Geography and Post-phenomenology. *Progress in Human Geography, 40*(1), 48–66. https://doi.org/10.1177/0309132514544806.

Bakker, K. (2010). The Limits of "Neoliberal Natures": Debating Green Neoliberalism. *Progress in Human Geography, 34*(6), 715–735. https://doi.org/10.1177/0309132510376849.

Barad, K. (2003). Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter. *Signs, 28*(3), 801–831. https://doi.org/10.1086/signs.2003.28.issue-3.

Barry, J. (2006). Straw Dogs, Blind Horses and Post-humanism: The Greening of Gray? In J. Horton & G. Newey (Eds.), *The Political Theory of John Gray* (pp. 131–150). London: Routledge.

Bateson, G. (1973). *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution and Epistemology*. St Albans: Paladin.

Bennett, J. (2005). The Agency of Assemblages and the North American Blackout. *Public Culture, 17*(3), 445–466.
Bennett, J. (2010). *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.
Beuret, N. (2017). Counting Carbon: Calculative Activism and Slippery Infrastructure. *Antipode, 49*(5), 1164–1185. https://doi.org/10.1111/anti.12317.
Bignall, S., Hemming, S., Rigney, D. (2016). Three Ecosophies for the Anthropocene: Environmental Governance, Continental Posthumanism and Indigenous Expressivism. *Deleuze Studies, 10*(4), 455–478.
Braun, B. (2015). THE 2013 ANTIPODE RGS-IBG LECTURE New Materialisms and Neoliberal Natures. *Antipode, 47*(1), 1–14. https://doi.org/10.1111/anti.12121.
Braun, B. (2008). Environmental issues: Inventive life. *Progress in Human Geography, 32*(5), 667–679.
Brook, I. (2005). Can Merleau-Ponty's Notion of "Flesh" Inform or Even Transform Environmental Thinking? *Environmental Values, 14*(3), 353–362. https://doi.org/10.3197/096327105774434468.
Brown, C. S., & Toadvine, T. (Eds.). (2012). *Eco-phenomenology: Back to the Earth Itself*. New York: State University of New York Press.
Bryant, L. R. (2011). *The Democracy of Objects*. Ann Arbor: MPublishing, University of Michigan Library.
Carson, R. (2002). *Silent Spring*. Boston: Houghton Mifflin Harcourt.
Cataldi, S. L., & Hamrick, W. S. (Eds.). (2007). *Merleau-Ponty and Environmental Philosophy: Dwelling on the Landscapes of Thought*. Albany: State University of New York Press.
Clark, N. (2014). Geo-politics and the Disaster of the Anthropocene. *The Sociological Review, 62*, 19–37. https://doi.org/10.1111/1467-954X.12122.
Cochran, M. (2014). Geologic Soul: An Ethic of Underworld Force. In D. A. Vakoch & F. Castrillón (Eds.), *Ecopsychology, Phenomenology, and the Environment* (pp. 177–193). New York, NY: Springer. https://doi.org/10.1007/978-1-4614-9619-9_11.
Coeckelbergh, M. (2015). *Environmental Skill: Motivation, Knowledge, and the Possibility of a Non-romantic Environmental Ethics*. New York and London: Routledge.
Conradson, D. (2005). Landscape, Care and the Relational Self: Therapeutic Encounters in Rural England. *Health & Place, 11*(4), 337–348. https://doi.org/10.1016/j.healthplace.2005.02.004.
Coole, D., & Frost, S. (Eds.). (2010). *New Materialisms: Ontology, Agency, and Politics*. Durham, NC: Duke University Press.
Cox, R. (2010). Some Problems and Possibilities of Caring. *Ethics, Place & Environment, 13*(2), 113–130. https://doi.org/10.1080/13668791003778800.

Derrida, J. (1998). *Of Grammatology* (G. C. Spivak, Trans. and Corrected ed.). Baltimore, MD and London: Johns Hopkins University Press.
Devall, B. (1980). The Deep Ecology Movement. *Natural Resources Journal, 20,* 299.
Diehm, C. (2004). Deep Ecology and Phenomenology. *Environmental Philosophy, 1*(2), 20–27. https://doi.org/10.5840/envirophil2004123.
Diehm, C., & Naess, A. (2004). "Here I Stand": An Interview with Arne Naess. *Environmental Philosophy, 1*(2), 6–19.
Duff, C. (2014). *Assemblages of Health: Deleuze's Empiricism and the Ethology of Life*. New York: Springer.
Evernden, L. L. N. (1993). *The Natural Alien: Humankind and Environment*. Toronto: University of Toronto Press.
Gibson-Graham, J. K. (2003). An Ethics of the Local. *Rethinking Marxism, 15,* 49–74. https://doi.org/10.1080/0893569032000063583.
Gibson-Graham, J. K. (2008). Diverse Economies: Performative Practices for 'Other Worlds'. *Progress in Human Geography, 32*(5), 613–632. https://doi.org/10.1177/0309132508090821.
Gilligan, C. (1982). *In a Different Voice*. Cambridge, MA: Harvard University Press.
Glasser, H. (2011). Naess's Deep Ecology: Implications for the Human Prospect and Challenges for the Future. *Inquiry, 54*(1), 52–77. https://doi.org/10.1080/0020174X.2011.542943.
Haluza-DeLay, R. (2008). A Theory of Practice for Social Movements: Environmentalism and Ecological Habitus. *Mobilization: An International Quarterly, 13*(2), 205–218. https://doi.org/10.17813/maiq.13.2.k5015r82j2q35148.
Hawkins, G. (2006). *The Ethics of Waste: How We Relate to Rubbish*. Lanham: Rowman & Littlefield.
Hinchliffe, S., Kearnes, M. B., Degen, M., & Whatmore, S. (2005). Urban Wild Things: A Cosmopolitical Experiment. *Environment and Planning D: Society and Space, 23*(5), 643–658.
Horton, J. L., & Berlo, J. C. (2013). Beyond the Mirror. *Third Text, 27*(1), 17–28. https://doi.org/10.1080/09528822.2013.753190.
Ingold, T. (2000). *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge.
Ingold, T. (2007). Materials Against Materiality. *Archaeological Dialogues, 14*(1), 1–16. https://doi.org/10.1017/s1380203807002127.
Jones, D. (2017). Embodied Cognitive Ecosophy: The Relationship of Mind, Body, Meaning and Ecology. *Geografiska Annaler: Series B, Human Geography, 99*(2), 156–171. https://doi.org/10.1080/04353684.2017.1306971.
Latouche, S. (2010). Degrowth. *Journal of Cleaner Production, 18*(6), 519–522. https://doi.org/10.1016/j.jclepro.2010.02.003.

Lawson, V. (2007). Geographies of Care and Responsibility. *Annals of the Association of American Geographers, 97*(1), 1–11. https://doi.org/10.1111/j.1467-8306.2007.00520.x.

Lea, J. (2009). Post-phenomenology/Post-phenomenological Geographies. In R. K. Thrift (Ed.), *International Encyclopedia of Human Geography* (pp. 373–378). Oxford: Elsevier. Retrieved from http://www.sciencedirect.com/science/article/pii/B9780080449104007264.

Light, A. (1997). Deep Socialism? An Interview with Arne Naess. *Capitalism Nature Socialism, 8*(1), 69–85. https://doi.org/10.1080/10455759709358723.

Lynas, M. (2011). *The God Species: Saving the Planet in the Age of Humans*. Washington, DC: National Geographic.

Morton, T. (2012). Ecology Without the Present. *The Oxford Literary Review*, *34*(2), 229–238. https://doi.org/http://dx.doi.org/10.3366/olr.2012.0043.

Naess, A. (1973). The Shallow and the Deep, Long-Range Ecology Movement. A Summary. *Inquiry, 16*(1–4), 95–100. https://doi.org/10.1080/00201747308601682.

Pauly, D. (1995). Anecdotes and the Shifting Baseline Syndrome of Fisheries. *Trends in Ecology & Evolution, 10*(10), 430. https://doi.org/10.1016/S0169-5347(00)89171-5.

Popke, J. (2006). Geography and Ethics: Everyday Mediations Through Care and Consumption. *Progress in Human Geography, 30*(4), 504–512. https://doi.org/10.1191/0309132506ph622pr.

Puhakka, K. (2014). Intimacy, Otherness, and Alienation: The Intertwining of Nature and Consciousness. In D. A. Vakoch & F. Castrillón (Eds.), *Ecopsychology, Phenomenology, and the Environment* (pp. 11–26). New York, NY: Springer. https://doi.org/10.1007/978-1-4614-9619-9_2.

Puig de la Bellacasa, M. (2010). Ethical Doings in Naturecultures. *Ethics, Place & Environment, 13*(2), 151–169. https://doi.org/10.1080/13668791003778834.

Puig de la Bellacasa, M. (2017). *Matters of Care: Speculative Ethics in More Than Human Worlds*. Minneapolis: University of Minnesota Press.

Rau, H. (2018). Minding the Mundane: Everyday Practices as a Central Pillar of Sustainability Thinking and Research. In M. Boström & D. Davidson (Eds.), *Environment and Society: Concepts and Challenges*. London: Palgrave Macmillan.

Salleh, A. K. (1984). Deeper Than Deep Ecology: The Eco-feminist Connection. *Environmental Ethics, 6*(4), 339–345.

Scarce, R. (2016). *Eco-Warriors: Understanding the Radical Environmental Movement*. Abingdon, Oxon: Routledge.

Shaw, R., & Taylor Aiken, G. (2017). Editorial: The 2 + n Ecosophies. *Geografiska Annaler: Series B, Human Geography*, *99*(2), 107–113. https://doi.org/10.1080/04353684.2017.1331614.

Shove, E. (2010). Beyond the ABC: Climate Change Policy and Theories of Social Change. *Environment and Planning A, 42*(6), 1273–1285.

Smith, T. S. J. (2018). *Material Geographies of the Maker Movement: Community Workshops and the Making of Sustainability in Edinburgh, Scotland*. Thesis, University of St Andrews. Retrieved from https://research-repository.st-andrews.ac.uk/handle/10023/12815.

Smith, T. S. J., & Reid, L. (2017). Which "Being" in Wellbeing? Ontology, Wellness and the Geographies of Happiness. *Progress in Human Geography*. https://doi.org/10.1177/0309132517717100.

Swyngedouw, E. (2011). Depoliticized Environments: The End of Nature, Climate Change and the Post-political Condition. *Royal Institute of Philosophy Supplements, 69,* 253–274. https://doi.org/10.1017/S1358246111000300.

Thomson, I. (2004). Ontology and Ethics at the Intersection of Phenomenology and Environmental Philosophy. *Inquiry, 47*(4), 380–412. https://doi.org/10.1080/00201740410004197.

Tronto, J. C. (2009). Care as a Basis for Radical Political Judgments. *Hypatia, 10*(2), 141–149. https://doi.org/10.1111/j.1527-2001.1995.tb01376.x.

Vakoch, D. A., & Castrillón, F. (Eds.). (2014). *Ecopsychology, Phenomenology, and the Environment: The Experience of Nature*. New York: Springer.

Wells, B. L., & Gradwell, S. (2001). Gender and Resource Management: Community Supported Agriculture as Caring-Practice. *Agriculture and Human Values, 18*(1), 107–119. https://doi.org/10.1023/A:1007686617087.

Whitefield, P. (2004). *Earth Care Manual: A Permaculture Handbook for Britain & Other Temperate Climates*. East Meon: Permanent Publications.

Wood, D. (2012). What is Ecophenomenology? In C. S. Brown & T. Toadvine (Eds.), *Eco-phenomenology: Back to the Earth Itself* (pp. 211–234). New York: State University of New York Press.

Index

T. S. J. Smith, *Sustainability, Wellbeing and the Posthuman Turn*,
https://doi.org/10.1007/978-3-319-94078-6