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Editors' introduction: human geography

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Editors' introduction: human geography

Abstract

When we were invited by Sage to identify published work in human geography that represents what is best and most distinctive about the field it seemed an impossible task (it still does) because there is such a rich volume of material to draw from. We decided to focus on English language and to a lesser extent other European contributions, although we are acutely aware of the irony, even the imperialism, of limiting a field like human geography to knowledges rooted in only a fraction of the world. We discuss below the dangers of delimiting Geography as a European or Euro-American science, and several of our selections return to this issue again and again. If there is a much richer geography of Geography than this, there is also a much longer history than our selections might imply. Our focus on the last thirty years is not an exercise in progressivism or triumphalism which treats the present as the climactic moment in a chain of contributions that reaches back into an ever more distant and ever more imperfect past. Here too our decision was a purely pragmatic way to confine our search.

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Editors' Introduction: Human Geography

Derek Gregory and Noel Castree

Introduction

When we were invited by Sage to identify published work in human geography that represents what is best and most distinctive about the field it seemed an impossible task (it still does) because there is such a rich volume of material to draw from. We decided to focus on English-language and to a lesser extent other European contributions, although we are acutely aware of the irony, even the imperialism, of limiting a field like human geography to knowledges rooted in only a fraction of the world. We discuss below the dangers of delimiting Geography as a European or Euro-American science, and several of our selections return to this issue again and again. If there is a much richer geography of Geography than this, there is also a much longer history than our selections might imply. Our focus on the last thirty years is not an exercise in progressivism or triumphalism which treats the present as the climactic moment in a chain of contributions that reaches back into an ever more distant and ever more imperfect past. Here too our decision was a purely pragmatic way to confine our search.

Even within these geographical and historical limits it was difficult to make a judicious selection – and we know how many contributions we had to excise at the eleventh hour for fear of turning five volumes into fifty – because human geography, perhaps more than most disciplines, is so heterodox. Its practitioners set their intellectual compasses according to no one philosophy; no dominant theoretical framework overshadows all others; methodological pluralism is the order of the day; topical diversity is the norm, as is heterogeneity in the research questions asked and data generated; putatively 'objective' approaches rub shoulders with avowedly 'political' ones; the rigorously cerebral and insistently practical jostle for attention; and human geographers draw intellectual inspiration from every conceivable field, with some favouring the arts and humanities, others the wider social sciences, and still others the environmental and life sciences.

This may sound like a discipline in crisis – indeed, something scarcely worthy of the title 'discipline'. And yet the selections that we include in these five volumes show that – even within our narrow pre-determined limits – the field of human geography is remarkably fecund: it would undoubtedly seem even richer if we extended those geographical and historical horizons. In large

part this positive judgement rests on a rethinking of what we mean by a discipline. An older meaning – inculcation into a canonical body of knowledge, a sort of academic holy writ, upon which one slowly builds to become a ‘disciple’ – has given way to a newer meaning: exposure to a variety of knowledges that share a family resemblance and which provide the means for critical, creative inventions not mere additions or supplements to the existing stocks of knowledge. Geographers John Agnew and James Duncan suggest that it is ‘the absence of a disciplining orthodoxy’ and ‘the openness to fresh thinking that now makes the field so interesting.’ This might be qualified in several ways. Human geography has not altogether abandoned a canon, and its working practices are still ‘disciplined’ in senses that owe less to the monastery than Michael Foucault. Its courses and syllabuses, its textbooks and journals, its examinations and dissertations, its refereeing and reviewing: all work to produce ‘disciplinary subjects’ of a sort – students, teachers, researchers – and to normalise particular conceptions of what does and does not count as successful and significant ‘geography’. But that last sentence is full of plurals, and it is the plurality of conceptions, their co-existence but still more their interpenetration – the astonishing proliferation of hybrid geographies that combine different approaches, old sub-disciplines and new inquiries without ever congealing into a single orthodoxy – that Agnew and Duncan celebrate: to them, human geography is ‘amazingly pluralistic’.¹

So it is, but those who are less sanguine worry that human geography has become a house divided: a large building with many rooms and lots of occupants but too few doorways, stairwells and communal spaces – and then there’s the noise from the neighbours and a nagging anxiety about the foundations. This invites another qualification because the neighbours (other disciplines) issue invitations and come to visit, so that the ‘openness to fresh thinking’ is not confined to human geography; it is widely acknowledged that no one field, perspective or approach can ask all the important questions or provide all the interesting answers. What we find particularly encouraging is the reciprocity contained in the metaphor of invitation and visit. Where human geographers once borrowed freely from others in a one-directional series of appropriations, their work is now taken up – and taken seriously – elsewhere. Today, creative human geography is practised outside Human Geography as well as inside, and much of it in concert with scholars in other fields as well as with artists, photographers, film-makers, playwrights and journalists.² This openness is common to all intellectually alive disciplines; the borders between them are no longer policed with the same vigour that obtained thirty years ago. It is perfectly true that all of this busy intellectual commerce and trafficking has put a strain on the foundations but, again, this is not confined to human geography and, as we will see, there are reasons for suspecting that the old foundations provided little more than an *illusion* of stability and security. Like many other disciplines, human geography is now guided by other, less structural metaphors that provide for a much more fluid and lively sense of inquiry.

We have organised these volumes and our introductory essay as four loose but powerful themes that run throughout human geography: 'Histories, philosophies and politics'; 'Theories, methods and practices'; 'Space, place and landscape'; and 'Nature, environment and the non-human'. These are not rigid categories and it is important to notice the resonances, references and the counter-arguments that flow back and forth between them. We hope that readers will find the result exciting, edifying and even surprising. We hope too that those who, like us, have been involved in the field for many years will find new things to think about, while those unfamiliar with human geography will be able to use these selections as springboards for their own intellectual journeys.

Histories, Philosophies and Politics

Re-telling Geography's Story

The history of geography involves many stories that start at different times in different places; they slowly become intertwined, and their narrative threads can be unpicked and rewoven into many different designs. It is important to keep this image in mind because there is no one History (with that imperial capital H) of geography, and intellectual historians have chosen different starting-points for their stories: the traditions of chorography and geography in the classical world; their successor projects, the 'special' and 'general' geographies of early modern Europe; the modern discipline that comes into view in the nineteenth and early twentieth centuries on both sides of the Atlantic; and the 'new geographies' that emerged during and after the Second World War.³ Remarkably, and regrettably, few historians have been interested in the worlds beyond the Atlantic until Europe reached out to explore, occupy and often devastate them. Those processes of colonialism and imperialism relied on and resulted in various geographical knowledges, of course, and the emergence of a postcolonial critique in human geography has helped recover some of those appropriations and erasures. And yet there has been far too little effort made to recover (for example) older Arab, Chinese or Indian traditions of geography.

This reminds us that there is no one Geography (with its own imperial capital G) either. Most orthodox histories of geographical inquiry have been directed towards its institutionalisation and formalisation, in which moments are clipped together like magnets until the present becomes the climax of the past, a 'proper' discipline that erases earlier mistakes and eclipses previous experiments. Geography is made to appear as the logical result of Science vanquishing fantasy and Reason triumphing over superstition, finally taking the place that had been allotted to it within the intellectual landscape. This is an odd sort of history as well as a dull one: courses in geography were taught in universities long before the modern creation of separate 'disciplines', and

many of the figures usually placed on pedestals as the principal architects of modern Geography displayed an intellectual range that was rarely bounded by a single field of expertise or interest. Consider a man like Alexander von Humboldt, who intended to join Napoleon's military expedition to Egypt in 1798 as a scientific observer but missed the boat and travelled to Spain's colonies in central and South America instead: his 30-volume account of his travels ranged from botany and zoology to history and political economy, and his magnum opus, *Cosmos*, promised nothing less than 'a sketch of the physical description of the universe'. Orthodox histories are inadequate for another reason: they provide 'internalist' narratives that focus on the inside of intellectual inquiry and rarely look at its outside, let alone wonder about the boundary between the two. Although they usually pay some attention to biography they are remarkably disinterested in history, in the wider currents in which Humboldt (and all the others) were caught up. There are important debates about the relations between knowledge and society, and while most writers would agree that these are not purely matters of choice, how they are to be theorised and analysed remains an open question.⁴ But it is hard to imagine making much sense of – or stimulating much interest in – the work of previous scholars without taking these debates, and the connections that they identify, with all possible seriousness. So it is reassuring to notice that those orthodox, cloistered histories have been unsettled by two moves. The first involves re-territorialising geography, and the second de-territorialising geography, and we need to think about each of them in turn.

To *re-territorialise* geography is to see geographical inquiry not as the progressive realisation of disembodied Reason but as the continuing product of shifting networks of social practices. This literally makes geography come alive: it means filling its pages with people who exist beyond the text, flesh and blood characters who animate intellectual inquiry as something more than a purely contemplative pursuit, sometimes competitive, at others collaborative (and usually both at the same time). Universities have never been ivory towers; they have always been caught up in the societies in which they are embedded. Scholars respond to events and situations in different ways, sometimes swept along by the tides of history, sometimes riding the waves (or commanding the tides to retreat), but almost always involved. This doesn't mean that we can reduce a text to its context, but it does require us to think about the ways in which discoveries, ideas and claims emerge out of particular situations. This isn't confined to Geography, of course, but the realisation that all knowledge is situated – that it is produced or reworked by somebody from somewhere – has an obvious special significance for a field that attaches so much importance to place and space. Human geographers have started to examine the different sites at which geographical knowledges have been produced – field sites, laboratories, libraries, archives, museums and a host of others – and the reciprocal relationships between these spaces and the social practices of knowledge production that take place there.⁵ None of this

need make geographical knowledge parochial; it may be marked in all sorts of ways by context and circumstance, but knowledges do travel – sometimes aggressively, under the banners of colonialism and imperialism, sometimes in a spirit of collaboration or solidarity – and they rarely survive the journey intact. They are examined on arrival, re-made and put to work in different contexts and different circumstances. In short, there is always a restlessness to our knowledge of the world. It may settle for a time in places where it is stored – hence the importance of libraries, archives and what are sometimes called ‘centres of calculation’ – but it is also usually mobile, especially in our liquid world, moving through changing circuits and pathways, sometimes openly, and sometimes furtively.

Once we start to think about knowledge like this, it's really a small step to *de-territorialise* geography and to release the history of geographical knowledge from the confines of any one discipline. Geographical knowledge has always been produced at multiple sites and circulated through multiple networks.⁶ Some of this is more or less formal. The list of organisations that keep an eye on the world as part of their standard operating procedure is endless. The United Nations, the World Bank and NATO; departments of government, militaries and intelligence agencies; major oil companies, banks and transnational corporations; non-governmental organisations like Human Rights Watch, Oxfam and Save the Children; print, TV and online news organisations: they are all producers and consumers of geographical knowledge. But this can be expressed in other, less ‘data-driven’ forms too. Advertisements, art, film, literature, magazines, music, video: all of these are media through which other imaginative geographies are created that shape our sense of places and people around the world. ‘Academic’ geography spirals in and out of all those sites and networks too, so that the production of geography is, by its very nature, all over the place.

And yet some knowledges are typically privileged while others are marginalised or even ignored. Sometimes this is a matter of style rather than substance: for example, research in spatial statistics may be seen as central to geographical inquiry by some practitioners, while travel-writing may be rejected as the impressionistic work of the amateur. Sometimes, and rarely unconnected, it is a matter of what is called ‘positionality’: for example, indigenous or subaltern knowledges are often discounted in order to promote particular versions of ‘Science’ or ‘Development’. And sometimes texts are cast as heroes or villains. The standard accounts of human geography in the English-speaking world today usually measure their distance from two milestones (or millstones): Richard Hartshorne's *The nature of geography* (1939) and David Harvey's *Explanation in Geography* (1969), and we need to consider each in turn.

Hartshorne was an American political geographer who had left the United States in July 1938 for Germany, intending to spend his sabbatical leave studying the political geography of the Danube Basin. But his plans were

thrown into disarray by Hitler's geopolitical ambitions. Hartshorne arrived four months after Nazi Germany had annexed Austria as part of the Third Reich, and he retreated to the library at the University of Vienna to complete a draft historical-cum-philosophical essay that he had taken with him. This grew into a major book that offered a rigorous prescription for Geography as a discipline.⁷ It is of interest for four reasons. First, Hartshorne's history of geography was ruthlessly selective: he was determined to establish a continuous intellectual tradition – what he called geography's 'continuity of life' – that would at once identify the legitimate line of intellectual descent (so that professional geographers could 'keep on the track') and renounce its bastard children: 'deviations from the course of historical development.' His was not a disinterested history, then, but history with a purpose, a normative history. In Hartshorne's telling it was a story that privileged German writers. One of his heroes, Alfred Hettner, had declared that 'Geography is a German science', and Hartshorne readily agreed: 'the foundation of geography as a modern science was primarily the work of German students.' Other stories are possible, but many of those written after Hartshorne (and often against him) still insisted that modern Geography had its origins as a distinctively European science.⁸ Second, Hartshorne's purpose was to confirm Geography as a distinctive discipline, different from (say) Botany or Geology, Economics or Sociology. He drew on a distinction made by the philosopher Immanuel Kant between 'logical classifications', which direct our attention to formal or functional similarities between things, and 'physical classifications' that direct our attention to the co-existence of things in time or space. In Hartshorne's view, logical classifications formed the basis for the systematic sciences, which included Biology and Geology, Economics and Sociology, while physical classifications were the foundation for what he saw as the 'exceptional sciences' of History and Geography. The unique object of geographical inquiry was thus the region, the assemblage of things found together in the same space, and the discipline's task was to account for the differences between one region and another, which Hartshorne called 'areal differentiation'.

This is routine stuff for histories of Geography, but it begs a critical question, and this is the third reason why his work is significant: given the circumstances in which Hartshorne set out these ideas, how on earth was it possible for a political geographer (of all people) to withdraw so completely into the world of books – and to reduce Geography to a succession of texts – whose pages were unmarked by the monstrous events taking place all around him? There is little doubt that Hartshorne was deeply affected by what he saw; he wrote of his good fortune in conversing regularly with a professor at the Geographical Institute in Vienna who 'was permitted to do research but not to teach' because his wife was Jewish, and recorded their fundamental agreement over 'basic political and human issues in the irrational world of Nazi Germany.' And he was certainly not indifferent to the rise of fascism; in

1941 Hartshorne was summoned to Washington to form a Geography section in what would eventually become the Office of Strategic Services, supervising the production of vital intelligence for the war against the Reich and its allies.⁹ The clue is in the word 'irrational'. Hartshorne turned away from the desperately contested, acutely physical borders between states in a Europe on the brink of war to plot ones that were idyllic and imaginary: borders between disciplines that would reveal an enduring rational order in a world rapidly descending into madness. In doing so, Hartshorne not only declared his belief in Geography as a pure, objective Science but also his faith in a radically different German intellectual tradition to the debased fantasies being peddled by the Nazis. If this interpretation can be sustained, then it confirms that texts cannot be reduced their context in any simple or direct fashion. In this case, the context in which Hartshorne sketched out his ideas is present in the text through its absence.

There is a fourth reason for returning to Hartshorne's work. Thirty years later *The Nature of Geography* was the object of Harvey's critique in *Explanation in Geography*.¹⁰ Others had disagreed with Hartshorne before, notably the American cultural geographer Carl Sauer who had objected to the barriers Hartshorne installed between history and geography. To Sauer this was the 'Great Retreat', and the hybrid 'historical geography' was not a mutant but a vital mode of inquiry. Harvey would not have disagreed since he had been trained as an historical geographer. But like many others of his generation he rejected the view, which was common to both Hartshorne and Sauer (though in different ways), that the distinctiveness of geography was to be found outside the mainstream scientific tradition. Rather than turn to a disciplinary history to provide his warrant – not least because he was part of a movement that sought to break with the discipline's past: the so-called 'Quantitative Revolution' – Harvey turned to Philosophy and specifically the philosophy of science. In his view, a properly scientific geography had to use 'the standard model of scientific explanation' derived from the physical sciences. Its distinctive object would be (planetary) space not the region – Harvey insisted that space was 'the central concept on which Geography as a discipline relies for its coherence' – and its distinctive method would then be spatial analysis. In fact, Hartshorne had also described Geography as a 'spatial science', but his was a remarkably limited conception that treated each region as unique and required it to be analysed through an idiographic approach that promised a full understanding (usually an inventory) of the elements assembled within each distinctive regional constellation. This ruled out the prospect of generalisations, whereas Harvey's contrary view was to insist on the active search for a spatial order – a 'spatial structure' – existing beneath all these surface variations that could then be explained through generative processes. Seen like this, Geography was to be a consciously theoretical project: in Harvey's words, 'By our theories you shall know us.'

The backdrop to the Quantitative Revolution and Harvey's summation of its philosophical basis was more than an argument about the direction of the discipline. The 1960s were a time of principled social protest on both sides of the Atlantic: civil rights marches in the United States, rallies and demonstrations against the Vietnam War, struggles for political freedoms behind the Iron Curtain, student demonstrations and sit-ins across Europe and the Americas, the anti-apartheid campaign, the rise of the environmental movement, the continuing march of the women's liberation movement, and the rise of the gay rights movement. As *Explanation in Geography* appeared in print at the very end of that turbulent decade, Harvey moved from Britain to the United States where he embarked on a determined attempt to bring about what he would later call a (new) 'revolution in geographical thought'. Dismayed by what he now saw as the poverty of spatial science, he criticised the 'clear disparity between the sophisticated theoretical and methodological frameworks we are using and our ability to say anything really meaningful about events as they unfold around us.' This was a bold challenge to both the 'objectivity' demanded by Hartshorne and the objectivism of spatial science. Instead, Harvey proposed a radically new, politically engaged human geography. The project was new partly because it was an activist rather than merely an 'applied' geography; spatial science had forged all sorts of links between human geography and urban and regional planning but these were largely instrumental, 'expert knowledges' that were directed at policy rather than politics. It was new too because Harvey sought its foundation in historical materialism, which he claimed provided not only the analytical depth missing from spatial science but also a spur to political action. The radical geography he advertised in *Social Justice and the city* (1973) was not a purist philosophical venture: as Karl Marx insisted – the sentiment is engraved on his tombstone – 'philosophers have only interpreted the world in various ways; the point is to change it.' Harvey's early engagements with classical Marxism were exuberant but unformed, and he would devote the rest of his career to a closer reading of Marx and to the construction of what he came to call historico-geographical materialism.¹¹ As this suggests, space remained one of his central concerns, but it was now conceived in a different way: if, as Marx argued, capitalism should be theorised as a mode of production then it was essential to see that it produced not only commodities but also space.

Philosophies and Politics

We will return to these claims later. For now, Harvey's trajectory provides a template to gauge two other important developments. First, not all human geographers shared his impatience with philosophical exploration. Many of them endorsed his critique of spatial science but suspected that the root of the problem was the philosophy of science on which the Quantitative Revolution

appeared to rest: positivism. This was perhaps premature; few of those who developed its first- or even second-generation spatial models and dreamed of what Peter Haggett, another British geographer, once called 'a general theory of locational relativity' had been much interested in philosophy, and Harvey's attempt to provide a philosophical warrant for *Explanation in Geography* had come late in the day. In fact, 'positivism' didn't even appear in the index. But there was more than a family resemblance between spatial science and positivism: the privilege given to empirical observations ('the facts'); the obsession with hypothesis testing; the search for an order of things that could be enshrined in general laws that in principle could even unite physical and human geography; and the belief in neutral, value-free inquiry. Each of these could be challenged, and – like many social sciences – human geography was soon caught up in a sustained exploration of post-positivist philosophies. There was a dazzling parade of –isms and –ologies through the discipline, each one accompanied by a considerable fanfare. The largest crowds were attracted by phenomenology, (critical) realism, structuralism and post-structuralism. The only one of these that retained an affiliation with something approaching 'the scientific method', or at least one that would be recognised by physical scientists, was realism. Most of its architects were philosophers of science, and its emphasis on providing causal explanations (rather than establishing correlations) gave a new impetus to empirical work in many areas of human geography.¹² In some of its forms phenomenology also had a close relation to science, in so far as it sought to criticise science's 'natural attitude' in order to disclose the way in which the objects of its inquiries were brought into view. In doing so, however, it ranged far beyond the natural sciences and the social sciences that aped them; so too, in different ways, did structuralism and post-structuralism.

In human geography most of these philosophies (the exception is the cluster of approaches grouped under post-structuralism) were used, as often as not, to replace one foundationalism – positivism – with another. In other words, they sought to establish a secure and certain foundation for claims to knowledge. The cardinal assumption was that Philosophy, what American philosopher Richard Rorty called 'Philosophy-with-a-capital-P', occupied a special vantage point from which to lay down the rules and issue instructions for the conduct of substantive inquiries to be carried out by underlabourers in other fields. Rorty was deeply sceptical about this assumption (in fact, he was wonderfully rude about it). Of course, Philosophers are not the only pretenders to the throne, and Rorty also listed the Party, Priests, Physicists and Poets, all surrogates for larger political and cultural formations. Harvey, for all his impatience with philosophising, retains a strong faith in foundationalism and repeatedly distinguishes the 'surface appearance', 'froth' and disorder of things from the invariant laws and logics of capital accumulation that drive those transformations. But Rorty was a philosopher and so he took Philosophy as his exemplar. In his view, Philosophy can never provide a single, canonical

language into which all questions can be translated and in whose terms all disputes can be resolved. Those who think it can, he said, simply fail to take language seriously. Feminist scholar Donna Haraway – whose first book was on metaphors in twentieth-century biology and who evidently takes science rather more seriously than Rorty – agrees. In one of her most celebrated essays she calls this ‘the God-trick’, the claim to see everything from nowhere in particular. What it conveniently ignores, she argues, is the worldliness of intellectual inquiry: the fact that all knowledge is situated, so that there is no position from which to freely and fully observe the world in all its complex particulars. All our knowledges provide partial perspectives, and acknowledging this is not a barrier to objectivity but the very condition of it because only then, through dialogue with others, can we start to understand how limited our own views are.¹³

Rorty and Haraway are helpful guides, because they suggest why the relationship between philosophy and geography slowly changed. At least since Hartshorne the modern terms of exchange had enforced a monologue in which Philosophy dictated and Geography obeyed, but this has given way to something much more like a conversation. Today philosophy is increasingly treated as resource rather than writ, used to inform rather than police inquiry. The parade of –isms and –ologies has been dismissed, to be replaced by an interest in the writings of particular philosophers whose interventions spiral far beyond the philosophy of science to address urgent questions of political and moral philosophy. Indeed, the work of philosophers like Giorgio Agamben, Alain Badiou, Judith Butler, Gilles Deleuze, Jacques Derrida or Michel Foucault spirals far beyond philosophy too, and human geographers have found in their writings inspiration for their own investigations of the human and the non-human, subjectivity and spatiality, power and violence, gender and sexuality and a host of other substantive issues. At its best, this is not about ‘applying’ their insights but reading their texts at once closely and creatively.

We may seem to have travelled far from Harvey’s corpus, but in fact we have circled back to it because a second development from the baseline of *Social justice and the city*, which the engagement with political and moral philosophy illustrates, has been to widen the political and ethical address of human geography.¹⁴ Harvey’s project has been animated, above all, by a strong sense of class politics, and although he has addressed other axes of oppression and discrimination these have always been secondary. But other human geographers have insisted that there are multiple forms of injustice that cannot be reduced to class or convened within the plenary discourse of historical or even historico-geographical materialism. Two braiding streams of research are particularly important: feminist geography and postcolonial geography, both influenced by various forms of post-structural thought. We now have a far richer understanding of the ways in which race, gender and sexuality are embedded in and reproduced through places and landscapes,

but feminist geography and postcolonial geography have also shown how discriminations are reproduced in – and legitimated through – geographical knowledges. Feminist geographies have posed a major challenge to the assumption that knowledge claims derive their authority from being universal and somehow gender-free; they have shown to the contrary that conventions and concepts, theories and methods – the working practices of the academy and most other sites of knowledge production at large – have worked to advance particular, gendered ways of knowing (and being in) the world. These have typically privileged a highly restricted model of the masculine and used it to regulate – in fact to authenticate – what counts as reliable, acceptable or professional work.¹⁵

The various geographies written under the sign of colonialism have not been free from masculinism – think of the hideous ideology of ‘the white man’s burden’ – but their special effect has been to privilege the powers and knowledges that accrued to what today would be called the global North.¹⁶ During the long history of European colonialism and imperialism what Felix Driver calls ‘geography militant’ functioned not only in a directly practical sense to advance occupation, dispossession and appropriation – surveying territories, compiling resource inventories and the like – but also in an epistemological sense to situate ‘Europe’ at the centre of the advance of rational knowledge. If modern Geography was indeed a European science, as many of its historians claim, it was also a profoundly Eurocentric one.¹⁷ Eurocentrism was never a static enterprise, and in the course of the long twentieth century it was transformed into a sort of ‘Euro-Americanism’ that will surely be disrupted though not necessarily displaced by the resurgence of Asia in the twenty-first century. But even before it assumed today’s hyphenated form, Eurocentrism was divided internally (so that British, French and German colonialisms were distinct and rival enterprises, for example) and it assumed different forms in different places. One of its most pervasive and pernicious versions was Orientalism, in which European and later American politicians and generals, writers and artists constructed ‘the Orient’ as at once an exotic and bizarre space, at the limit a monstrous and pathological space – what Edward Said famously called ‘a living tableau of queerness’ – and as a space that had to be domesticated, disciplined and normalized – straightened out – through a forceful (imperial) imposition of the order it was supposed to lack: ‘framed by the classroom, the criminal court, the prison, the illustrated manual.’¹⁸ Again, this matrix was infinitely divisible: there were multiple ‘Orients’, from the ‘Near East’ and the ‘Middle East’ to the ‘Far East’. Other places and other peoples were the subject of other imaginative geographies, notably primitivism and savagism for indigenous peoples in sub-Saharan Africa, the Americas and the Pacific archipelago. Other natures were also enrolled in the project, and both scientific and non-scientific discourses (including art and travel writing) worked to normalise temperate nature as ‘normal’ nature: ‘all that is modest,

civilized, cultivated'. In particular, the discourse of tropicality constructed 'the tropics' as a paradise of excess and abundance, a veritable Garden of Eden, or as a rotting, fallen nature: the distance between Gauguin's Tahiti and Conrad's Congo.¹⁹ Here, as is so often the case, talking about 'nature' was also a way of talking about 'culture'.

None of these constructions are creatures of the past: Orientalism helped to shape British geographer-politician Halford Mackinder's imperial vision of a 'heartland' in the early twentieth century, and it was reactivated in stunningly violent ways in the wars in Afghanistan, Iraq and elsewhere that were launched in the shadows of 9/11.²⁰ None of them is confined to human geography either, but feminist and postcolonial geographies, in addition to their other, vital contributions, draw our attention to the ways in which assumptions about what is normal – 'universal' – have been smuggled into our field to normalise a particular (and particularly limited) conception of the 'human' in human geography. The challenge is to recognise and resist the ways in which those assumptions also diminish everyday lives inside and outside the classroom and the lecture theatre.²¹

In enlarging its sense of the human in these and other ways, human geography has moved into an interdisciplinary space, which is where most disciplines now find themselves. This has perplexed some writers, however, who have returned to the quest for a disciplinary identity. This is, in part, a response to the changes that have taken place in post-secondary education and advanced research under contemporary neo-liberalism. In the not very brave new world of the modern corporate university the commitments of a critical human geography (like those of other disciplines) are put under a microscope whose lenses have been cut to reveal a highly particular vision of knowledge. Accountability contracts to accountancy, politics to policy, and the very idea of critique (except in the ultimately empty and supposedly marketable form of 'critical thinking') all but disappears. Once hailed, by geographers at any rate, as Geography's strength – its multiple allegiances to the sciences, social sciences and humanities – threatens to become a liability. If physical and human geographies look outwards and rarely at each other, physical geography to the earth, ocean and atmospheric sciences and to the biological sciences, and human geography to philosophy, political economy, sociology, history and literature, the administrative-cum-fiscal temptation to 'rationalise' and re-brand is not always easy to resist. Geography may not be coming apart at the seams, as Ron Johnston once feared, but there are always willing fingers prepared to unpick the stitches from the outside.²²

But the renewed debate over the nature of Geography – conducted in terms that Hartshorne would surely have enormous difficulty in recognising – is also driven by the sheer range of its inquiries and the demands placed upon its students by the theories, methods and practices that these involve. It is to these that we now turn.

Theories, Methods and Practices

Revolution and Transformations in Geography

Many writers have argued that the 'Quantitative Revolution' of the 1960s is better understood as a theoretical revolution. For them, its most significant and perhaps even lasting contribution was the emphasis it placed on theoretical work in contrast to the fact-grubbing geographies of the past: the regional inventories that were the ever-present corollary of Hartshorne's problematic of areal differentiation. The contrast is real enough, even if his critics would be surprised to learn that Hartshorne himself acknowledged the significance of select studies in location theory, including J.H. von Thünen's model of agricultural land use (in fact not so surprising in an exegesis of a German intellectual tradition, since German scholars had been prominent in the development of location theory). But it was never part of his vision of Geography as what he called, only in passing and in relation to astronomy, 'a spatial science'. After the Second World War the most advanced work in human geography was increasingly concerned with the development and substantiation of formal theory, notably central place theory and general models of the space-economy (Walter Christaller, August Lösch), industrial location theory (Alfred Weber), diffusion theory (Torsten Hägerstrand) and theories of urban residential structure (E.W. Burgess and Homer Hoyt).²³ These avowedly 'scientific' investigations were not peculiarly geographical preoccupations; all the social sciences were re-shaped by their service in the war, and the Cold War continued to influence and often to fund academic research.²⁴ In Geography, however, this was a sea change that repudiated Hartshorne's prospectus and replaced it with a self-consciously 'new' and emphatically modern geography. There was a degree of irony in this, because most of the theoretical bases for spatial science could be traced back to the pre-war years; the only exception in the list above is Hägerstrand (and even then much of his data came from the 1920s and 30s). The seductive post-war gloss was applied through new means of computation – including computers themselves, and also new modes of analysis including operations research – that were created or transformed during the war and considerably expanded the scope of mathematical and statistical analysis.²⁵

For many of those most closely involved in spatial science, it seems that quantitative methods were always a means to an end. They were seen as highly rigorous – a way of putting 'the' scientific method into practice – but also wonderfully suggestive. For if human geography was now about the search for spatial order, it was clear that spatial order was not immediately apparent to the casual observer but would have to be ferreted out using spatial statistics in an almost forensic fashion.²⁶ En route, however, some human geographers undoubtedly became so fascinated that they mistook the means for the end.

They successfully alerted their colleagues to a central dilemma of standard statistical inference, which assumes that observations are independent from one another – the search for spatial order is predicated on spatial dependence, which means that this assumption is violated in the domains of most geographical interest – and in doing so made major contributions to the mathematics of spatial autocorrelation.²⁷ But whether these technical achievements increased the explanatory power of available spatial theories was another matter entirely. And it was theoretical power that was supposed to be decisive: remember Harvey's injunction, 'By our theories you shall know us.' This was at once an argument about the distinctiveness of geography – although what a purely 'geographical' theory might be remained unanswered – and about the elevation of theory over method: hence the retrospective re-coding of the Quantitative Revolution as a theoretical revolution.

But we need to add two riders to this reading, one about quantitative methods and the other about theory itself. In human geography the excesses of spatial modelling, which were most visible in the various point-process models (Poisson, negative binomial and the rest) that were used to generate spatial patterns and distance-decay curves, resulted in a growing conviction that, as Gunnar Olsson put it, 'our statements often reveal more about the language we are talking *in* than the things we are talking *about*.' Like Harvey, Olsson had been part of the avant-garde of spatial science, but the two friends were now drawing a distinction (in different ways) between the abstract regularity of spatial form – the isotropic planes and hexagonal grids of spatial science – and the turbulent dialectics of social process. 'In the realm of intentions, hopes and fears,' Olsson warned, 'two times two is not always equal to four.'²⁸ In his case, unlike Harvey's, the argument was driven by a continuing, astonishingly creative engagement with philosophy, but the narrower, more sober-sided critique of positivism licensed a general and no doubt premature withdrawal from quantitative methods altogether by many human geographers. It was also reinforced by Harvey's own, highly influential transition 'from models to Marx' and by the development of a range of other critical geographies that affirmed their distance from spatial analysis.²⁹ The newfound interest in human agency and the human subject seemed to demand radically other skills and sensibilities. The collective turn to all manner of qualitative methods proved remarkably fruitful (though these could not escape their Cold War shadows either) and explorations of ethnography, textual analysis and other interpretative approaches did much to re-humanise and radicalise a human geography that had become virtually eviscerated.³⁰ But the use of quantitative methods is not a diagnostic test for positivism, and the inability to interrogate large, complex datasets and tease out the relationships within them runs the risk of blunting the critical force of human geography.³¹ There is a crucial, reciprocal relationship between theory and data – as even hard-core social science approaches like EITM (Empirical Implications of Theoretical Models) recognise – and most human geographers would now probably agree that it is actively

unhelpful to oppose quantitative and qualitative methods or to see GIS as the work of the devil.³² But they would also insist that the sources and media with which they work are not limited to 'data'.

The situation is further complicated by changes in the theory used in human geography. For the most part standard location theory relied on a mix of psychology and economic theory – ideas about economic rationality and price signals, supply and demand schedules, and equilibrating markets – complemented (or confounded) by elementary theses about the 'friction of distance'. The critique of spatial science had many sources, but some of the earliest and most penetrating arguments took direct aim at its economic base by drawing upon radical political economy. These focused attention on capital accumulation and crisis formation, on the intersections between labour markets and housing markets, and on global processes of combined and uneven development that together established a problematic centred on the production of space under capitalism. As the agenda for critical human geography gradually became more extensive, however, other theoretical resources were tapped, and a second wave crested under the impetus of modern social theory.³³ Much of this was directed at explicating modalities of power that reached beyond the economic sphere – its sites included the state, the community and the family – but it too sought to elucidate the intrinsic spatiality of social life.³⁴ This second wave was not independent from the first – it was, in part, a critical response to it, but there was also a tradition of 'Western Marxism' that sought to extend historical materialism beyond the economic preoccupations of Marx and Engels, and human geographers discovered that Walter Benjamin, Guy Debord, Jürgen Habermas, Frederic Jameson, Henri Lefebvre, Nicos Poulantzas and a host of other writers had much to teach them – but the object of inquiry was now not only *capitalism* and its transformations (capitalism was a moving target: hence the distinctions between industrial capitalism and finance capitalism and, later, between Fordism and post-Fordism) but more insistently capitalist *modernity* and, eventually, the putative formation of the 'post-modern'. Here too there was what Edward Soja called a powerful 'reassertion of space in social theory'.³⁵

Both the first and second waves relied on theories that were markedly different from those of spatial science because, unlike the frozen lattices and equilibrium worlds of those early models, they described geographies in constant motion, where (as Marx put it) 'all that is solid melts into air' and where the contemporary 'space of flows' springs from a 'liquid' modernity. And yet, like spatial science, they were all marked by an extraordinary, almost imperial ambition. This was true in the more or less literal sense that these were all still Euro-American theories put to work to make sense of human geographies everywhere – there was still too little interest in what David Slater called 'learning from other regions'³⁶ – but they were also often so many versions of what is sometimes called Grand Theory. This was partly a matter of range, an architectonic impulse to construct a conceptual system that can reveal

the central generating mechanisms that produce the (dis)order of things, and partly a matter of style, an epistemological desire to master the world and domesticate its differences. Seen like this, these theoretical preoccupations and privileges became vulnerable to critiques from both feminism and post-colonialism.³⁷ In response, the advocates of postmodernism protested that their work displayed an acute sensitivity to difference – hence Michael Dear's insistence that 'there can be no grand theory for human geography!³⁸ – and that their research programme could rehabilitate 'areal differentiation' in a theoretically informed and politically charged fashion. But to many critics it was just that – fashion (or worse) – and Cindi Katz issued an eloquent plea for theory in a minor key that would refuse the theoretical allegiances demanded by such grandiose schemes and work instead in the awkward spaces-in-between different traditions. There would be no grand synthesis, no totalising vision, only the constant effort to understand and, where necessary, to un-do.³⁹ Similarly – but differently – Nigel Thrift argued that a more 'modest' form of theorising was necessary for human geography to avoid a 'theory-centred' style of research 'which continually avoids the taint of particularity', though several critics evidently regard his non-representational theory as another exorbitation of Theory (and a radical diminution of its political possibility).⁴⁰

In the course of these exchanges about method and theory another change came into view. Human geography had been one of the last fields in the English-speaking world to take Marx seriously (in contrast, for example, to Francophone geography). Many human geographers were excited by the prospect of deeper theorisations of the capitalist space-economy, and there was a considerable interest in the structural logics – what Harvey sometimes called the 'laws' – of the contemporary capitalist mode of production. Other human geographers were attracted by the historical sensibility of what was, after all, historical materialism, and their analysis of processes and dynamics was driven less by formal theory and more by the particularities of archival research. Political-economic theory flourished in a host of different forms, from regulation theory through analytical Marxism and beyond, but so too did an ostensibly more traditional cultural-historical scholarship inspired by the work of historian E.P. Thompson and cultural critic Raymond Williams. This too was theoretically informed and had affinities with some versions of social theory – when Thompson railed against 'the poverty of Theory' it was Grand Theory, and strictly speaking structural Marxism, that he had in his sights – but it was much closer to the humanities than to the social sciences. These currents flowed into a more general 'humanistic geography' that had many sources.⁴¹ Some of its practitioners were indifferent, even hostile to discussions of theory or method (and much more invested in philosophical speculation); their style was often particularistic but also individualistic, even idiosyncratic, and they relied as much on contemplation and reflection as analysis.⁴² Others were more analytical, and while they drew on social theory their work also harvested the resources of the arts and humanities.

This had major consequences. These allied fields were as theoretical in their sensibilities as the social sciences, but they were not characterised by any theoretical dominant: human geographers developed a keen appreciation of Michel Foucault *and* Edward Said, Jacques Derrida *and* Terry Eagleton, Roslayn Deutsche *and* John Berger. These enthusiastic readings intensified the heterodox nature of human geography. They opened its doors not only to the general admission of post-structuralisms of various kinds but also to the particular contributions of art history, literary theory and psychoanalytic theory to the analysis of core concerns like landscape, place and identity. This in turn has sustained new cross-fertilisations between human geography and the humanities. Artists, historians and literary scholars (among others) have come to recognise the critical potential in the conceptual and technical contributions of human geography – one recent collection even announces the emergence of the ‘geohumanities’⁴³ – and the American literary theorist Stanley Fish, reviewing these developments, has argued that ‘the humanities have been the victors in the theory wars; nearly everyone now dances to their tune.’⁴⁴ Not surprisingly, Fish emphasises the interplay ‘between a literary and a geographical vocabulary’, which has assuredly been important. It would be impossible to make sense of the conversations between human geography and (for example) postcolonial studies without a close reading of the contributions of literary scholars Edward Said, Homi Bhabha and Gayatri Chakravorty Spivak.⁴⁵ There is also a long and rather less theoretically informed history of human geographers fretting over what they used to call ‘the problem of geographical description’, which they understood as ‘the inherent difficulty of conveying a visual impression in a sequence of words’.⁴⁶ But, as that remark makes clear, a key term passed over by Fish is the visual: and it is perhaps here that the exchanges between the (other) humanities disciplines and human geography have been most energising.

Envisioning Human Geography

The philosopher Martin Jay described vision as the ‘master sense of the modern era’ – the gendering of the gaze is not incidental – and metaphors of sight constantly surface in our claims to know something: the emphasis on observation, on evidence (from the Latin *videre* meaning ‘to see), and the common use of ‘I see’ when we mean ‘I understand’. Visualisation is also hidden in the word ‘theory’ itself, which combines the Greek *thea* (‘outward appearance’) and *horao* (‘to look closely’). These are general features, but many writers have identified a special affinity between visualisation and the working practices of modern geography. This intimacy has been scrutinised in projects as outwardly different as Mackinder’s geopolitics – with its purportedly disembodied and detached gaze⁴⁷ – and spatial science, whose apprehension of ‘the world-as-exhibition’ separates observer and observed to produce the ‘perspective’ that

is supposed to guarantee objectivity and order.⁴⁸ Some of the liveliest interventions have focused on a number of human geography's central concepts – like landscape, which we discuss in the next section⁴⁹ – and on perhaps its most basic method: mapping.

Mapping is usually represented as a technical process, and the history of cartography as a journey from error ('here be monsters') to Truth. Seen like this, the modern map and the atlas become purely technical artefacts, the products of a carefully controlled and recognisably scientific process that combines topographical or geodetic survey with the mathematics of map projection. If the history of cartography was an invitation to measure – and marvel at – the accuracy and fidelity of the modern map, then reading the map was a technical exercise too, involving a knowledge of projections and scale, contours and symbols. The map itself was inert and innocent: you could read it or you couldn't, and apart from the manipulations of so-called 'propaganda maps' it could serve multiple purposes, from bombing cities to rebuilding them. This state of grace was interrupted by two interventions. The first, like the other initial de-stabilising encounters with the humanities, was largely historical. In several seminal essays historical geographer J.B. Harley sought to subvert 'the apparent naturalness and innocence of the world shown in maps'. He used a vivid series of historical vignettes to demonstrate the multiple ways in which maps were routinely enlisted in the service of political and economic power.⁵⁰ Harley's arguments sparked a firestorm of controversy, but they also licensed a new, critical history of cartography that was much more aware of the ways in which cartographic 'science' was a vehicle for the promotion of interests and ideologies. In his quest to 'deconstruct' the map Harley invoked both Derrida and Foucault, but his real strengths lay in historical inquiry rather than conceptual acrobatics, and even those who were sympathetic to his project (and there were many) remained sceptical about his theoretical gestures.

Partly in consequence, the second intervention was more rigorously theoretical but also, as it happened, directed squarely at the present rather than the past. This involved a searching interrogation of what was called 'cartographic reason', which had two entailments. On one side maps fixed a capricious world and represented it as a stable and ordered totality, while on the other side they were 'performative' so that, under specified conditions, they had the power to produce the effects they named: mapping, wrote John Pickles, 'even as it claimed to represent the world, produced it.'⁵¹ This may seem frustratingly abstract, but in William Boyd's novel *An Ice-Cream War* there is a marvellous passage that speaks directly to these propositions. During the First World War a young English officer is posted to East Africa, where his regiment is ordered to attack a detachment of German colonial troops. The mission is meticulously planned on a map, but when he and his comrades plunge over the side of the troopship and wade ashore they find themselves in a terrifying, perplexing battle for which they were almost wholly unprepared.

'Gabriel thought maps should be banned,' Boyd writes; 'they gave the world an order and a reasonableness which it didn't possess.' This is an instructive example because it also directs our attention beyond the map: 'mapping' is not something that lies wholly behind the map, the historical process that culminates in its production, because mapping is also 'beyond' the map, what happens every time we interact with and through a map.⁵² This shifts the focus from the map as a technical object or a cultural representation to maps as practices. Rob Kitchin and Martin Dodge capture this change when they insist that 'maps are of-the-moment, brought into being through practices (embodied, social, technical), always remade every time they are engaged with.' On their reading, then, 'maps are transitory and fleeting, being contingent, relational and context-dependent.' In short, 'maps are practices – they are always mappings. . .'⁵³ This realisation turns cartography into something more than a means of representation; it becomes a medium of critical, political intervention. Human geographers, artists and others have collaborated in a range of projects – the Counter Cartographies Project, the Atlas of Radical Cartography and a host of others, many of them online – that continue and rework a tradition that can be traced back to the modernist cartographic experiments of the Situationists in the early twentieth century. What they have in common is the recognition that the map can be not only the *object* of critique but a *means* of critique.⁵⁴

These developments have been closely aligned to human geography's deepening engagements with other visual media – from those that have long been part of the modern geographical repertoire (photography, satellite and remotely sensed imagery) to those that have only more recently attracted the attention of human geographers (television, film, video)⁵⁵ – and, in tandem, to the interest in what Gillian Rose calls 'a critical visual methodology' that 'thinks about the visual in terms of the cultural significance, social practices and power relations in which it is embedded.'⁵⁶ Central to all of this has been a vital distinction between vision as a biological-physiological capacity – which naturalises vision – and *visuality* as a culturally or techno-culturally mediated way of seeing. This distinction does not reduce visualisation to techno-culture; on the contrary, questions of embodiment and corporeality – the refusal of the disembodied eye and the unmarked gaze – are focal to this way of thinking about human geographies. So too is the sociality of seeing, so that perspective, in its literal or metaphorical senses, is not the individual construction of an isolated observer.⁵⁷

If seeing is no longer taken for granted, and human geography is now exploring different theories and different methods that can illuminate what happens through different visual practices, it is also clear that 'seeing things differently' is what all our theories and methods claim to do: they promise to disclose things we hadn't seen before, to reveal relations and consequences we hadn't noticed. This was the promise of spatial science and it remains at

the heart of critical human geography. The difference is that we now know that seeing is never innocent and, from Haraway and others, that there is no single point of overview – no Archimedean point – from which the world can be ‘objectively’ disclosed as a fully transparent space. If our theories and methods establish spaces of constructed visibility, these are also always spaces of constructed *invisibility*. The price of seeing *this* is not to see *that*. And yet most human geographers would be reluctant to limit their work to contemplation. Teaching and research are also ways of intervening in the world, of ‘making a difference’ or electing not to, and this activates another sense of vision: the image of a future and somehow better world, which requires us to think again about questions of theory, method and practice. Practice here carries a profoundly political and ethical charge. For if we do not *care* about the world – if we treat it as merely a screen on which to display our command of Technique or as a catalogue that furnishes examples of our Theory – we abandon any prospect of a genuinely human geography. We do not want to be misunderstood: of course theories and methods are important, but it is simply wrong to encounter the world and render it in such exorbitantly and exclusively instrumental ways. Just like the extremists of spatial science, this is to mistake the means for the end.

Human geographers have made political and ethical interventions in a number of ways. ‘Applied geography’ has a long history, which has been transformed through contracted research for private and public interests and the involvement of human geographers in the formulation and assessment of public policy. These are muddy waters; some practitioners have despaired at the abstract elaboration of Technique or Theory as a studied disengagement from the messiness of the world, while others have challenged the normative claims that are covertly advanced through the ‘application’ of techniques and theories.⁵⁸ Here, as elsewhere, human geographers have to negotiate the various interests that shape their claims to ‘expert knowledge’.⁵⁹ This has prompted some of them to work outside the privileged worlds of the state, the corporation or the think-tank, and to engage instead in research with non-profit, non-governmental organisations and with disadvantaged or marginalised groups. They seek to lend their voice to those who are often denied a voice, but they also learn from them as well as about them in a collaborative, participatory process of making human geography.⁶⁰ Others have preferred to engage in, even to provoke public debate about matters of urgent political, economic, social or environmental concern. At the start of the twenty-first century the President of the Association of American Geographers lamented that ‘critical geographical perspectives and ideas are largely missing from public discussion of issues and events.’⁶¹ What a difference a decade makes. Human geographers are now actively involved in the production and circulation of ‘public geographies’ that reach far beyond the academy and, in doing so, they are involved in the simultaneous production of the spaces and publics that compose the public sphere.⁶²

Space, Place and Landscape

Enlivening Space

The production of geographical knowledge has always involved claims to know terrestrial space in particular ways. Historically special importance was attached to the power to fix the locations of places, people and physical phenomena on the surface of the Earth and to represent these on maps. But, as we have just seen, the capacity to 'write' the earth in this way – the literal meaning of 'Geo-graphy' is 'earth-writing' – is not a purely technical affair because it is always implicated in the production of particular constellations of power. The relations between power, knowledge and geography animate contemporary discussions of a series of concepts, including place, landscape, region and territory, which have a direct bearing on how we understand the spatiality of life on Earth. Two general debates frame those more particular discussions.

First, several writers have treated the nineteenth century as the epoch of time and the twentieth century as the epoch of space. This could mean many things, but it has usually been taken to address imagination (an accent on time in the work of major nineteenth-century philosophers and artists, for example) and substance (an aggressive preoccupation with geopolitics in the twentieth century, for example). The contrast between the two can be traced to a remark Foucault made in a lecture in 1967 – 'the great obsession of the nineteenth century was, as we know, history', whereas 'the present epoch will perhaps be above all the epoch of space'⁶³ – and several commentators later claimed, with a confidence that one might have expected Foucault's conditional 'may' to have qualified, that as the modern gave way to the postmodern so critical social theory was compelled to recognize (or, as Edward Soja preferred, to 'reassert') the intrinsic spatiality of social life. The distinction is deceptively simple; the high modernism of the 1950s and 60s, particularly in the United States, privileged change and transformation, and its functionalism planed away all local particularity, but the modernisms of the late nineteenth and early twentieth centuries, especially in Europe, were by no means silent about space.⁶⁴ Be that as it may, other writers have traded on global changes in communications and financial infrastructures to advance the opposite view, announcing the contemporary 'death of distance' and the imminent 'end of geography' in the same late, liquid or postmodern world: as Thomas Friedman put it in his 'brief history of the twenty-first century', 'the world is flat'.⁶⁵ This too is deceptively simple – in fact simply wrong – because it advances and celebrates a model of globalisation that ignores the constitutive relations between power and space.⁶⁶ This group of writers has noticed the process that David Harvey calls time-space compression – echoing Marx's account of the 'annihilation of space by time' under capitalism – but failed to recognise its inherent variation: combined and uneven development is not an accidental

by-product of capitalism but rather inheres in the very structures through which it reproduces exaction and inequality.⁶⁷ The 'flattening' of the world is about more than the almost frictionless mobility of capital, information and commodities, and the no less oiled movement of executives, tourists and even troops from the privileged zones of the global North. Mobility is differentiated, and elsewhere people are violently displaced by flood, famine and war: as Bhabha has it, 'the globe shrinks for those who own it', but 'for the displaced or dispossessed, the migrant or refugee, no distance is greater or more awesome than the few feet across borders or frontiers.'⁶⁸ Like Mark Twain's, reports of the death of distance have been greatly exaggerated. William Gibson, who devised the term 'cyberspace' in the 1980s and who has an acute awareness of the transformations Friedman and others fetishise, has often claimed that 'the future is here – it's just not evenly distributed yet.' The point has been sharpened by accounts of globalisation that are closely attuned to its powers of destruction as well as creation, and invested in elucidating its complex and compound geographies.⁶⁹ In short, the debate over whether 'space matters' depends very much on how space is conceptualised.

The second debate follows directly from the first and concerns the 'nature' of space. Many writers inside and outside human geography have treated planetary space as either a framework within which social life happens or as the terrain on which human history unfolds. One represents space as an empty and unchanging grid of mutually exclusive points within which objects exist and events occur. This 'absolute' conception of space provided the basis for the system of areal differentiation that Hartshorne devised in *The nature of geography*, and its coordinate system is translated directly into the conventional map. The other treats space as the physical stage for the drama of human history, in which geography is assigned the task of painting the scenery without being drawn into the action. When Paul Vidal de la Blache, one of the founders of the French school of human geography, protested that 'the stage itself is alive', he had in mind a dynamic 'nature' on which 'culture' would work over the course of human history to produce a distinctive region. Either way, space was treated as what Foucault called, in that same 1967 lecture, 'the dead, the fixed, the undialectical, the immobile.' Against these views is a torrent of research in human geography that proposes a much livelier conception of space. It focuses on space not only as the outcome of social and biophysical processes, a commonplace of human geography, but also as the medium through which they take place. This is a radical reformulation of the geographical prospectus, for if space is involved in both the *outcome* and the *operation* of social and biophysical processes, then we can make sense of what some commentators (inside and outside geography) have seen as a 'spatial turn' across the spectrum of the humanities and social sciences, and even beyond.⁷⁰ The fact that we inhabit a world in which things and events are distributed in time and space is not an elementary observation of no great consequence, something that sometimes makes drawing a map or describing the

context useful: it becomes central to our apprehension and explanation of the world.

We begin with three basic propositions about the 'enlivening' of space, which we'll then use to examine the reformulation of the attendant concepts of place and landscape, region and territory.

First, time and space are now theorised and analysed conjointly. Most human geographers have abandoned the project of an autonomous science of the spatial, rejected conceptions of space as the fixed and frozen ground on which events take place or processes leave their marks, and now work with concepts of *time-space*.⁷¹ This project has taken many different forms, from a 'time-geography' that not only narrates but visibly choreographs the ways in which time and space are woven into the conduct of everyday life, through placing a revived historical geography at what Cole Harris calls 'the heart of a reconstructed human geography', to the development of the far wider field of historico-geographical materialism.⁷² These and other developments all signal a decisive reversal of the 'Great Retreat' that so perturbed Sauer. Like him, historical geographers have long believed that 'all geography is historical geography' – the phrase can be traced back to Derwent Whittlesey and H.C. Darby⁷³ – but this is a radically different historical-geographical scholarship, less defensive about its disciplinary identity and with a far more developed sense of theoretical, methodological and political possibility.

Second, this has directed attention towards the *co-production* of time and space. Time-space is not an external grid that enframes and contains life on Earth, but is folded into the flows and forms of the world in which we find ourselves. This is the basis for time-geography, in which time-space is conceived as a 'resource' on which individuals must draw in order to realise particular projects. In doing so they reproduce or transform the differential relations of power that enable or constrain their freedom of movement, and they do so by performing a 'place ballet', what Hägerstrand – the Swedish originator of time-geography – called a 'weaving dance intime and space' that is also a dance of time-space. In its original form this was all rather skeletal – Anne Buttimer described the formal time-geography diagrams as a *danse macabre* – but in the creative hands of Allan Pred it becomes clear that the folding of time-space into social life can be conveyed through a narrative that owes as much to the arts and humanities as it does to the social sciences.⁷⁴ Similar ideas reappear in historico-geographical materialism.

One of Harvey's cardinal achievements was to demonstrate that capitalism's production of space is not incidental to its production of commodities, so that any viable political economy must incorporate the turbulent spatialities of production and circulation as a central dimension of its critique.⁷⁵ But, as Noel Castree emphasises, Harvey's project is simultaneously an historical and a geographical materialism, and the hyphen joining them is called upon to do a considerable amount of work. Harvey insists that capitalism 'is not a system whose operation occurs *in* space and *through* time, as if these

were empty matrices waiting to be filled with the diverse products of human activity'; instead space and time are 'co-constituted' and, as Castree puts it, capitalism 'is spatio-temporal "all the way down"'.⁷⁶ None of these authors can be assimilated to a single project – remember the heterodoxy of human geography – but Hägerstrand and Pred, Harvey and Castree bring in to view the stubborn materialism of these ways of thinking about time-space. This is not the airy stuff of philosophical speculation (though it can be); these are all attempts to capture the sheer physicality of human geographies.⁷⁷ In a similar vein, Nigel Thrift proposed the idea of 'spatial formations' to convey a sensuous ontology of practices and encounters between diverse, distributed bodies and things. This is closer to Hägerstrand than Harvey, because it operates through an analytics of the surface rather than the depth-models of mainstream Marxism, yet here too time-space is not apart from the world (which would be another version of the God-trick) but emerges as a process of continual co-construction 'through the agency of things encountering each other in more or less organized circulations'.⁷⁸

Third, human geographers are now much more willing to accept the *unruliness* of time-space. Most of them would probably agree that spatial science and conventional social theory made too much of pattern and systematicity, labouring in different registers to solve what they called 'the problem of order', without recognising the multiple ways in which life on Earth evades and exceeds those orders. They were both attempts to order what is now most often seen as a partially ordered world – to tidy it up. As the philosopher A.N. Whitehead warned, 'Nature doesn't come as clean as you can think it', and it is in this spirit that much of human geography is increasingly exercised by the ways in which the coexistence of different time-spaces perturbs, disrupts and transforms the fields through which social and bio-physical processes operate. To be sure, time-space is not infinitely plastic: 'certain forms of [time-]space tend to recur,' Rose reminds us, 'their repetition a sign of the power that saturates the spatial.'⁷⁹ And yet, while modalities of power often work to condense particular spatio-temporalities as 'natural' outcomes through architectures of surveillance and regulation, Doreen Massey insists that time-space is not a coherent system of discriminations and interconnections, a grid of 'proper places'. She argues that it necessarily entails plurality and multiplicity. Hence spatial formations for her involve (and invite) 'happenstance juxtapositions' and 'accidental separations', so that time-space becomes a turbulent field of constellations and configurations: a world of structures and solidarities, disruptions and dislocations that provides for the emergence of genuine novelty.⁸⁰ 'Emergence' is not necessarily progressive or emancipatory, of course, and the argument may also be put in reverse: contemporary spaces of exception trade on paradoxical orderings of space whose very ambiguity is used to foreclose possibilities for political action. Either way, however, far from space being 'the dead', it is now theorised as being fully involved in the modulations of tension and transformation.

You might think that all of this returns us to Hartshorne's region, and the 'physical classifications' that enclose the co-existence of things in time or space. But if you re-read our last three paragraphs you will see that this is a return with a difference. Geography is no longer ruthlessly partitioned from History; time and space are no longer absolutes but defined in relation to people, events and objects, and these are not located 'in' time and space but enter into the co-production of time-space; and 'physicality' now carries a much livelier, more sensuous charge.

Reclaiming Conceptual Spaces

These developments can be traced in the genealogies of other spatial concepts, but these have their own particularities too. During the heyday of spatial science place and landscape were relegated to the margins of human geography while concepts like region and territory were reduced to abstract geometries. 'Place' was marginalised because it was seen as subjective, a jumble of attachments that was not immediately susceptible to scientific analysis; all a human geographer could do was describe a place in all its particularity. Some certainly saw this as a higher calling, and early humanistic geography became deeply invested in the meaning of place and its more or less literary evocation. But this often congealed into a conservative, romanticised sense of place. 'To be human,' Edward Relph declared, 'is to live in a world that is filled with significant places: to be human is to know your place.' This sense of attachment, of belonging and feeling at home, was supposed to be affirmative, and many writers including Relph endorsed what Yi-Fu Tuan called 'topophilia' (love of place) and gave grateful thanks for its distance from 'placelessness' and the homogenised 'non-places' of the modern world (malls, airports, hotels).⁸¹ On this reading, 'place' denoted an older, slower, more authentic world: a still point in the now spinning spaces of modernity. More recent writings have troubled these constructions. Places are inhabited by multiple, conflicting meanings. People may refuse to 'know their place'; they may transgress the codes that regulate a place, or they may take back places that have been taken from them or to which they have been denied access.⁸² For everyone who feels at home, comfortable and safe in a place, there are others who feel lost, frightened and vulnerable. Places can excite pleasure, security and affection, but also pain, fear and revulsion, and all of them can invest places with profound and contradictory meanings. In these ways, place is bound in to both the play of power and the construction of identities – so that there is a doubled politics of place and identity⁸³ – and the erasure of a place can have traumatic consequences for those whose lives are affected.⁸⁴ Places, like identities, are always in the process of becoming, and at the limit many human geographers now treat place *as* process.⁸⁵ In doing so, they have come to see places as almost always impure, not tightly bounded but open and porous. Places, writes

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Doreen Massey, are meeting places in which various trajectories collide, 'woven together out of ongoing stories, as a moment within power-geometries, as a particular constellation within wider topographies of space.'⁸⁶ Far from being fixed and still, places are knottings, tied and untied, entangled and disentangled. Seen like this, place is not a refuge from the modern but, like space, is made much livelier: in Peter Merriman's words, 'much more contingent, open, dynamic and heterogeneous' than the standard usages allowed.⁸⁷

'Landscape' too seemed out of joint with spatial science. Unless it could be idealised as an isotropic plane, it was seen as belonging to an older, plodding geography that was limited to reconstructing its morphologies. But there were close links between the mathematical and geometric logics of spatial science and what Denis Cosgrove and others, drawing on art history, called landscape as a 'way of seeing'. For the staging of the world as a landscape depended on the mathematics of linear perspective, and Cosgrove and his colleagues showed that this visual ideology emerged in Europe in the fifteenth and early sixteenth centuries and, in line with the developing materialism of human geography, that it was saturated in the tonalities of early capitalism. Its trick of representing three-dimensional space on a two-dimensional surface was achieved by rendering space 'the property of an individual, detached observer, from whose divine location it is a dependent, appropriated object.' For Cosgrove, this vision asserted a class privilege; it was a bourgeois gaze whose production simultaneously declared possession, delimited property, and depended on patronage.⁸⁸ Rose soon added a powerful rider: this was also a profoundly gendered way of seeing, and functioned to naturalise the masculinism of the gaze.⁸⁹ These interventions stirred up the complacent view that limited geography's 'art of landscape' to the field sketch, but other human geographers worried about the danger of losing the physicality of the landscape in the chase after its representations. Don Mitchell argued for a re-cognition of its material presence: landscapes, he claimed, in a remark that would not have been out of place in an older school of historical geography, are the products of work, 'of human labour.' But he left that tradition in the dust when he also claimed that landscape *does work*. Cosgrove's deep interest in visual ideology was relocated to a brilliantly physical register. 'In many respects,' he explained, landscapes produced under capitalism – what Harvey calls landscapes of accumulation – are like the commodity: they conceal ('fetishise') the labour that goes into their making. When he writes about 'the lie of the land', therefore, Mitchell is simultaneously reactivating a traditional concern with the forms and features of the visible landscape and drawing attention to its duplicity. His purpose is to unsettle, disrupt and call into question the outer unity of landscape – its aesthetic harmony and 'natural' integrity – and disclose the struggles and conflicts that seethe below its surface.⁹⁰ But when John Wylie turned to '*practices* of landscape and, especially, towards the simultaneous and ongoing shaping of self, body and landscape via practice[s] and performance[s]', he did not have in mind the experiences of the migrant workers whose lives (and deaths)

are concealed in the agrarian landscapes of southern California. His project was based on the walker's or traveller's corporeal encounter with a landscape. In one way, his project unsettles the visual ideology that was the object of Cosgrove's critique, because it 'turns landscape from a distant object or spectacle to be visually surveyed to an up-close, intimate and proximate material milieu of engagement and practice.' And yet, when landscape thus becomes 'the close-at-hand, that which is both touching and touched, an affective handling through which self and world emerge and entwine', it is surely not difficult to translate this into Mitchell's migrants feeling the earth of the California valleys trickle through their bruised fingers or the stonemasons running their hands over the blocks of Brunelleschi's dome that is the focal point of Cosgrove's account.⁹¹ Either way, landscape, like place, becomes alive.

Regions and territories were retained by spatial science but in purely formal terms, as nodal regions or marketing territories that marked 'spheres of influence' whose 'influence' was strangely purged of any tincture of political or economic power. This too has been dramatically reversed. A revitalised history of geography has shown that regional geography had a strategic dimension from its very beginning. When Strabo developed the classical Greek conception of chorography, of regional description, he wrote as an admirer of the Roman emperor Augustus and his successor, Tiberius, and his *Geography* was intended to be of direct service to imperial administrators and military commanders.⁹² Fast forward to the twentieth century, and a traditional regional geography was pressed into military service during the two World Wars and the Cold War.⁹³ In both cases these enlistments also required a technical capacity to fix and locate: in a word, to map. One might say much the same about the concept of territory, which relies on a strategic discourse and a political technology too, except that its conceptual armature is also wrapped in legal formularies.⁹⁴ Critical human geography today is more likely to resist these deadly complicities, and its conceptualisations of region and territory share in the general 'enlivening' that we have identified for space, place and landscape.

Regions are now rarely seen as so many building blocks, a device that is at once partitional (it assumes that the world can be exhaustively divided into bounded spaces) and aggregative (these spaces can be fitted together to form a larger totality). Our present understanding of regions suggest that they have never been closed, cellular spaces, and that much of traditional regional geography – rather like traditional descriptions of 'place' – may turn out to have been about *inventing* a 'traditional' world of supposedly immobile, introspective and irredeemably localised cultures. Many anthropologists, geographers and historians now accept that non-capitalist societies have always been actively engaged in other worlds, and that they always been constituted through their involvements in more extensive networks. Those involvements have been intensified by capitalist modernity, even transformed by them, but they are not the creation of the modern. There is a broad consensus that regional formations are more or less impermanent condensations of institutions and objects,

people and practices that are intimately involved in the operations and outcome of local, trans-local and trans-regional processes. Once regions are conceptually 'unbound', as Ash Amin puts it, then bounding and b/ordering become the precarious historico-geographical achievements of political and military, economic and cultural power.⁹⁵ Similarly, territory comes to be seen as what Stuart Elden calls 'a historical question: produced, mutable and fluid' but also simultaneously as a geographical question 'not simply because it is one way of ordering the world, but also because it is profoundly uneven in its development.'⁹⁶ For much the same reason, many human geographers have become much more attentive to the ways in which these scalar distinctions have been produced and to their sedimentations in imaginative geographies and public policies.⁹⁷

All of this has produced new ways of writing about regions and borderlands. Soja's early experiment in 'taking Los Angeles apart' has been followed by a host of others, many of them multi-media presentations that draw on film, video and music too. Others make use of the interactivity of new media, including blogs, to present multi-perspectival views of places to wider publics. These are by their very nature usually non-disciplinary or interdisciplinary projects, but the 'problem' of geographical description has never seemed less of a problem and more of an opportunity.⁹⁸

These experiments with fluidity, mobility and hybridity can seem intoxicating, which makes it all the more important not to lose sight of their other dimensions. By this we mean not only the fixities and immobilities that limit the lives of millions of people – a counter-geography to the 'liquid world' celebrated by those with the freedom to take advantage of it: again, we draw attention to the figure of the migrant and the refugee⁹⁹ – but also the violence and immiseration that often inheres in these paradoxical spaces. Gloria Anzaldúa famously described the US-Mexico borderlands as 'an open wound' where 'the Third World grates against the First and bleeds.' Before a scab can form, she continued, 'it hemorrhages again, the lifeblood of two worlds merging to form a third country – a border culture.' Matthew Coleman thus sees the US-Mexico border as a trickster figure, at once being opened to the passage of capital and (licit) commodities under the sign of neoliberalism and closed to the movement of 'undocumented' migrants who are often the victims of neoliberalism. For him, the border is performed through the countervailing operations of 'de-bordering' and 're-bordering', in the course of which Anzaldúa's sanguinary metaphor has become ever more appropriate as the border is increasingly militarised as part of the 'war on drugs' that since 9/11 has morphed into the 'war on terror'.¹⁰⁰ On those borders where military violence is an ever-present reality, where the fixity of the line has yielded to the fluidity of attack and counter-attack, the result is often a 'space of exception' in which legal protections are removed from people who are knowingly exposed to death. As Derek Gregory has shown, across the Green Line from Israel into the occupied Palestinian territories on the West Bank of the Jordan,

these zones of indistinction have proliferated and Palestinians are trapped in 'a frenzied cartography of mobile frontiers' in which time and space are twisted and deformed so that 'nothing is fixed, nothing is clear'. Or again, across the Durand Line from Afghanistan into Pakistan's Federally Administered Tribal Areas, a liminal space that has been turned into a war zone, ordinary people are exposed to death from orbiting drones as the United States seeks to find and kill Taliban insurgents and members of al-Qaeda.¹⁰¹ These may all be 'lively' spaces but they are also, and by virtue of their liveliness, spaces of death.

Nature, Environment and the Non-human

The Great Divide

What David Livingstone once called 'the geographical experiment' was founded on a Big Idea: that it was possible to examine the relations between people and their environments, or 'culture' and 'nature', within the confines of one great scientific enterprise. There has long been disagreement over the nature of that enterprise – as Livingstone shows, it's an essentially contested tradition¹⁰² – but for much of the eighteenth and nineteenth centuries it was conducted within what David Stoddart called the 'great tradition' of the natural sciences. As we've explained, this is a story that can be told in many different ways. Stoddart invoked a radically different lineage from what he dismissed as 'conventional wisdom', whose heroes were 'the Ritters, Ratzels, Hettners'. These were three largely desk-bound German geographers who were admitted to Hartshorne's canon, not least through their 'spatial' predilections, but Stoddart's oppositional sense of geography as an intellectual enterprise sprang from the exploratory field sciences of Georg Forster, Charles Darwin and T.H. Huxley: 'and it works,' he added triumphantly.¹⁰³ One would surely have to add Humboldt to this trinity, whose vision of the *Cosmos* was an exquisite version of the exploratory tradition that Stoddart eulogised and the synoptic project of geography that he too endorsed. But even those who follow different routes, perhaps closer to Hartshorne's, that by the end of the nineteenth century tracked through the humanities and the emergent social sciences, would concede that these were profoundly affected by the natural sciences. These other routes turned out to be vitally important because they led from a pre-disciplinary world – in which the scholar roamed the world and roamed the library in equal measure – to a more cloistered, disciplinary world. By then, modern geography had gained a significant but small foothold in English-speaking and European universities, and its practitioners more or less agreed that that geography crossed an emerging divide between what today we would call the earth and environmental sciences (including geology, geomorphology, botany and climatology) on one side and the humanities and

social sciences (including history, anthropology, economics and sociology) on the other. As the young Halford Mackinder put it in his 1887 address to the Royal Geographical Society in London, geography would bridge 'one of the greatest of all intellectual gaps': it would, he advertised, 'trace the interaction of man in society and so much of his environment as varies locally'.¹⁰⁴

The challenge was enormous. Given the vast range of topics that Geography claimed to cover, what ideas and approaches could it claim as its own, and what signature insights could it provide? Could it equal the intellectual status of the specialist sciences like physics or economics by somehow making a virtue of its totalising or synthesising perspective on the world? These questions did not apply only to Geography, since it was closely allied to an Anthropology that also placed the relations between people and their environment at the centre of its concerns. Even so, the early university geographers were in select company: few of their academic peers chose to make the human and biophysical worlds – from the scale of everyday life up to the globe – the combined focus of their inquiries.

Consistent with these grand ambitions, Mackinder and his colleagues refused any clear distinction between 'human' and 'physical' geographies. Although Mary Somerville had devoted a book to physical geography in 1849 – defining it as 'a description of the earth, the sea, and the air, with their inhabitants animal and vegetable, of the distribution of these organised beings, and the causes of their distribution'¹⁰⁵ – few university geographers followed her lead, and most tended to examine human populations in relation to their immediate biophysical surroundings. These studies took several forms. First, there were detailed investigations of different places and regions, the sort of work that Hartshorne would later represent as the core of geographical inquiry. They typically sought to demonstrate the distinctive connections between economy, politics, society and culture and the physical landscape, climate and relative location of an area.¹⁰⁶ Second, there were much grander attempts to describe the world's geography as a patchwork of biophysical regions that were associated with characteristic patterns of human habitation. These authors – like Ellen Semple in her *Influences of geographic environment* (1911) – took their readers on a grand tour of the earth's differentiated surface but, like most tourists, paid selective attention to the places they visited.¹⁰⁷ Third, some geographers, working on an equally large canvas, focused on one element of human practice (such as state-craft) and related it to environmental causes and circumstances. Mackinder's own *Britain and the British Seas* (1902) is one example among many: it was an attempt to understand the geopolitical manoeuvres of Britain as a maritime nation.¹⁰⁸

All of these studies were highly descriptive; the early university geographers found it virtually impossible to treat causation and process in any detail because they tried to cover so much ground, often on a planetary scale. Where explanations were ventured they were typically speculative, even breezy, and possessed none of the rigour of the spatial science that would eclipse them

after 1945. Yet these speculations were offered with supreme confidence, as if they possessed substantial empirical warrant. This can in part be explained by a combination of Darwinian thinking and neo-Lamarckianism that was a major influence on intellectual culture at the turn of the twentieth century (in fact, this is what Livingstone had in mind when he invoked the geographical experiment). Like many other American and European intellectuals, university geographers saw no problem in extending Darwin's paradigmatic inquiries into species evolution to humans.¹⁰⁹ The 'races of man', as they were called, were seen as the products of adaptation to more or less favourable natural environments, with Jean-Baptiste Lamarck's thesis about 'fast evolution' pressed into service (implicitly or otherwise) to argue that Anglo-Europeans had been able to progress more rapidly than other 'races' with less advantageous physical geographic conditions. The result was a curiously asymmetrical application of what became known as environmental determinism. Europeans were held to have domesticated their temperate, 'normal', so to speak 'natural' natures, obliging them to give up their secrets to Science and their energies to Industry, while other cultures were held to be creatures of their non-temperate, abnormal and even 'un-natural natures'.¹¹⁰ To describe the asymmetry in these terms is to reveal its abiding racism: thus, for example, Ellsworth Huntington's reflections on *The character of races* (1924) claimed that various 'natives' in the world's tropical and 'frigid' zones could never rise above the challenging environments that made them what they were. Regrettably these were not exceptional views; anxieties about the dangers of tropical nature for 'temperate' cultures bedevilled the colonial and imperial project, and at that time eugenics – the 'science of racial improvement' – enjoyed widespread respectability before Hitler's Third Reich took it to its still more hideous and ultimately genocidal conclusion.

By the time Hartshorne visited Nazi-occupied Vienna, the prospects for the unified Geography that had captivated scholars in a pre-disciplinary world were dimming, even though Hartshorne and his critics continued to affirm their faith in human and physical geography as conjoint moments in disciplinary inquiry. Dramatic advances were being made elsewhere in the academy in the natural sciences and the social sciences – from Einstein's epoch-making discoveries in physics to J.M. Keynes' seminal contributions to economics – and these had thrown geography's shortcomings into stark relief and threatened to consign it to a backwater far from the mainstream of scientific progress. The predicament was heightened during the Second World War, when many geographers on both sides of the Atlantic served in the military and intelligence services and learned an object lesson in the importance of precision and measurement, systematicity and objectivity.¹¹¹ But there were other pressures from other directions. Many philosophers had argued that the physical sciences were intrinsically different from the humanities and the social sciences by virtue of their subject matter. The geographical experiment was doomed to failure: there could be no unified science of people-and-nature because

people were distinctly different from rocks, rivers or ravines. Unlike atoms or molecules, people inhabit a world of socially constructed meanings that are indispensable for its interpretation and transformation; they are able to create their own history and geography in reflexive, conscious and even unconscious ways that are unavailable to stones rolling along riverbeds. Though cuspated between biology and culture, people are not reducible to their genes or their physiologies, let alone to forces exerted by the physical environment. This was not only a rebuff to environmental determinism and its derivatives but also a counter-claim that the 'non-biological' aspects of humanity could be analysed in their own right (which is, of course, what sociologists, economists, musicologists, art historians and cultural anthropologists had been arguing for years).

After 1945 academic Geography splintered into human geography and physical geography, with each fragmenting into a series of systematic sub-disciplines. The terms 'human geography' and 'physical geography' began to name two distinct projects within a single disciplinary space. Other disciplines were bi-polar too – physical and social anthropology for example – and, like them, geography gave these distinctions a substantive rather than purely nominal significance. Perhaps more importantly, these were all so many versions of an even greater divide in a minor key. In 1956 C.P. Snow sketched the outlines of a thesis about 'two cultures' that, just a few years later, he would deliver as a lecture that would cause a sensation.¹¹² Snow had trained as a physicist in the 1920s, and during the war served as Chief of Scientific Personnel for the Ministry of Labour in Great Britain; after the war he embarked on a parallel, highly successful career as a novelist. 'By training I was a scientist,' he later wrote, 'but 'by vocation a writer.' In his 1959 Rede Lecture at Cambridge, 'The two cultures and the scientific revolution', Snow declared that he had felt as though he were 'moving among two groups' who 'had almost ceased to communicate at all', and he was quick to add that this was not a personal odyssey but a pervasive feature of intellectual life in the West. 'At one pole we have the literary intellectuals,' he explained, and at the other 'scientists, and as the most representative the physical scientists.' A 'gulf of incomprehension' lay between them – 'sometime hostility and dislike, but most of all lack of understanding. They have a curious distorted image of each other.' Snow thought this a tragedy, an exceptionally destructive loss to both sides that was particularly damaging at the height of the Cold War. Insisting that 'scientific culture really is a culture,' Snow complained that 'there seems to be no place where the cultures meet.'¹¹³

And yet, of course, Geography had long claimed to be that place. It would be absurd to read the rise of spatial science as a response to Snow, though his arguments were (and remain) influential, but it did seek to capitalise on the second part of Snow's title – 'the scientific revolution' – and to show that his 'scientific culture' was capable of addressing both the human and the physical worlds. Its inspiration was not Snow, however, but Thomas Kuhn, whose account of *The structure of scientific revolutions* just three years later

provided a powerful rhetorical model for the 'Quantitative Revolution'. This was ironic; Kuhn's account fastened on the physical sciences – in fact, he wondered if it was not *limited* to the physical sciences – but he drew on a series of methods from the humanities to develop his concept of a 'paradigm' for scientific inquiry.¹¹⁴ During the Quantitative Revolution, however, geography turned its face – or, more accurately, the face of most of its practitioners – from the stuff of the 'literary humanities' to the geometries of the earth's surface. In fact many of the models of spatial science were derived from the physical sciences: the gravity model calibrating the 'friction of distance' on the interaction between two locations is the most obvious, but the neoclassical economics on which most standard location theory depended was closely related to statistical mechanics.

If this achieved a precarious unity between human and physical geography, however, it was remarkably short-lived. During the 1960s, two British geographers, one a human geographer (Peter Haggett) and the other a physical geographer (R.J. Chorley), tried to jumpstart the stalled geographical experiment. In a series of publications they proposed to unite human and physical geography through a common object (spatial order), a common method (the 'scientific method'), and a common conceptual apparatus (systems analysis).¹¹⁵ But the project was abandoned.

On one side, physical geographers retained (and, in fact, reinforced) their commitment to science, though now usually phrased in different terms that turned from positivism to non-positivist philosophies of science and directed attention from form to process. This is not the place to review the increasingly separate history of the subdiscipline, but in general physical geographers directed their research and teaching to fact-based descriptions, explanations and predictions of earth surface phenomena. Specialisation, new databases and remote sensing capabilities, new field techniques and computer technologies, and new physical and mathematical models made this possible, but the price was, at first, further internal division. Physical geographers partitioned their field into five major areas – geomorphology, biogeography, climatology, hydrology, and Quaternary environmental change – and fostered increasingly close connections and collaborations with scientists in cognate fields like geology, botany and atmospheric science. It is only recently, and in part through these extra-disciplinary conversations, that reintegration has been set in motion through avowedly interdisciplinary projects like Earth Systems Science and the rise of the 'biogeosciences' (particularly in North America).¹¹⁶

On the other side, the critique of spatial science drew many human geographers deeper into the modern social sciences while at the same time prompting a series of calls for the traditional ties with the arts and the humanities to be reaffirmed (though not always in traditional ways). Here too the consequence was a series of divisions. One axis was sub-disciplinary – the formation and consolidation of separate economic, political, social and cultural geographies, for example, with often only historical geography and historico-geographical materialism to muddle things up – and the other was procedural: a divergence

between a spatial-analytic geography, markedly less interested in geometric order than its predecessors, and a social-theoretic geography, much more interested in political critique. In the face of such diversity, it was sometimes hard to see the forest for the trees – and the different woodcutters hacking away at them (though, in parallel with physical geography, close connections were developed with economists, political scientists, sociologists, anthropologists, historians and literary scholars). In fact, however, most of us saw neither the forest nor the trees. Human geography typically abstracted economic, political, social and cultural practices from their biophysical circumstances, an abstraction indexed most visibly by the rise of an urban geography that analysed the created, 'artificial' environment of the post-war metropolis.

Human geography was 'de-naturalised', a process that was equally apparent in the humanities and social sciences from which it drew its inspiration, while physical geography – apart from consultancy projects to do with problems of coastal management, soil erosion slope failure and the like – was effectively 'de-socialised'. Where the human-environment nexus remained a subject of concern – as in Gilbert White's research into how people perceive and respond to the threat of natural hazards – it was conducted in a way that reflected the commitment to a model of science that much of human geography had abandoned. Even when the environmental movement took its first steps, few geographers trailed along. The era of the first Earth Day, when Greenpeace and Friends of the Earth were founded, did not inspire a revival of human-environment study in Geography. Instead, people like White and his students went about their business without generating any sea-change in the topical focus of their colleagues in human and physical geography.

These differences were reflected and reproduced in the divergent publication practices of human and physical geographers: they increasingly turned the pages of different journals (or different pages in the same journal), and for every supposedly general journal there seemed to be at least ten specialist journals in the different sub-disciplines of physical and human geography. In the United States many programmes in geography were predominantly and sometimes exclusively programmes in human geography, while in most Scandinavian countries human and physical geographers occupied separate departments within the same university (and still do). Perhaps unsurprisingly, by the mid-1980s, many geographers started to wonder if there was any longer any reason to think that human and physical geography could be sustained as two halves of a unitary disciplinary field.¹¹⁷

The Re-naturalisation of Human Geography

Over the last twenty-five years there has been a gathering reaction to the 'denaturalisation' of human geography that has gained momentum until now nature, in all its attendant varieties, is one of the central terms of contemporary

human geography. The reasons for this are as much external and internal, and here as elsewhere there is no simple separation between text and context, inside and outside. Environmental incidents – oil spills, species extinctions, landslides, earthquakes, tsunamis and much more besides – have rarely been out of the news this last quarter century. Less dramatically, but no less seriously, the evidence for human-induced climate change is now unequivocal. The growth in global population and levels of consumer demand – within the context of capitalist globalisation – have ramped up levels of natural resource use, producing relative scarcity, price fluctuations and vast volumes of waste. The technical prowess of applied science is now such that it can splice genes and clone organisms, challenging ethical norms about how we should regard our own biological 'nature' and that of non-human species. Environmental protest movements and pressure groups remain as visible now as they were during the era of the first Earth Day, four decades ago. Research councils and organisations funding the full range of university disciplines have promoted research into the relations into the society-environment nexus, as well as the wider impacts of the life and biomedical sciences.

The cultural critic Raymond Williams once described Nature as one of the most complicated words in the English language, so it is not surprising that, in responding to all the predicaments and possibilities sketched in the last paragraph, 'nature' should have been given various interpretations and required the supplements we have signposted: 'environment' and the 'non-human'. The latter is not simply a synonym for the other two; it describes all those densely material phenomena – from buildings to domestic gardens to commodities – that are neither strictly 'natural' nor part of 'the environment' in its conventional sense. These bear the marks of human intentionality in their creation, use and meaning but, as with all materials, they have a specific texture, shape, composition and efficacy of their own. Indeed, this is so important that some commentators have described this as a process of 're-materialisation' too, by which they mean a new focus on the *substance* of the world, including our own bodies.

The re-naturalisation/materialisation of human geography through work conducted under these three banners has deepened and widened our understanding of the field. But it has not completely dug it over: the roots of these changes lie, in part, in research traditions that were, if not exactly fallow, then cultivated at the margins. But they also involve the creation of new hybrids by grafting a concern with the biophysical world onto (and into) theories and perspectives that previously paid remarkably little attention to that world.

There are two modern baselines for today's re-naturalised approaches: research into hazards and studies of land use change. The contributions of Gilbert White and his students to our knowledge of 'natural hazards' in the decades following the Second World War were of considerable practical importance; they interrogated the ways in which communities calculated and

responded to risks from floods, droughts, earthquakes and other hazards, and this was of obvious and direct interest to international organisations, state agencies and insurance companies. Yet by the end of the twentieth century more and more people were being harmed by 'natural disasters' despite decades of research into risk minimisation and mitigation. In an important critical intervention Kenneth Hewitt and his collaborators argued that the root of the problem was the term itself. 'Natural' and 'disaster' had to be prised apart because so-called 'natural' events like flooding may be caused in part by human action (or inaction), but the epicentre of the 'disaster' was almost always political and social. Restricting policy prescriptions to technocratic solutions like flood defences or zoning restrictions on building, so they claimed, deflected attention from the differential vulnerability of populations to hazard events.¹¹⁸ This critique was of double significance. It reaffirmed the importance of what, for those who knew their Marx, was his materialist dialectic between 'nature' and 'society', which was already providing the mainspring for projects from political economy through to political ecology. These in their turn would provoke a new round of critical responses from cultural constructions of what counts as 'nature' to a revitalised analysis of human populations – and life itself – under the sign of what Foucault called biopolitics. This critique also reinforced the developing political and ethical sensibilities of human geography. It required the category of people 'at risk' to be deconstructed by locating the space of vulnerability (and the space of resilience) within a socio-economic matrix of inequality and information. It also demanded an involvement with politics as much as policy or, rather, an awareness that policy, in both its formulation and its implementation, is never a narrowly managerial exercise involving expert knowledges but is also always a profoundly political practice.¹¹⁹

And yet it is important not to ignore the continued development and even enlargement of the technical base for studying these questions. The formation of two avowedly interdisciplinary fields, 'land change science' and 'sustainability science', has depended on the use of remote sensing imagery and GIS techniques to create, manipulate and analyse macro-scale, multi-dimensional data bases that capture, display and monitor land use and other environmental changes.¹²⁰ Other human geographers have been drawn into other large-scale projects to gauge the human involvements (not merely impacts) of global climate change. The ultimate objective of these 'Big Science' projects is to record humanity's ecological footprint on the planet and, like White's work, they have been of considerable importance to policy makers, state bureaucracies and government officials. They have been a particularly important (re)source for international and state actors seeking to manage, conserve and preserve areas of the biophysical world deemed to be of special ecological, aesthetic or cultural value (the iconic example is the Amazon rainforest). The provision of expert knowledges does not make these scholars politically reactionary – though when their parent sciences turn into Sciences (with that

imperial capital again) that discount lay or indigenous knowledges it is not surprising they should attract spirited criticism¹²¹ – and there have been fruitful reciprocal exchanges between them and an overtly political ecology; but neither does it make these scientists 'neutral', providers of 'facts' free from political judgements of the sort that state actors are charged with making.¹²²

Other approaches have addressed the politics of environmental change (and, ultimately, of 'nature') much more directly. Two derive directly from human geography's engagement with historical materialism. Many of its early conversations were strangely silent about the nature-society dialectic, which usually appeared only in preliminary and usually abstract accounts of the 'material base' of the mode of production where it served to prepare the ground for the analytics of the capitalist production of space. This state of affairs was disrupted with extraordinary brio when Neil Smith insisted that the production of space could not be understood apart from what he called 'the production of nature'.¹²³ The recognition that capitalism *produced* – not merely dominated, exploited or appropriated – nature was central to the political economy of environment and resources and to a self-consciously political ecology. The first of these typically focused on specific 'regional capitalisms' – on the co-production of particular spaces, exemplified by Richard Walker's study of California's 'Golden Road to Riches' (for some, at any rate) which lay through minerals, forests and water, or by Michael Watts's compelling studies of petro-capitalism in the Niger Delta¹²⁴ – but it also spiralled beyond the circles, cycles and crises of capital accumulation to capture the physical presence of the non-human world: for Watts, 'the devil's excrement' that was oil, or for Scott Prudham the spotted owl that raised a hue and cry over the exploitation of old-growth forests in the Pacific Northwest.¹²⁵

The animating concept for these studies was the commodification of nature. That this was a process pre-existing the present bears emphasis, and as such it overlaps with histories that reach back far beyond the eighteenth and nineteenth centuries. These were meat and drink to a distinguished tradition of research into agrarian-ecological change in cultural geography, but this is now reinforced by research in environmental history that traces the paths through which resources have been turned into commodities. In a seminal study of the ecological transformation of New England between 1600 and 1800, William Cronon described in exquisite detail how 'changes in the land' were brought about by labile interactions between indigenous peoples and European settlers that culminated, as Edward Johnson wrote in 1653, in 'the wilderness turned a mart': the 'wilderness' turned into a market.¹²⁶ The process, in part (but only in part) a conjunction of economic and ecological imperialism, intensified with industrialisation, including the industrialisation of agriculture itself, which later prompted Cronon to describe Chicago, the artificial heart of the Great Plains, as 'Nature's metropolis'.¹²⁷ The cross-fertilisations between these fields have been immensely fruitful, spawning

investigations into commodity chains like the contemporary 'agro-food' networks that connect investors, farms, seed firms, pesticide manufacturers and others with (usually) far distant food consumers.¹²⁸ By revealing the socio-spatial relations that materially enact the passage from resource to commodity these studies have shown how the biophysical world has become a means not an end in a process that produces not only nature but also social and environmental injustice. These consequences, it is now clear, cannot be attributed simply to 'corrupt' politicians or to 'greedy' elites – even when corruption and greed are plain to see – but are systemic, rooted in the basal logics of political economy, even in the most war-torn, autocratic and unstable countries.¹²⁹

The second set of studies, in political ecology, can also be traced back to older traditions of research, especially in cultural geography and cultural ecology, but its modern foundation stones were laid by investigations into peasant cultures and rural economies in the global South. These investigations, led by Piers Blaikie and Harold Brookfield, traced the ways in which rural communities in South Asia and elsewhere were influenced by distant forces like international trade, inward investment and political decision-making at the national level. This implied that local land use decisions had to be explained through a causal cascade that extended up to the global level, and which often involved unequal relations of power that allowed land users limited room for manoeuvre.¹³⁰ This did not displace analysis, still less concern away from local land users, however, and these wider perspectives required a complementary, closely textured analysis of the local economy, culture and society that was sensitive to the varied roles of land users and unpacked generic categories like 'peasant', 'small holder' or 'herder'.¹³¹ As a result of this multi-scalar approach, political ecologists downgraded the causal role of local ecology ('environment') in explaining land use patterns in the global South – which was a standard ruse of environmental determinism – and they challenged the no less imperial, no less shop-worn doctrine of neo-Malthusianism, which invoked regional 'over-population' to explain (for example) famine.¹³² In the wake of these seminal studies, subsequent research has – like many of their original subjects – moved into the cities of the global South; it has also arced back to the global North, not as a distant actor but as the site of other, equally local and trans-local political ecologies.¹³³

There are no hard and fast lines between the approaches of political economy and political ecology, so that the differences are mainly ones of focus or emphasis. The two streams have braided into one another, and many geographers swim in both. But they also find another common, and to their critics, more uncertain ground. Smith's emphasis on the production of nature placed its explanatory weight on the productive (and destructive) capacities of the social; so too the political economy of environment and resources. Even political ecology in most of its versions privileged political and economic processes over biophysical processes, which prompted some commentators to wonder

'where the ecology had gone' and to direct human geographers to developments in biogeography and ecological science.¹³⁴

The same might be said of a further round of research that builds on and responds to these approaches. That resonant phrase, 'the wilderness turned a mart', conceals a double movement. For it points not only forwards – to the transformation of resources into commodities – but also backwards. It was a commonplace of an older 'resource geography' that, as Erich Zimmerman argued, 'resources are not; they become'.¹³⁵ But if resources (and markets) are cultural constructions – matters and materialities of human appraisal, imagination and invention – then so too, as Cronon urged, is 'wilderness'.¹³⁶ It's then a small step to radicalise this insight and to see that every element of 'nature' – far from standing outside 'culture' – is *always already* culturally 'constructed'. Mountains, forests and bears are simply unintelligible without a great deal of *work* that is typically unrecognised by expert and lay actors alike: hence Braun's emphasis on the 'buried epistemologies' that construct and normalise particular 'natures'. As he subsequently showed, these are more than epistemologies – theories of what counts as knowledge – and their exhumation requires an analysis of the productive work that is done by discourse more generally.¹³⁷ Discourse is to be understood not only as a torrent of words and images but also as a series of techniques and practices that, in certain circumstances, produce the objects that they name: in other words, they are performative. Just as the discourse of tropicality produces 'the tropics', so a series of discourses, both inside and outside science, work together to produce the still wider, taken-for-granted, ostensibly 'natural' concept of 'nature'. For, as Nancy Stepan remarks, 'Nature is not "natural" but is created as natural', so that what *counts* as 'nature' is not given *in* nature.¹³⁸ These discourses have their own topographies and circulations. Sometimes they are confined to – and in fact help to reproduce – specific discursive communities, so that the promissory note that treats science as a social practice is redeemed in full measure in (for example) studies of the ways in which atmospheric scientists have come to define and understand 'normal' climatic behaviour.¹³⁹ But, as the heated debate over global climate change shows, these discourses often spill over into other, more public circles – and, similarly, work to produce publics – and enter into the collective, consciously articulated identity of particular sections of society.¹⁴⁰

Bio-political geographies have also inflected these discussions of what counts as nature. Many of them, inspired by Foucault's luminous writings and lectures on biopolitics, have recognised that 'population' is a central category of state power and governmentality, whose production derives from and inheres in the power to make, sustain or remove life. These ideas have opened up new conversations between population geography and medical geography that travel far beyond the conventional, spatial-analytic framing of their work to open up searching interrogations of what is made to count as 'life'.¹⁴¹

More proximately, many bio-political geographies circle around the concept of 'bare life'. According to Giorgio Agamben, classical Greek philosophy made a vital distinction between political life (*bios*) and merely existent, biological life (*zoe*). Bare life is poised between the two, as life that is excluded from political participation and which can legitimately be abandoned to violence and death.¹⁴² This bears directly on our discussion of the 'more-than-human' in two ways. On one side, those who are abandoned to the space of exception and who embody the spectral figure of what Agamben calls *homo sacer* become, in their very abjectness, limit cases for what is to count as human: in effect, they are rendered as 'less-than-human', produced through what Judith Butler calls 'exclusionary conceptions of who is normatively human'. These reductions were the stock-in-trade of the wars conducted in the shadows of 9/11 by the Bush administration; their most visible locus was the US war prison at Guantánamo Bay.¹⁴³ On the other side, the space of vulnerability to environmental hazards or disasters can be seen as also always a potential space of exception in which marginalised or disadvantaged groups are wilfully exposed to disaster and death. This has prompted inquiries into the politically modulated effects of the Indian Ocean tsunami in 2004 and Hurricane Katrina in 2005, for example, and other equally probing analyses of the political roots of famine in the past and the present.¹⁴⁴

As with political economy and political ecology, however, it seems that an emphasis on constructions of nature and on biopolitics places the emphasis squarely on the 'social' in multiple forms: on cultural formations, on political and military violence, on the political regulation of the life of human populations. It fails to deal in equal measure with the 'natural' and, in particular, still maintains the divide or, marginally better, the dialectic between them. This has generated two responses. The first is to insist on hybridity, the claim that the world is not, and has never been, a *tabula rasa* waiting to be inscribed as we wish. Instead, as Sarah Whatmore emphasises, it's a world that is always already *part of us, just as we are a part of it*.¹⁴⁵ This implies that the conceptual dualisms organising Western thought – such as reason/instinct and human/animal – are not always easy to maintain. On this reading the world is composed of more or less indissoluble relations between entities; these entities are at once the medium and the outcome of those relations. The research in this vein is both descriptive and explanatory – for example, Morgan Robertson's research into the creation of markets in 'wetland ecosystem services' shows how and why these markets must adapt to the specific biophysical character of wetland environments (even as wetlands are managed and physically recreated according to market logics).¹⁴⁶ But much of this work is also ethical in character or else focussed on the somatic dimensions of human engagement with the non-human world. It's a call not only to pay closer attention to the sheer *existence* of all the species and materials with whom our own fates are entwined; it's also a call to explore their *moral and affective importance*, for ourselves (whoever we happen to be) and for non-human entities. A vivid example

is provided by the emergence of an 'animal geography', radically different in tone and temper from a far older zoogeography, and part of a wider exploration of the varied relationships different people have with living species – animal, vegetable, insect and even microbiological – that Steve Hinchliffe and Sarah Whatmore describe as a new politics of 'conviviality'.¹⁴⁷

In these various ways this work has plainly enlarged our sense of the 'human' in human geography, to the point that some have identified a 'more than human geography' or even a 'post-human' geography. To develop this project still further, some of those most closely involved have turned to a form of materialism that owes less to Hegel and Marx than to Spinoza and Deleuze. Its purpose is to confound the distinction between 'dull stuff' (things) and 'vibrant life' (us) in order to bring into view what Jane Bennett calls a 'vibrant materiality'. She understands this to mean not only the capacity of things to impede, disrupt or even destroy the designs of humans 'but also to act as quasi-agents or forces with trajectories, propensities or tendencies of their own'.¹⁴⁸ When she says 'things' she means just that – including everything from metals to worms¹⁴⁹ – but if this seems unsettling it is not difficult to think in terms of the conventional actants of much of physical geography, biogeography and zoogeography (though they are not usually thought of like this). This work is important for three overlapping reasons that can be aligned directly with other research in human geography. First, where critical human geographies inspired by the humanities and by certain forms of 'humanist' social theory privileged human agency – working to people the skeletal geometries and empty landscapes of spatial science – this body of work directs attention to the material agency of non-human or 'not-quite-human' things. Second, just as postcolonial geographies attempt to provide critiques of Eurocentrism, so these studies seek to displace anthropocentrism: to challenge a view of the world in which human beings are always the privileged beings at its centre. Third, the waywardness of nature and the non-human touches (literally so) on the liveliness and unruliness of space that has also captivated human geographers.

These developments are intended to be profoundly, actively political, but when Bennett describes her project as a 'political ecology' she means this in a radically different sense from the previous authors. She directly challenges their sense of the social 'productions' and 'constructions' of nature by insisting that these still inhabit 'the image of dead or thoroughly instrumentalised matter [that] feeds human hubris and our earth-destroying fantasies of conquest and consumption'.¹⁵⁰ Her enlarged sense of ecology is shared by other human geographers too, particularly those interested in embodiment. The body, at once a natural' given and yet shaped by the full range of circumstances and relations in which people find themselves, is an important medium through which to better understand not only the cognitive but also the sensibilities, emotions and feelings that must be part of any viable politics. If, at times, some of this

research has revelled in the pre-cognitive aspects of human engagement with the non-human, other research reminds us that non-human entities – *by virtue* of their specific material affordances and affective capacities, as well as their plasticity – can be enrolled into attempts to control nature and people.¹⁵¹

Not all the non-human world is as intransigent as Robertson's wetlands that offer resistance to the logic of capitalist commodification. At times, even a more symmetrical approach that gives equal weight to the non-human must concede that metaphors of 'production' and 'construction' are not always entirely inappropriate: metaphors are devices that take us so far, even if they ultimately break down. Indeed, the critical sense of 'production' and 'construction' – and devastation and destruction – are consistent with the belief that we inhabit the Anthropocene, a period of momentous, potentially calamitous environmental change in which human interventions are so dominant as to constitute a radically new geological epoch.¹⁵² To study the Anthropocene 'symmetrically' is not to downplay what Thomas and his collaborators more than half a century ago called humanity's 'role in changing the face of the earth' but to attend equally closely to biophysical changes and responses.¹⁵³

Bennett's point about nature, the environment and the non-human 'having its own trajectories' – even when these are in part the product of human activities – has been sharpened by Nigel Clark. He argues that attempts to achieve a more symmetrical understanding of how the social and the natural intertwine in what is at once a life-giving – in fact life-defining – and yet deadly embrace are confounded by two problems. Not only have they directed attention to the non-human 'close in' – to phenomena we encounter directly each day or to our own ever-present corporeality – but they have also avoided consideration of those processes and events *that greatly exceed our capacity to cope*. Where a term like 'vitality' is derived from the life sciences, Clark explores the more catastrophic vocabulary of the geological sciences. In his view, we need to take far more seriously the power of nature to overwhelm us – tsunamis, earthquakes, volcanic eruptions – and to consider how this power might oblige us to re-think at a fundamental level our relations with other people and with the non-human world. Clark's manifesto goes far beyond the concerns of 'natural hazards' to explore existential questions of human vulnerability and precariousness on a dynamic planet. While it makes a certain sense to analyse the human-non-human nexus symmetrically, as critics have urged, Clark insists on our recognising that there are situations where earthly forces display a vastly greater power than even the most technologically advanced societies. The distance between symmetry and asymmetry cannot be calibrated by philosophical or theoretical imprimatur: it requires precisely the careful, substantive analysis of the imbrications of society-nature, of the human and non-human, that has long been geography's (distant) goal. Clark's arguments may seem redolent of environmental determinism, but the similarity is superficial. *Inhuman nature* is a plea to remember how fleeting

our presence on the planet is, and to consider how much we can profit from responding to the 'ethical' call of the earth when it too inflicts damage and destruction.¹⁵⁴

New Horizons

What next for human geography? All we know – if the last 50 years are anything to go by – is that change will be the only constant. The subject's extraordinary intellectual richness and diversity has set it on a productive course: as the wider world changes, and intellectual tides turn, human geography will be well placed to respond. It is pointless to try to legislate on its future directions of travel: there is simply (and we think fortunately) no available mechanism for steering the ship. All we can hope for is that human geographers continue to practice 'engaged pluralism' – the habit of paying respectful attention to, borrowing from, and critically appraising the work of others. Out of such engagement – which must, of course, extend beyond as well across the field – human geography will continue to make important contributions to thought and practice. It will do so on a range of fronts in the belief that a properly human geography has to learn from and speak to the concerns of the humanities, social sciences and environmental sciences at one and the same time. And, above all, that it shares in the wider responsibility to produce and foster a more humane geography.

Acknowledgements

Selecting contributions that together represent the strength and breadth of human geography today was relatively easy; getting the number down to around eighty was very challenging indeed. We received good advice from Trevor Barnes, Gavin Bridge, Nick Clifford, Paul Cloke, Stuart Corbridge, Martin Dodge, Stewart Fotheringham, Matt Gandy, Linda McDowell, Rod Neumann, Chris Perkins, Paul Robbins, Eric Sheppard and Billie Lee Turner II. Robert Rojek and Judi Burger remained extraordinarily patient as successive deadlines came and went: though most of our promises were hollow, they continued to believe that one of them would not be. We thank them warmly, so too Bhairav Sharma, Girish Sharma and the production team in India – they did a marvellous job working to very tight deadlines. Finally, we'd like to thank all the authors whose writings are collected here for giving us their permission to do so. We hope our readers will realise that none of these essays should be taken as emblematic of our authors' work as a whole; they all have an even richer portfolio than our selections can convey. Even then, having to leave out so much wonderful work from other authors has been immensely difficult: but it is also a testament to human geography's continued intellectual vitality.

Notes

References to selections that appear in these five volumes are shown in **bold**.

1. John Agnew and James Duncan (eds), 'Introduction', *The Wiley-Blackwell Companion to Human Geography* (Oxford: Wiley-Blackwell, 2011) p. 1. On hybrid geographies in a methodological sense, see **Mei-Po Kwan**, 'Beyond Difference: From Canonical Geography to Hybrid Geographies', *Annals of the Association of American Geographers*, 94(4) (2004) 756–763. The closing sections of our introduction describe quite other, or rather more radically hybrid geographies.
2. See, for example, geographer Michael Watts' award-winning collaboration with photographer Ed Kashi in *Curse of the Black Gold: 50 Years of Oil in the Niger Delta* (New York: powerhouse Books, 2008) – and the multimedia and video at <http://www.curseoftheblackgoldbook.com> – and geographer Geraldine Pratt's theatricalisation (with Caleb Johnston) of her research with Filipina domestic caregivers in *Nanay – a testimonial play*, which has been performed in Vancouver and Berlin: Caleb Johnston and Geraldine Pratt, 'Nanay (Mother): a testimonial play', *Cultural geographies* 17 (2010) 123–33. These works radically extend the traditional conception of geography as an art: cf. **D.W. Meinig**, 'Geography as an Art', *Transactions of the Institute of British Geographers*, NS, 8 (1983) 314–328.
3. For detailed accounts of these and other technical terms used in this essay, see Derek Gregory, Ron Johnston, Geraldine Pratt, Michael Watts and Sarah Whatmore (eds) *The Dictionary of Human Geography* (Oxford: Wiley Blackwell, 5th edition, 2009); see also Rob Kitchin and Nigel Thrift (eds) *The International Encyclopedia of Human Geography* (London: Elsevier Science, 2009) (12 volumes), which may also be available online at your university library. For more succinct accounts, see Noel Castree, Rob Kitchin and Alisdair Rogers (eds) *Dictionary of Human Geography* (Oxford: Oxford University Press, forthcoming).
4. A range of contributions has attracted the attention of human geographers. Some were drawn to the early work of Jürgen Habermas, who identified a series of 'cognitive interests' embedded in the structures of society that 'constituted' or shaped particular forms of knowledge and their evaluation: see **Allen J. Scott**, 'The Meaning and Social Origins of Discourse on the Spatial Foundations of Society', in Peter Gould and Gunner Olsson (eds), *A Search for Common Ground* (London: Pion, 1982) pp. 141–156. Others preferred Michel Foucault, who traced an intimate connection between power and knowledge: power-knowledge. Still others have turned to the sociology of science and science studies to show how human geography, like any other field of knowledge, is a profoundly social practice and as such caught up in networks of social practice that reach far beyond the academy.
5. See John Agnew and David Livingstone (eds), *The SAGE Handbook of Geographical Knowledge* (London: Sage, 2011) Part II: 'Geography's venues'.
6. This too has a history; see, for example, **Miles Ogborn**, 'Writing Travels: Power, knowledge and ritual on the English East India Company's early voyages', *Transactions of the Institute of British Geographers*, NS, 27 (2002) 155–171.
7. Richard Hartshorne, *The Nature of Geography: A Critical Survey of Current Thought in Light of the Past* (Lancaster PA: Association of American Geographers, 1939).
8. See for example David Stoddart, *On Geography and its History* (Oxford: Blackwell, 1985).
9. See **Trevor Barnes and Matthew Farish**, 'Between Regions: Science, Militarism, and American Geography from World War to Cold War', *Annals of the Association of American Geographers*, 96(4) (2006) 807–826.
10. David Harvey, *Explanation in Geography* (London: Edward Arnold, 1969).

11. David Harvey, *Social Justice and the City* (London: Edward Arnold, 1973; republished Athens GA: University of Georgia Press, 2009). For more detailed views of Harvey's work, see Noel Castree and Derek Gregory (eds), *David Harvey: A Critical Reader* (Oxford: Wiley-Blackwell, 2006), and for more immediate views of Harvey's work see his blog, Reading Marx's Capital with David Harvey, at <http://davidharvey.org>.
12. See **Andrew Sayer**, 'Postmodernist Thought in Geography: A Realist View', *Antipode*, 25(4) (1993) 320–344; see also his classic text, *Method in Social Science: A Realist Approach* (London: Hutchinson, 1984; second edition Routledge, 1992). By the 1990s critical realism was also one of the few areas of philosophical overlap between human and physical geographies; several prominent fluvial geomorphologists made substantive use of realist protocols in their field research.
13. Donna Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist studies* 14 (1988) 575–599; see also **Gillian Rose**, 'Situating Knowledges: Positionality, Reflexivities and Other Tactics', *Progress in Human Geography* 21(3) (1997) 305–320.
14. Not surprisingly this has occurred from a variety of philosophical perspectives: compare **David M. Smith**, 'Social Justice Revisited', *Environment and Planning A*, 32(7) (2000) 1149–1162; **Stuart Corbridge**, 'Development Ethics: Distance, Difference, Plausibility', *Ethics, Place and Environment*, 1(1) (1998) 35–53; **Jeffrey Popke**, 'Post-structuralist Ethics: Subjectivity, Responsibility and the Space of Community', *Progress in Human Geography*, 27(3) (2003) 298–316.
15. A classic statement was Gillian Rose, *Feminism and Geography: The Limits of Geographical Knowledge* (Cambridge: Polity, 1993); see also **Juanita Sundberg**, 'Masculinist Epistemologies and the Politics of Fieldwork in Latin Americanist Geography', *Professional Geographer*, 55(2) (2003) 180–190. To de-limit these enclosures requires more than a critique of masculinist epistemology; it also requires theorising the spaces through which human subjects are constantly constituted as knowledgeable agents: see **Geraldine Pratt**, 'Spatialising the Subject of Feminism', in her *Working Feminisms* (Philadelphia: Temple University Press/Edinburgh University Press, 2004) 12–37.
16. Postcolonialism is, in part, a political and ethical project directed at uncovering and resisting those privileges but it provides no guarantee of purity or innocence; all knowledges are caught up in the play of power, so that the postcolonial project involves a constant struggle to discover and undo its own complicities: see **Tariq Jazeel and Colin McFarlane**, 'The Limits of Responsibility: A Postcolonial Politics of Academic Knowledge Production', *Transactions of the Institute of British Geographers*, NS, 35 (2010) 109–124.
17. See **Derek Gregory**, 'Cook's Tour: Anthropology and Geography', in his *Geographical Imaginations* (Oxford: Blackwell, 1994) 16–33.
18. Edward Said, *Orientalism* (London: Penguin, 1978).
19. David Arnold, *The Problem of Nature: Environment, Culture and European Expansion* (Oxford: Blackwell, 1999); Felix Driver and Luciana Martins (eds) *Tropical Visions in an Age of Empire* (Chicago: University of Chicago Press, 2005); **David Livingstone**, 'Tropical Hermeneutics and the Climatic Imagination', in his *Science, Space and Hermeneutics* (Heidelberg: Hettner Lectures, Heidelberg, 2001) 43–73.
20. See **Gerry Kearns**, 'The Political Pivot of Geography', *Geographical Journal*, 170 (4) (2004) 337–346; Derek Gregory, *The Colonial Present: Afghanistan, Palestine, Iraq* (Oxford: Blackwell, 2004).
21. See, for example, **Michael Haldrup, Lasse Koefoed and Kirsten Simonsen**, 'Practical Orientalism – Bodies, Everyday Life and the Construction of Otherness', *Geografiska Annaler*, 88B (2006) 173–184.

22. **Ron Johnston**, 'Geography – Coming Apart at the Seams?', in N. Castree, A. Rogers, and D. Sherman (eds), *Questioning Geography: Fundamental Debates* (Oxford: Wiley Blackwell, 2005) 9–25.
23. These contributions were reviewed and extended in Peter Haggett, *Locational Analysis in Human Geography* (London: Edward Arnold, 1965).
24. **Barnes and Farish**, 'Between regions', below; see also Matthew Farish, *The Contours of America's Cold War* (Minneapolis: University of Minnesota Press, 2010) 138–146 and *Passim*.
25. The Second World War and the Cold War also had a direct bearing on the development of behavioural geographies: for a general discussion, see Joel Isaac, 'The Human Sciences in Cold War America', *Historical Journal* 50 (2007) 725–746.
26. A favourite quotation of spatial scientists was Christoph von Sigwart's claim, 'That there is more order in the world than appears at first sight is not discovered till the order is looked for': see Peter Haggett and R.J., Chorley, 'Models, Paradigms and the New Geography', in R.J. Chorley and Peter Haggett (eds) *Models in Geography* (London: Methuen, 1967) 20. The American philosopher William James quoted the remark in his address on 'The Dilemma of Determinism', but Chorley and Haggett, not surprisingly, found it in N.R. Hanson's philosophy of science, *Patterns of Discovery* (1958).
27. A.D. Cliff and J.K. Ord, *Spatial Autocorrelation* (London: Pion, 1973).
28. Gunnar Olsson, 'The Dialectics of Spatial Analysis', *Antipode* 6 (3) (1974) 50–62; unpersuaded by Harvey's turn to Marx, Olsson's subsequent work involved a dazzling journey into philosophy and modern art: see his *Abysmal: A Critique of Cartographic Reason* (Chicago: University of Chicago Press, 2007).
29. **David Harvey**, 'From Models to Marx: Notes on the Project to 'Remodel' Contemporary Geography', in Bill Macmillan (ed), *Remodelling Geography* (Oxford: Blackwell, 1989) 211–216.
30. **Gillian Hart**, 'Denaturalizing Dispossession: Critical Ethnography in the Age of Resurgent Imperialism', *Antipode*, 38(5) (2006) 977–1004; **Steve Herbert**, 'For Ethnography', *Progress in Human Geography*, 24(4) (2000) 550–568. For a survey, see Dydia DeLyser, Steve Herbert, Stuart Aitken, Mike Crang and Linda McDowell (eds) *The SAGE Handbook of Qualitative Geography* (London: Sage, 2010).
31. **Eric Sheppard**, 'Quantitative Geography: Representations, Practices, and Possibilities', *Environment and Planning D: Society and Space*, 19 (2001) 535–554; **Elvin Wyly**, 'Strategic Positivism', *The Professional Geographer*, 61(3) (2009) 310–322.
32. **Michael F. Goodchild**, 'Geographical Information Science', *International Journal of Geographical Information Systems*, 6(1) (1992) 31–45.
33. The term 'critical human geography' became widely used from the early 1990s to describe research that was broadly 'progressive' in orientation; it virtually eclipsed the term 'radical geography' which, from the late 1960s (especially in the United States), was used to describe research informed by historical materialism and anarchism in particular. Critical human geography drew on a wider bank of theoretical and political sources.
34. See Derek Gregory and John Urry (eds), *Social Relations and Spatial Structures* (London: Macmillan, 1985).
35. Edward Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (London: Verso, 1989); for a review of these developments, see Derek Gregory, *Geographical imaginations* (Oxford: Blackwell, 1994).
36. David Slater, 'On the Borders of Social Theory: Learning from other Regions', *Environment and Planning D: Society & Space* 10 (1992) 307–327; see also David Slater, *Geopolitics and the postcolonial: rethinking North-South relations* (Oxford: Blackwell, 2004).
37. **Linda McDowell**, 'Understanding Diversity: The Problem of/for "Theory"', in R.J. Johnston, P. J. Taylor and M. J. Watts (eds), *Geographies of Global Change* (Second Edition) (Oxford: Blackwell, 2002) 280–294.

38. Michael Dear, 'The Postmodern Challenge: Reconstructing Human Geography', *Transactions, Institute of British Geographers* 13 (1988) 262–274.
39. **Cindi Katz**, 'Towards Minor Theory', *Environment and Planning D: Society and Space*, 14 (1996) 487–499.
40. Nigel Thrift, *Non-representational Theory: Space, Politics, Affect* (London: Routledge, 2007); Ben Anderson and Paul Harrison (eds) *Taking-place: Non-representational Theories and Geography* (London: Ashgate, 2010).
41. **Stephen Daniels**, 'Arguments for a Humanistic Geography', in R. J. Johnston (ed), *The Future of Geography* (London: Methuen, 1985) 143–158.
42. See, for example, the stream of books produced by Yi-Fu Tuan, from *Space and Place: The Perspective of Experience* (London: Edward Arnold, 1977; Minneapolis: University of Minnesota Press, reprinted 2001) through *Morality and Imagination: Paradoxes of Progress* (Madison WI: University of Wisconsin Press, 1989) to *Cosmos and Hearth: A Cosmopolite's Viewpoint* (Minneapolis: University of Minnesota Press, 1996).
43. Michael Dear, Jim Ketchum, Sarah Luria and Douglas Richardson (eds) *Geohumanities: Art, History, Text and the Edge of Place* (New York: Routledge, 2011); see also Stephen Daniels, Dydia DeLyser, J. Nicholas Entrikin and Douglas Richardson (eds) *Envisioning Landscapes, Making Worlds: Geography and the Humanities* (New York: Routledge, 2011). Others, with perhaps a keener eye on the 'digital humanities', prefer the term 'spatial humanities': see David Bodenhamer, John Corrigan and Trevor Harris (eds) *The Spatial Humanities: GIS and the Future of Humanities Scholarship* (Bloomington IN: Indiana University Press, 2010). <http://spatial.scholarslab.org>
44. Stanley Fish, 'The Triumph of the Humanities', *New York Times*, 13 June 2011.
45. See Bart Moore-Gilbert, *Postcolonial Theory: Contest, Practices, Politics* (London and New York: Verso, 1997).
46. H.C. Darby, 'The Problem of Geographical Description', *Transactions of the Institute of British Geographers* 30 (1962) 1–14; see also Pierce Lewis, 'Beyond Description', *Annals of the Association of American Geographers* 75 (1985) 465–478.
47. **Kearns**, 'Political pivot', below; more generally, see Gearóid Ó Tuathail, *Critical Geopolitics: The Politics of Writing Global Space* (London: Routledge, 1996).
48. Gregory, *Geographical Imaginations*, 34–37, 53–69.
49. For a discussion of the European historical geography through which a particular conception of landscape emerged as a 'way of seeing', see **Denis Cosgrove**, 'Prospect, Perspective and the Evolution of the Landscape Idea', *Transactions of the Institute of British Geographers*, NS, 10(1) (1985) 45–62.
50. Harley's contributions have been collected in J.B. Harley, *The New Nature of Maps: Essays in the History of Cartography* (ed. Paul Laxton) (Baltimore MD: Johns Hopkins University Press, 2001); see also **Matthew Edney**, 'Cartography without "Progress": Reinterpreting the Nature and Historical Development of Mapmaking', *Cartographica*, 30(2&3) (1993) 54–67.
51. John Pickles, *A History of Spaces: Cartographic Reason, Mapping and the Geo-Coded World* (London: Routledge, 2004); see also Jeremy Crampton, *Mapping: A Critical Introduction to Cartography and GIS* (Oxford: Wiley-Blackwell, 2010).
52. This is most readily grasped through the inherent interactivity of GIS.
53. **Rob Kitchin and Martin Dodge**, 'Rethinking Maps', *Progress in Human Geography*, 31(3) (2007) 331–344; for a detailed example, see Derek Gregory, 'Seeing Red: Baghdad and the Eventful City', *Political Geography* 29 (5) (2010) 266–279.
54. **David Pinder**, 'Subverting Cartography: The Situationists and Maps of the City', *D. Pinder Environment and Planning A*, 28 (1996) 405–427; see also Alan Ingram, 'Art and the Geopolitical: Remapping Security at Green zone/Red zone', in Alan Ingram and Klaus Dodds (eds) *Spaces of Security and Insecurity: Geographies of the War on Terror* (London: Ashgate, 2010) 257–277.

55. **Stuart Aitken and Deborah Dixon**, 'Imagining Geographies of Film', *Erdkunde*, 60 (2006) 3265–336; **Lisa Parks**, 'Digging into Google Earth: An Analysis of "Crisis in Darfur"', *Geoforum*, 40 (2009) 535–545. An important complement to Parks's essay is David Campbell, 'Geopolitics and Visuality: Sighting the Darfur Conflict', *Political Geography* 26 (2007) 357–82; Campbell has provided some of the most consistently revealing analyses of photography and visual imagery; see his blog on Photography, Multimedia, Politics at <http://www.david-campbell.org>.
56. Gillian Rose, *Visual Methodologies: An Introduction to the Interpretation of Visual Materials* (London: Sage, 2007; second edition); although Rose doesn't discuss it, GIS – like cartography – is also a visual method and can be pressed into critical service: see **Mei-Po Kwan**, 'Feminist Visualization: Re-envisioning GIS as a Method in Feminist Geographic Research', *Annals of the Association of American Geographers*, 92(4) (2002) 645–661. For more of Rose's work, see her blog, [visual/method/culture](http://visualmethodculture.wordpress.com) at <http://visualmethodculture.wordpress.com>.
57. **Fraser MacDonald**, 'Visuality', *International Encyclopedia of Human Geography* (London: Elsevier, 2009) 151–156; see also Fraser MacDonald, Rachel Hughes and Klaus Dodds (eds), *Observant States: Geopolitics and Visual Culture* (London: I.B. Tauris, 2010).
58. **Ron Martin**, 'Geography and Public Policy: The Case of the Missing Agenda', *Progress in Human Geography*, 25(2) (2001) 189–210; **Ann Markusen**, 'Fuzzy Concepts, Scanty Evidence, Policy Distance: The Case for Rigour and Policy Relevance in Critical Regional Studies', *Regional Studies*, 37(6&7) (2003) 701–717.
59. **Scott**, 'Meaning and Social Origins of Discourse', below.
60. For discussions, see **Paul Chatterton**, "'Give up Activism" and Change the World in Unknown Ways: Or, Learning to Walk with Others on Uncommon Ground', *Antipode*, 38 (2006) (2006): 259–281; **Christine Dunn**, 'Participatory GIS – a People's GIS?' *Progress in Human Geography* 31 (5) (2007) 615–637.
61. Forum: 'The Role of Geography in Public Debate', *Progress in Human Geography* 29 (2005) 165–193.
62. **Don Mitchell**, 'Radical Scholarship: A Polemic on Making a Difference Outside the Academy', in Duncan Fuller and Rob Kitchin (eds), *Radical Theory, Critical Praxis: Making a Difference Beyond the Academy?* ACME e-book series (Place: Praxis (e)Press, 2004, 21–31; Ulrich Oslender, 'The Resurfacing of the Public Intellectual: Towards the Proliferation of Public Spaces of Critical Intervention', *ACME: An International e-Journal for Critical Geographies* 6 (1) (2007) 98–123.
63. Michael Foucault, 'Of other spaces', *Diacritics* 16 (1) (1986) 22–27; it is a tantalizing quotation, endlessly repeated, but Foucault never published the lecture (that only happened after his death) and his published works, especially *Discipline and Punish*, are much better guides to his spatial analytics. See also Jeremy Crampton and Stuart Elden (eds) *Space, Knowledge and Power: Foucault and Geography* (Aldershot UK: Ashgate, 2007)
64. Edward Soja, *Postmodern Geographies*, has been the most vigorous advocate of the reassertion of space in postmodern social theory; for a critique that turns in part on the spatiality of early modernism, see Gregory, *Geographical Imaginations*, and on the spatiality of still earlier modernisms see Stephen Kern, *The Culture of Time and Space 1880–1918* (Cambridge MA: Harvard University Press, 1983).
65. Thomas Friedman, *The World is Flat: A Brief History of the Twenty-First Century* (New York: Farrar, Straus and Giroux, 2005); see also Richard O'Brien, *Global Financial Integration: The End of Geography* (London: Council on Foreign Relations Press, 1992); Francis Cairncross, *The Death of Distance: How the Communication Revolution Will Change Our Lives* (London: Orion, 1997).
66. **Deborah Cowen and Neil Smith**, 'After Geopolitics? From the Geopolitical Social to Geoeconomics', *Antipode* 41(1) (2009) 22–48.

67. Harvey's original discussion of time-space compression said remarkably little about its geographical unevenness, but it was nevertheless predicated on the relations between (class) power and space under capitalism and so recognised at least some of the social inequalities intrinsic to the process: see Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Oxford: Blackwell, 1989).
68. Homi Bhabha, 'Double visions', *Artforum* 305 (1992) 82–90: 88; see also **Alison Mountz**, 'Stateless by Geographical Design', in her *Seeking Asylum: Human Smuggling and Bureaucracy at the Border* (Minneapolis: University of Minnesota Press, 2010) 121–203. Distance and dispossession are also inflected by class and gender: artist Barbara Kruger entitled one of her most famous artworks, 'It's a small world, but not if you have to clean it.'
69. **J.-K. Gibson-Graham**, 'Querying Globalization', in *The End of Capitalism (As We Knew It)* (Minneapolis: University of Minnesota Press, 1996/2006) 120–147; **Eric Sheppard**, 'The Spaces and Times of Globalization: Place, Scale, Networks, and Positionality', *Economic Geography*, 78 (2002) 307–330.
70. See Mike Crang and Nigel Thrift (eds), *Thinking Space* (London: Routledge, 2000). This collection charts a 'spatial turn' (p. xi), including a move away from absolute conceptions of space towards what the editors call 'space as process and space in process', and registers their claim that 'Space is the everywhere of modern thought'. Although they were concerned at what they saw as the use of a 'geographical idiom' in social theory that was 'resolutely ignorant of geographers and geography as a discipline', however, puzzlingly none of the essays addressed the work of geographers, whose collective role appeared to be reduced to commentator on and critic of social theory. Ten years on, the spatial turn is a multi-disciplinary affair in which human geographers are no longer perched in the bleachers watching the action on the field below.
71. Jon May and Nigel Thrift (eds), *TimeSpace: Geographies of Temporality* (London: Routledge, 2001).
72. **Cole Harris**, 'Power, Modernity, and Historical Geography', *Annals of the Association of American Geographers*, 81(4) (1991) 671–683.
73. Derwent Whittlesey, 'The horizon of geography', *Annals of the Association of American Geographers* 35 (1945) 1–36; H.C. Darby, 'On the Relations of Geography and History', *Transactions of the Institute of British Geographers* 19 (1953) 1–11.
74. **Allan Pred**, 'A Day in the Life, a (Some)body in Motion: A Docker's Daily Path', in his *Lost Words and Lost Worlds: Modernity and the Language of Everyday Life in* (Cambridge: Cambridge University Press, 1990) 229–245 and 291–294; cf. Derek Gregory, 'Suspended Animation: The Stasis of Diffusion Theory', in Derek Gregory and John Urry (eds) *Social Relations and Spatial Structures* (London: Macmillan, 1985) 296–336.
75. This marks a considerable distance from neoclassical economics, whose famously dimensionless, frictionless economy is perched on the head of a pin; whatever angels it may encounter there, diabolically Harvey shows that space is integral to Marx's political economy: see David Harvey, *The Limits to Capital* (Oxford: Blackwell, 1982; reprinted London: Verso, 2006).
76. **Noel Castree**, 'The Spatio-Temporality of Capitalism', *Time & Society*, 18(1) (2009) 26–60.
77. Some commentators see this as a renewed interest in ontology, compared to human geography's obsession with epistemology in the 1980s and 90s: cf. **Ulf Strohmayer**, 'The Culture of Epistemology', in Steve Pile and Nigel Thrift (eds), *Handbook of Cultural Geography* (London: Sage, 2003) 520–531.
78. **Nigel Thrift**, 'Space: The Fundamental Stuff of Human Geography', in Sarah Holloway, Stephen Rice and Gill Valentine (eds), *Key Concepts in Geography* (London: SAGE, 2003) 95–107; for a fuller account, see Nigel Thrift, *Spatial Formations* (London: Sage, 1996).
79. Gillian Rose, 'Performing Space', in Doreen Massey, John Allen and Philip Sarre (eds), *Human Geography Today* (Cambridge: Polity, 1999) 247–259.

80. **Doreen Massey**, 'Philosophy and Politics of Spatiality: Some Considerations', in her *Power-Geometries and the Politics of Space-Time* (Heidelberg: Hettner-Lecture, Heidelberg, 1998) 27–42; for a fuller account, see her *For Space* (London: Sage, 2005).
81. Edward Relph, *Place and Placelessness* (London: Pion, 1976); Yi-Fu Tuan, *Topophilia: a Study of Environmental Perception, Attitudes and Values* (Englewood Cliffs NJ: Prentice Hall, 1974); Marc Augé, *Non-places: Introduction to an Anthropology of Supermodernity* (London: Verso, 1995). Tim Cresswell, 'The Genealogy of Place', in his *Place: A Short Introduction* (Oxford: Blackwell, 1996) provides an appreciation of all three authors.
82. Tim Cresswell, *In Place/out of Place: Geography, Ideology and Transgression* (Minneapolis: University of Minnesota Press, 1996). For more on Cresswell's work, see his blog, Varve, at <http://tjcresswell.wordpress.com>
83. Michel Keith and Steve Pile (eds) *Place and the Politics of Identity* (London: Routledge, 1993).
84. **Gearóid Ó Tuathail (Gerard Toal)**, 'The Effacement of Place? US Foreign Policy and the Spatiality of the Gulf Crisis', *Antipode*, 25(1) (1993) 4–31. The conversion of a peopled place into an abstract target is a standard condition for its attack and erasure.
85. **Pred**, 'A day in the life', below; for an elaboration, see Allan Pred, 'Place as historically contingent process: structuration and the time-geography of everyday life', *Annals of the Association of American Geographers* 74 (1984) 279–297.
86. Massey, *For Space*, 131; see also Doreen Massey, 'Power-Geometry and a Progressive Sense of Place', in Jon Bird, Barry Curtis, Tim Putnam, George Robertson and Lisa Tickner (ed), *Mapping the Futures: Local Cultures, Global Change* (London: Routledge) pp. 60–70; 'A Global Sense of Place', in her *Space, Place and Gender* (Cambridge: Polity, 1994) 146–156.
87. **Peter Merriman**, 'Driving Places: Marc Augé, Non-places, and the Geographies of England's M1 Motorway', *Theory, Culture & Society*, 21(4&5) (2004) 145–167.
88. **Cosgrove**, 'Prospect, perspective'; it could also be an imperial gaze: for an elaboration, see **Judith Kenny**, 'Climate, Race, and Imperial Authority: The Symbolic Landscape of the British Hill Station in India', *Annals of the Association of American Geographers*, 85(4) (1995) 694–714.
89. Rose, *Feminism and Geography*, 86–112.
90. **Don Mitchell**, 'Dead Labor and the Political Economy of Landscape – California Living, California Dying', in Kay Anderson *et al.* (eds), *Handbook of Cultural Geography* (London: SAGE, 2002) 233–248; see also his *The Lie of the Land: Migrant Workers and the California Landscape* (Minneapolis: University of Minnesota Press, 1996).
91. John Wylie, *Landscape* (London: Routledge, 2007) 166–167; see **Kenneth Olwig**, 'Performing on the Landscape versus Doing Landscape: Perambulatory Practice, Sight and the Sense of Belonging', in Tim Ingold and Jo Lee Vergunst (eds), *Ways of Walking: Ethnography and Practice on Foot* (Place: Ashgate, 2008) 81–91. This is a suggestion – Wylie's own approach is resolutely personal, and there is more than a hint of narcissism in some versions of non-representational theory in which the world is made to revolve around the researcher's own experience.
92. Daniela Dueck, *Strabo of Amasia: A Greek Man of Letters in Augustan Rome* (London: Routledge, 2000)
93. **Barnes and Farish**, 'Between regions', below.
94. **Stuart Elden** 'Land, Terrain, Territory', *Progress in Human Geography*, 34(6) (2010): 799–817; see also Elden, *Terror and Territory: The Spatial Extent of Sovereignty* (Minneapolis: University of Minnesota Press, 2009) and his *The birth of territory* (forthcoming), which provides a genealogy of the concept from the classical world through to early modern Europe. For a still wider view of Elden's interests, his blog Progressive Geographies, at <http://progressivegeographies.com>

95. **Ash Amin**, 'Regions Unbound: Towards a New Politics of Place', *Geografiska Annaler*, 86B(1) (2004) 33–44; **Anssi Paasi**, 'Bounded Spaces in the Mobile World: Deconstructing "Regional Identity"', *Tijdschrift voor Economische en Social Geografie*, 93(2) (2002) 137–148..
96. **Elden**, 'Land, Terrain, Territory'.
97. **Sallie A. Marston, John Paul Jones III and Keith Woodward**, 'Human Geography without Scale', *Transactions of the Institute of British Geographers*, NS, 30(2005) 416–432.
98. **Edward Soja**, 'Taking Los Angeles Apart: Some Fragments of a Critical Human Geography', in his *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (London: Verso, 1989) 190–221.
99. **Mountz**, 'Stateless by Design'.
100. Gloria Anzaldúa, *Borderlands/La Frontera: the new mestizo* (San Francisco CA: Aunt Lute Books, 1987); Matthew Coleman, 'US Statecraft and the US-Mexico Border as Security/Economy Nexus', *Political Geography* 24 (2005) 185–209; see, more generally, **John Agnew**, 'Borders on the Mind: Re-framing Border Thinking', *Ethics & Global Politics*, 1(4) (2008) 175–191.
101. **Derek Gregory**, 'Besieging Cartographies', in his *The Colonial Present: Afghanistan, Palestine, Iraq* (Oxford: Blackwell, 2004) 117–138; Derek Gregory, 'The Everywhere War', *Geographical Journal* 177 (2011) 238–250.
102. David Livingstone, *The Geographical Tradition: Episodes in the History of a Contested Enterprise* (Oxford: Blackwell, 1993); see especially Ch. 6, 'The Geographical Experiment'.
103. Stoddart, *On Geography*. For a more recent (and more rigorous) investigation of field science and its claims to objectivity, a world away from the South Pacific that enthralled Stoddart, see **Richard Powell**, "'The Rigours of an Arctic Experiment": The Precarious Authority of Field Practices in the Canadian High Arctic, 1958–1970', *Environment and Planning A*, 39 (2007) 1794–1811.
104. Halford Mackinder (1887) 'On the Scope and Methods of Geography', *Proceedings of the Royal Geographical Society*, 9: 141–60: 143.
105. Mary Somerville, *Physical Geography* (London: John Murray, 1849).
106. See, for example, H.J. Fleure, *Wales and Her People* (Wrexham: Hughes & Son, 1926).
107. Ellen Semple (1911) *Influences of Geographic Environment* (New York: Henry Holt, 1911).
108. Halford Mackinder (1902) *Britain and the British Seas* (Oxford: Clarendon Press); see **Kearns**, 'Political pivot' below.
109. Charles Darwin (1859) *The Origin of Species* (London: John Murray). Darwin was very careful not to generalise his findings to *homo sapiens*, beyond the key insight that humans are as much products of natural history as any other animal, insect, vegetable or microbiological species. See D.R. Stoddart, 'Darwin's Impact on Geography', *Annals of the Association of American Geographers* 56 (1966) 683–689; David Livingstone, 'The Geography of Darwinism', *Interdisciplinary Science Reviews* 31 (2006) 32–41.
110. This is a corollary of the discourse of tropicality (above, p. xxxv–xxxvi); see also **Livingstone**, 'Tropical Hermeneutics'. In his prescient contributions, American George Perkins Marsh had reversed the causal arrows and pointed – at early as the 1860s – to the large-scale impacts of humans upon their natural environments. Few others in Geography's early decades appeared to share his concern, despite clear evidence – in late nineteenth-century North America, for example – of 'ecocidal behaviour' (on that continent European immigrants succeeded in virtually exterminating bison and north Pacific fur seals, among other species).
111. For instance, Edward Ackerman published an essay entitled 'Geographic Training, Wartime Research and Immediate Professional Interests' in America's premier geographical journal: *Annals of the Association of American Geographers* 35(2) (1945) 121–143.

This was something of a manifesto written on behalf of a generation of future academic geographers in the US whose entire outlook had been altered by their war-time service.

112. That same year a major collection of essays provided a spirited case for a continued (or renewed) conversation. William L. Thomas (ed), *Man's Role in Changing the Face of the Earth* (Chicago: University of Chicago Press, 1956) was derived from symposium that drew seventy scholars together from more than 20 disciplines, including human geographers like Andrew H. Clark, H.C. Darby, Estyn Evans, Clarence Glacken, Pierre Gourou and Carl Sauer, earth scientists and climatologists like Luna Leopold, Arthur Strahler and C.W. Thornthwaite, and luminaries like Pierre Teilhard de Chardin and Lewis Mumford.
113. C.P. Snow, *The Two Cultures and the Scientific Revolution* (Cambridge and New York: Cambridge University Press, 1959). There are intriguing parallels between Snow and Donna Haraway; trained in zoology and biology, her first major study addressed the functions of metaphor in shaping biological research, and her subsequent writings on techno-science and techno-culture reveal a dazzling capacity to traffic in the space between the arts and the sciences. She opens a 'meeting place' too, but whether Snow would look through the window let alone go in the door is a more difficult question.
114. T.S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962); the book had its origins in a course in science that Kuhn was required to give to arts majors, and he subsequently explained that it was the enormity of the task that prompted him to turn to familiar ground for his students – history – and to take the model of a 'paradigm' from language-learning.
115. The flagship of the enterprise was R.J. Chorley and Peter Haggett (eds) *Models in Geography* (London: Methuen, 1967), but see also Peter Haggett and R.J. Chorley, *Network Analysis in Geography* (London: Arnold, 1969). The last hurrah was R.J. Bennett and R.J. Chorley, *Environmental Systems: Philosophy Analysis and Control* (London: Methuen, 1978).
116. For brief introductions to physical geography see Keith Richards, 'Geography and the Physical Sciences Tradition', in Nicholas Clifford, Sarah Holloway, Stephen Rice and Gill Valentine (eds) *Key Concepts in Geography*, 2nd edition (London: Sage, 2009) 21–45; Peter Sims, 'Previous Actors and Current Influences: Trends and Fashions on Physical Geography' in Stephen Trudgill and Andre Roy (eds) *Contemporary Meanings in Physical Geography* (London: Arnold, 2003) 3–24; and Nick Clifford's entry on 'physical geography' in Gregory, Johnston, Pratt, Watts and Whatmore, eds, *Dictionary of Human Geography*. Significantly, this fifth edition was the first to include an entry on Physical Geography – and the first to include an entry on Geography.
117. **Johnston**, 'Geography – coming apart at the seams?', below.
118. Kenneth Hewitt (1983) *Interpretations of a Calamity* (New York: Allen & Unwin, 1983).
119. Piers Blaikie, Terry Cannon, Ian Davis and Ben Wisner, *At Risk: Natural Hazards, People's Vulnerability and Disasters* (London: Routledge, 1994); **Michael Watts and Hans Bohle**, 'The Space of Vulnerability: The Causal Structure of Hunger and Famine', *Progress in Human Geography*, 17(1) (1993) 43–67.
120. B. L. Turner II, 'Land Change (Systems) Science', in Noel Castree, David Demeritt, Diana Liverman and Bruce Rhoads (eds), *A Companion to Environmental Geography* (Oxford: Wiley-Blackwell) 167–180, and Robert Kates, William Clark, and others, 'Sustainability science', *Science* 292 (2001) 641–642.
121. James Fairhead and Melissa Leach, *Reframing deforestation* (London: Routledge, 1998).
122. B. L. Turner II and Paul Robbins. 'Land Change Science and Political Ecology', *Annual Review of Environment and Resources*, 33 (2008) 295–316.
123. Neil Smith, *Uneven Development* (Oxford: Blackwell, 1984); for a summary, see **Neil Smith**, 'The Production of Nature', in George Robertson, Melinda Mash, Lisa Tickner, Jon Bird, Barry Curtis and Tim Putnam (eds), *Future Natural: Nature, Science, Culture* (London: Routledge, 1996) 35–54.

124. **Richard Walker**, 'California's Golden Road to Riches: Natural Resources and Regional Capitalism, 1848–1940', *Annals of the Association of American Geographers* 911 (2001) 167–199; **Michael Watts**, 'Resource Curse? Governmentality, Oil and Power in the Niger Delta, Nigeria', *Geopolitics* 9 (2004) 50–80.
125. **Scott Prudham**, 'The Political Economy of an Ecological Crisis', in his *Knock on Wood: Nature as Commodity in Douglas Fir Country*, New York: Routledge, 2003; Michael Watts, 'Oil as Money: The Devil's Excrement and the Spectacle of Black Gold,' in Stuart Corbridge, Ron Martin and Nigel Thrift (eds) *Money, Power and Space* (Oxford: Blackwell, 1994) 406–445.
126. William Cronon, *Changes in the Land: Indians, Colonists and the Ecology of New England* (New York: Hill and Wang, 1983). Cronon emphasises the co-production of the land, but draws an important social distinction: 'Ironically, though colonists perceived fewer resources in New England's ecosystems than did the Indians, they perceived many more commodities.'
127. William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: Norton, 1992).
128. Michael Watts and David Goodman (eds), *Globalizing Food* (New York: Routledge, 1997).
129. **Philippe Le Billon**, 'The Geopolitical Economy of "Resource Wars"', *Geopolitics* 9 (2004) 1–28.
130. Piers Blaikie, *The Political Economy of Soil Erosion in Developing Countries* (London: Methuen, 1985); Piers Blaikie and Harold Brookfield, *Land Degradation and Society* (London: Methuen, 1987). The radical political implications of this approach were developed in Michael Watts and Richard Peet (eds), *Liberation ecology* (London and New York: Routledge, 1996; second edition, 1994); the title plays off the 'liberation theology' whose revolutionary doctrines excoriated the deepening poverty of the poor and animated peasant movements in South and Central America in the 1970s.
131. See, for instance, **Judith Carney**, 'Converting the Wetlands, Engendering the Environment: The Intersection of Gender with Agrarian Change in The Gambia', *Economic Geography* 69 (1993) 329–348.
132. Michael Watts *Silent Violence: Food, Famine and Peasantry in Northern Nigeria* (Berkeley CA: University of California Press, 1983); David Harvey had already criticized neo-Malthusianism in 'Population, Resources and the Ideology of Science', *Economic Geography* 50 (1974) 256–277.
133. See **Matt Gandy**, 'Landscapes of Disaster: Water, Modernity, and Urban Fragmentation in Mumbai', *Environment and Planning A*, 40 (2008) 108–130; **Paul Robbins and Julie Sharp**, 'Producing and Consuming Chemicals: The Moral Economy of the American Lawn', *Economic Geography* 79 (2003) 425–451.
134. **Karl Zimmerer**, 'Human Geography and the New Ecology', *Annals of the Association of American Geographers* 84 (1994) 108–25; Peter A. Walker, 'Political Ecology: Where is the Ecology?' *Progress in Human Geography* 29 (2005) 73–82; see also Matthew Turner, 'Ecology: Natural and Political', in Noel Castree, David Demeritt and Diana Liverman (eds) *A Companion to Environmental Geography* (Oxford: Wiley-Blackwell, 2009) 181–198.
135. Erich Zimmerman, *World Resources and Industries: A Functional Appraisal of the Availability of Agricultural and Industrial Resources* (New York: Harper, 1933).
136. William Cronon, 'The Trouble with Wilderness, or Getting Back to the Wrong Nature', in Cronon (ed) *Uncommon Ground: Rethinking the Human Place in Nature* (New York: Norton, 1995) 69–90.
137. **Bruce Willems-Braun**. 'Buried Epistemologies: The Politics of Nature in (post)Colonial British Columbia', *Annals of the Association of American Geographers* 87 (1997) 1: 3–32; see also Bruce Braun, *The Intemperate Rainforest: Nature, Culture and Power on Canada's West Coast* (Minneapolis: University of Minnesota Press, 2002).

138. Nancy Leys Stepan, *Picturing Tropical Nature* (Ithaca: Cornell University Press, 2010); see more generally Noel Castree and Bruce Braun (eds), *Social Nature: Theory, Practice, Politics* (Oxford: Blackwell, 2001).
139. **Mike Hulme, Suraje Dessai, Irene Lorenzoni and Donald Nelson**, 'Stable Climates: Exploring the Statistical and Social Construction of 'Normal' Climate', *Geoforum* 40 (2009) 197–206.
140. **Wendy Wolford**, 'Agrarian Moral Economies and Neoliberalism in Brazil: Competing Worldviews and the State in the Struggle for Land', *Environment & Planning A*, 37 (2005) 241–261.
141. **Stephen Legg**, 'Foucault's Population Geographies: Classifications, Biopolitics and Governmental Spaces', *Population, Space and Place*, 11 (2005) 137–156; Stephen Legg, *Spaces of Colonialism: Delhi's Urban Governmentalities* (Oxford: Wiley-Blackwell, 2007).
142. Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford CA: Stanford University Press, 2008); for a geographical discussion, see Claudio Minca, 'Giorgio Agamben and the New Biopolitical Nomos', *Geografiska Annaler B* 88 (2006) 387–403; Minca, 'Agamben's Geographies of Modernity', *Political geography* 26 (2007) 78–97.
143. Judith Butler, *Precarious Life: The Power of Mourning and Violence* (London: Verso, 2004); Derek Gregory, 'The Black Flag: Guantánamo Bay and the Space of Exception', *Geografiska Annaler B* 88 (2006) 405–27; **Simon Reid-Henry**, 'Exceptional Sovereignty? Guantánamo Bay and the Re-Colonial Present', *Antipode* 39 (2007) 627–648. An important limitation of Agamben's work is its marginalisation of struggles against the proliferation of spaces of exception and the (collective) agency of those who are consigned to them.
144. **Kris Olds, James Sidaway and Mathew Sparke**, 'White Death', *Environment and Planning D: Society and Space*, 23 (2005) 475–479; Bruce Braun and James McCarthy, 'Hurricane Katrina and Abandoned Being', *Environment and Planning D: Society & Space* 23 (2005) 802–809; **Jennifer Hyndman**, 'The Securitization of Fear in Post-Tsunami Sri Lanka', *Annals of the Association of American Geographers*, 97(2) (2007) 361–372; David Nally, *Human Encumbrances: Political Violence and the Great Irish Famine* (Notre Dame: University of Notre Dame Press, 2011).
145. Sarah Whatmore, *Hybrid Geographies: Natures, Cultures, Spaces* (London: Sage, 2002).
146. **Morgan Robertson**, 'The Nature that Capital can see', *Environment and Planning D: Society and Space* 24 (2006) 367–387.
147. **Jennifer Wolch, Kathleen West and Thomas Gaines**, 'Transspecies Urban Theory', *Environment and Planning D: Society and Space* 13 (1995) 735–760; **Steve Hinchliffe and Sarah Whatmore**, 'Living Cities: Towards a Politics of Conviviality', *Science as Culture* 15 (2) (2006) 123–138. See also Jennifer Wolch and Jody Emel (eds), *Animal geographies* (London: Verso, 1998).
148. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010) p. viii; see also Bruce Braun and Sarah Whatmore (eds) *Political Matter: Technoscience, Democracy and Public Life* (Minneapolis: University of Minnesota Press, 2010). The ghost in the machine here is Bruno Latour, whose actor-network theory and subsequent writings (and exhibitions) have done much to challenge conventional conceptions of action and agency.
149. The example of worms is in fact Darwin's, but for a brilliant rendering of the agency of other living creatures in what he calls the 'parasites of capitalism' see Timothy Mitchell, 'Can the mosquito speak?', in his *Rule of experts: Egypt, Techno-Politics, Modernity* (Berkeley CA: University of California Press, 2002) Chapter 1.
150. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).
151. See, for example, **Jake Kosek** (2010) 'Ecologies of Empire: On the New Uses of the Honeybee', *Cultural Anthropology* 25, 4: 650–678.

152. The term was proposed by ecologist Eugene Stoermer, and atmospheric scientist Paul Crutzen has argued that it constitutes a new geological era
153. See also Simon Dalby, 'Anthropocene Geopolitics: Globalization, Empire, Environment and Critique', *Geography Compass* 1 (2007) 103–18; Dalby, 'Welcome to the Anthropocene! Climate change, biopolitics and the end of the world as we know it', Paper presented to the Annual Meeting of the Association of American Geographers, Seattle, April 2011.
154. Nigel Clark, *Inhuman Nature: Sociable Life on a Dynamic Planet* (London: Sage, 2011).