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Capitalism and the Marxist critique of political ecology

Noel Castree

Marx nowhere talked explicitly about the production of nature. But in his work there is an implied understanding ... which leads firmly in this direction. Neil Smith (1984: 50).

In all forms of society there is one specific kind of production which predominates over the rest, whose relations ... assign rank and influence to all others. It is a general illumination which bathes all colours and modifies their particularity. Karl Marx (1973: 106)

In a world where corporations create new life-forms and may soon geo-engineer the skies, does what we call 'nature' any longer possess autonomy and agency? In what ways, and to what degree, can the capitalist mode of delivering goods and services be said to 'produce' something that is, by definition, thought to be given rather than made? Is 'nature', in its various forms (large and small), something that can and should found a politics devoted to reforming contemporary capitalism or, perhaps, to superseding it? If not, how can the biophysical dimensions of capitalist accumulation be factored-in to a critique of political economy? This essay will address these analytical and normative questions by reviewing over 40 years of Marxist scholarship focussed on the relationships between capitalism and what we by convention call nature – human and non-human.

Since my questions are large ones and the scholarship voluminous, I want to place the writings of the late geographer Neil Smith (1954-2012) at the heart of my review. Though Smith was only one of many Marxists who wrote about the capitalism-nature nexus, his several publications on the subject warrant especial attention for three reasons. First, since the mid-1990s they have been a key reference point for Marxist and Marxisant geographers seeking to more expansively 'materialise' Marx's theory of capital accumulation. Second, even those – for the most part based outside the geography discipline – who did not engage with Smith's writings in this quest, can usefully have their contributions interpreted in light of his striking insistence that capitalism makes even nature in its own image. The reverse applies too, of course: how defensible is this insistence when Smith's work is read in light of some other Marxists' belief that nature, and those who speak for it, can and do resist capitalism's entreaties *sui generis*? Third, notwithstanding his subsequent attempts to update and clarify key claims about nature advanced in *Uneven development* (1984), a certain interpretive openness attaches to them. By glossing this in the search for what Smith 'really intended,' several critics – myself included some years ago (e.g. Castree, 1995) – risk overlooking important aspects of his thinking. We might regard these aspects as 'productive ambiguities'.

In sum, this essay foregrounds Smith's writings about capitalism and nature as a means of exploring key themes and insights in a larger corpus of Marxist work on the subject (what is sometimes called 'ecoMarxism'). Though I thereby intend to pay tribute to one of geography's most inspirational thinkers, my aim here is not to suggest that Smith's

contributions trumped those of other Marxists similarly interested in nature. Instead, by reading the latter's arguments in relation to Smith's, I hope to shed light on important ideas and persistent points of analytical and normative disagreement. Given that the literature is now large, I will necessarily be quite selective in my coverage of writings beyond Smith's own. I aim to identify contributions that are representative of key themes and issues. My interpretation of them, while hardly definitive, emerges from over 20 years of immersion in the debates about Marxism, capitalism and nature as a sometime contributor sympathetic to Smith's project.

The chapter is organised chronologically. I begin by introducing Smith's thesis that nature is produced, first put forward back in 1980 and fully articulated in his book *Uneven Development*, paying attention to the wider intellectual and political context in which he was writing. After this long section, I then summarise succinctly a set of other contributions to a then still-nascent Marxist political ecology that were published subsequent to – and usually in ignorance of – Smith's thesis (roughly 1987-2000). I read these in light of Smith, and Smith in light of them, making retrospective connections where none (or few) were made at the time. I then, again telegraphically, focus on the recent ('neoliberal') period, in both an intellectual and political economic sense. I place Smith's original thesis and his subsequent commentaries on it in relation to newer Marxist theories of capitalist-nature relationships and wider currents of thinking and politics. As I will explain, my continuous attention to context is of more than merely historic interest. Throughout, my overarching concern is whether and how a Marxist critique of political ecology can function without 'nature' as an ontological reference point for analysis and evaluation. I apologise to knowledgeable readers at the outset: lack of space prevents me from exploring the work I summarise here in anything like the detail it deserves.

Before I get down to business, a point about terminology, one about literature omitted from this review, and one about the consequences of knowledge. As far as I know Smith never called himself a 'political ecologist' (even after the term caught-on in geography and anthropology from the early 1980s), but his disquisitions on nature clearly make a certain definition of the term applicable. After all, Marx's middle and later writings – upon which Smith drew heavily and creatively his entire career – were billed as an exploration of the social definition, creation, distribution, regulation, effects and politicisation of wealth in a capitalist world ('political economy'). To draw-out what Marx left largely implicit, as Smith and fellow travellers have done, is to show that his political economy always necessarily had an ecological dimension. How the biophysical realm both enables and hinders the creation, growth and capture of wealth in its capitalist form is a question of prime analytical and political importance. Indeed, though Smith rarely referred to their publications, it should come as no surprise that some of the pioneers of a self-designated 'political ecology' – such as Piers Blaikie (1985) – were inspired by Marx's germinal account of the capitalist mode of production (see Watts, this volume).

This reference to Blaikie's influential work suggests strong links should exist, via Marx, between the writings of Smith and the field of political ecology ('third world' and 'first world) showcased in this volume. However, these links are – surprisingly – few and far between. Smith's highly theoretical treatment of Marx contrasted with the concrete, empirical preoccupations of Blaikie, Michael Watts and others who pioneered political ecology.

Though his work has been widely read by political ecologists it has rarely be used in their research. A full review of the way Marx's ideas were operationalized by self-styled 'political ecologists' and elaborated by Marxists like Smith – who explored the nature question in a different way – remains to be written. Accordingly, when I refer to 'political ecology' in this chapter I'm referring not the field of that name but to theoretical work like Smith's that examines how wealth in capitalist societies has a constitutively biophysical dimension. It is interesting to speculate whether and how the work I review here would have developed differently had its authors better engaged with Marxist political ecologists like Watts.

As we shall see, the concepts we ultimately favour in addressing the question of 'capitalist nature' significantly affect the answers Marxists like Smith have offered. Since capitalism is far, far more pervasive than ever it was in Marx's day, getting these answers 'right' – and inserting them into the discourses and programs of political movements – recalls Marx's stirring injunction that critics must change the world, not merely aim to understand it. Universities are far more subject to the invisible hand of the market and the visible hand of the state than in decades past, but they remain crucial sites for the creation of oppositional thinking. Without them, contemporary Marxist thought would be smaller and less sophisticated than it is – notwithstanding the fact that fewer academics and students are drawn to it than a generation ago. For Neil Smith, and I hope for readers of this essay, Marxism has some vital things to tell us about the 'nature' of our capitalist world that other approaches ignore, wilfully or otherwise. But these will never be verities for more than few unless progress can be made in the perennial battle to win the minds and hearts of enough people in universities and beyond. As I will show, Marxist analysis is as vibrant and incisive as ever, but it appears politically impotent – notwithstanding the powerful anti-capitalist sentiments expressed worldwide in the late 1990s and a decade later when the global financial crisis erupted.

Denaturalising nature: Neil Smith thinking against the grain

A distinctive perspective

Thirty years ago Western capitalists were hunting for a cure to the wide and deep economic crisis that began in the early 1970s. As part of this crisis Left political organisations lost their former ascendancy in many countries. Meanwhile, knowledgeable observers had long realised that actually-existing 'communism' fell far short of the ideals of any credible Marxist revolutionary. Yet radical dreams were hardly dead: the environmental, feminist and anti-racist movements had built-up a head of steam in many Western countries through the 1970s, with the 'events' of 1968 a still-inspirational memory. Though internally diverse, elements of these movements provocatively went against the grain of current thinking and practice. Universities afforded these New Leftists the time and space to match their political ambitions with powerful philosophies and theories. They also became a redoubt for Marxists trying to make sense of more turbulent world – one in which Marxism would, outside the universities, become something of a dirty word once the 'eastern bloc' collapsed almost over-night (1989-91) and 'free market capitalism' seemed to reign triumphant in a world on the cusp of 'globalisation'. It was in this contradictory, febrile context that the then young Marxist geographer Neil Smith published a sophisticated work of abstract theory – *Uneven*

development – in 1984. As he explained on the very first page, it was an “exploration and critique of *concepts* as a means to interrogate more sharply the *reality* we live in” (1984: xv, emphasis added).

At the time of publication, the book was distinctive for a number of reasons, of which I want to highlight four. First, it had a lot to say about what we call ‘nature’ – even though Marx’s own comments on the subject had been most fragmentary. In fact, it was among the first systematic attempts to integrate biophysical phenomena into Marx’s political economy, linking them to space, scale and geographical inequality in the process. Prior to Smith, the main Marxian authors to consider Marx’s view on nature (Friedrich Engels aside) were Alfred Schmidt, Sebastiano Timpanaro, Raymond Williams and Norman Geras (see Castree, 2000). Second, what Smith said was – to use his own words – ‘jarring’ and ‘quixotic’ because he claimed that nature is *produced* not given. To quote him at some length:

[T]his idea ... defies the conventional, sacrosanct separation of nature and society ... We are used to conceiving of nature as external to society, pristine and pre-human, or else as a grand universal in which human beings are but small and simple cogs. But here ... our concepts have not caught up with reality. It is capitalism which ardently defies the inherited separation of nature and society, and with pride rather than shame. In its constant drive to accumulate larger and larger quantities of social wealth ..., capital[ism] transforms the shape of the entire world. No God-given stone is left unturned, no original relation with nature unaltered, no living thing unaffected. (1984: 7-8)

Third, Smith’s emphasis on capitalism’s transgressive powers called into question the deep-seated ontological assumptions underpinning both radical and more mainstream thought in the 1980s. His insistence that there is no nature intelligible outside contingent social discourses, relations and practices posed a challenge to much ‘environmentalist’ thinking, to politics and policies predicated on ideas of ‘human nature’ (mental and/or physical), and to the idea that ‘natural science’ (including physical geography) studies an intrinsically asocial world (leaving social scientists and humanists – including human geographers – to study everything else). As Smith explained in chapter 1 of his book, analytical and normative references to nature (without the scare-quotes) are ideological, both in the sense of misleading and actively reproductive of capitalist society. I will say more about why presently. Finally, while this claim about ideology presaged later writings by post- or non-Marxists about the ‘discursive construction’ and ‘cultural constitution’ of ‘nature’, Smith refused to limit nature’s social character to linguistic frames or semiotic sieves.

Understanding ‘production’

What exactly did Smith mean by ‘production’? At the heart of his conception were the terms *metabolism* and *labour* (1984: 33-4). The former, far more than a word like ‘interaction’, posits what we call ‘people and environment’ or ‘society and nature’ as *unities* not dualities. As Smith argued, “Society is internal to nature” (1984: 33). For him, and for Marx, the motor of this internalisation is humans’ propensity to make the material world into things of use and to thereby alter their own physical and mental ‘nature’. Chapter 2 of *Uneven Development* explores this in some conceptual detail. In a section on ‘Production in general’ he makes the

key point that all work involves not just a relation with what we call nature (e.g. with water, soil or cattle), but with other people. The latter condition how work is performed, what it is in 'external nature' that is deemed useful, and how 'human nature' is thereby altered by the collective results of work. This immediately alerts us to the idea that all 'production' of goods and services extends beyond the physical act of individuals wresting useful items out of the non-human world in particular locations. In this light, we might say that metabolism alerts us to *flows* (of energy, ideas and materials), and labour to the key *relations* determining the specific pattern of those flows (metaphorical pipes or wires, if you will).

How, then, is production organised in capitalism? The answer culminates chapter 2 of Smith's book. Like all modes of production capitalism proliferates use values (qualitatively specific entities designed to be of practical or symbolic utility). But since it is not a subsistence economy, useful items are produced in order to be exchanged. Exchanged for what? After Marx, Smith argues that the answer is money. For workers this is essential because in capitalism they are wage-workers, i.e. they must sell their capacity to work in exchange for a salary they can use to purchase the goods and services to reproduce themselves physically and psychologically. For capitalists – who own the 'forces of production' (e.g. factories) – it is essential for a different reason. Yes, they must sell enough products to pay for their own socio-physical reproduction; but they must also accumulate (or borrow) enough money to ensure future rounds of commodity production. This is more than a question of covering their production costs: capitalists do not go the trouble of employing workers, and paying for material inputs, premises and equipment, with no expectation of a return on investment. Instead, they aim to accumulate more money than they laid-out at the start of each production round. And since they must compete with other capitalists for market share they are compelled to innovate in any number of ways (e.g. inventing new use values, reducing production costs, expanding into overseas markets, or creating new demand niches in existing markets). In short, the ensemble of social relations specific to capitalism – relations of ownership, exchange and competition – ensure that 'accumulation for accumulation's sake' is, as Smith wrote, "... a socially imposed necessity" (1984: 70). These relations make expanding circulation – the entry of entities, goods and people into, along and out of various commodity chains – the economic norm.

Quite aside from the fact that it confronts workers, capitalists and everyone else as an impersonal force eluding control, and quite aside from its contradictory character (e.g. tending towards boom and bust periods), there is for Smith (after Marx) something else peculiar about capitalist production in this expanded sense. It is that one commodity (wage labour) is, in fact, the source of the wealth represented by the money that capitalists devote their energies to accumulating. *Contra* mainstream economic thinking, commodities do not have 'intrinsic value', value is not merely 'conferred' by consumers' preferences, and nor does profit originate from the skill or efficiency of specific capitalists. As Marx explained in his 'labour theory of value' – still controversial among analysts to this day – workers collectively create and unconsciously alienate social wealth by way of a process that conceals the fact and operates 'behind their backs'. His concepts of fetishism, concrete labour, abstract labour, socially necessary labour time, and surplus value were key to this theory of how commodities (pre-eminently money) are the material form assumed by social relations and the cloak hiding the transfer of social wealth between classes. In this light, capitalism's *differentia specifica* is

that tendentially growing (and empirically changing) *flows* of energy, ideas and materials are both compelled by, and a displaced form of, particular inter- and intra-*relations* among two social classes. Here metabolism is unique because specific acts of work are profoundly conditioned by real, but abstract, social forces ‘stretched-out’ over time and terrestrial space. It is special too because at one level capitalism is tediously changeless yet, at another, extraordinarily dynamic.

In light of all this, it might seem perfectly reasonable to argue that capitalism ‘utilises’, ‘relies upon’ and often ‘destroys’ what we call ‘nature’ on an expanding scale – but not that that it *produces* it. After all, as Smith conceded in *Uneven Development*, “Nature is generally seen as precisely that which cannot be produced” (1984: 49). Furthermore, the just-mentioned concept of metabolism and Marx’s/Smith’s emphasis on relations apparently point us towards a process whereby various *different and discrete entities* (non-human and human) *connect with and co-constitute each other in historically and geographically specific ways*. Yet Smith held-fast to the idea of production his entire career, and in a seemingly *literal* not metaphorical sense. “Where capitalism is unique”, he wrote 30 years ago, “is that for the first time human beings produce nature at a world scale” (1984: 77). What is more, he considered – and then dismissed – the argument that because some parts of ‘nature’ are not socially produced (e.g. lava, our brains or gravity) the idea of production must be carefully circumscribed:

... these rather extreme examples hardly testify to the falsity of the ‘production of nature’ thesis, especially when one looks at more down-to-earth examples of supposedly unproduced nature, such as Yellowstone Park or Yosemite (1984: 80).

Even though key natural resources appeared suddenly scarce (again) after 2000 (e.g. oil), and humans powerless to arrest the future effects of past greenhouse gas emissions, Smith did not back-track: “[T]he production of nature”, he wrote in his final major essay on the subject, “is being dramatically intensified and its dimensions multiplied” (2007: 21). As Julie Guthman recently noted, “In effect, the production of nature thesis flipped materialism on its head, by repositioning nature as an outcome of social relations rather than an asocial input to the economy” (2011: 235).

Why disavow human and non-human nature?

Why was Smith such a fierce critic of the idea that ‘nature’ has an autonomous existence, agency or moral-ethical consider-ability – especially given how prominent ‘environmentalism’ in its various forms had become in the years when Smith was researching and writing *Uneven Development*? We can only speculate, but I would point to two aspects of the context in which he crystallised his ideas. Both, in part, were reactions to the nature-society dualism that had long organised thinking in Smith’s own discipline of geography.

First, Smith’s doctoral thesis advisor was David Harvey, who undoubtedly exerted a huge influence on his thinking. In 1974 Harvey published what, in time, became a germinal Marxist critique of the neo-Malthusian thinking. Such thinking formed a key strand of the just-mentioned environmentalism that arose because of perceived resource scarcities and

anthropogenic destruction of species and ecosystems. Harvey took strong issue with the idea, popularised by the likes of American biologist Paul Ehrlich, that the world was ‘over-populated’. Instead of highlighting ‘natural limits’ to economic growth, Harvey ‘denaturalised’ and relativized the question of how the biophysical world affects the social one. For him, problems of human poverty and scarcity reflected the systematic maldistribution of material wealth (e.g. food) because of unequal transfers of social wealth (represented by money) – such that ‘limits to growth’ were *internal* to capitalism.

Second, while Harvey’s attention was directed at ‘natural resources’, he did not focus on ‘natural hazards’, such as hurricanes or tsunamis. These periodic threats to people were surely independent of any social conditioning. Yet in a 1976 *Nature* paper, the geographers Phil O’Keefe, Ken Westgate and Ben Wisner sought, as per their title, to take ‘the naturalness out of natural disasters’ (again, see Watts, this volume). Noting that more people than ever were being badly affected by extreme biophysical events, they pointed to the socio-economic and political processes that rendered some vulnerable but not others. This led them to suggest that avoiding settling in hazardous areas or spending more money on technical solutions (e.g. flood barriers) was not necessarily the best response. Instead, they argued that attempts to address poverty and social marginalisation would render the worst affected groups more resilient to biophysical extremes. These extremes were thus experienced *contingently*, not as absolutes. Smith was undoubtedly aware of this argument: four years later he and O’Keefe (1980) together authored the very first presentation of the ‘production of nature’ thesis in *Antipode*.

In this light, it is not hard to see why Smith – to use the words of a later associate echoing Raymond Williams – believed that “ideas the draw upon the authority of nature nearly always have their origin in ideas about society” (Ross, 1994: 15). Here I return to the subject of ‘ideology’, mentioned in passing earlier. For Smith, references to a supposedly society-free nature not only served to anchor and legitimate all manner of capitalist projects, such as cures for ‘genetic diseases’ in humans marketed by biotechnology corporations. More than this, they were – and remain – *the conceptual mirror of the everyday forms in which capitalism presents itself* (see chapter 1 of *Uneven development* for more on this). For the mode of production that takes hold of ‘nature’ in all its forms does not make plain the ramified and complex flows and relations that comprise it. Instead, Smith argued, it manifests as a world of entities – things, people, and so on – that may be conjoined but appear to exist regardless of any particular connections established between them. For Smith the job of Marxism is to contest the appearance and show that ‘the question of nature’, whatever else it may be, is really a question of how any society defines, creates, and distributes the wealth that sustains it. The normative up-shot is to ask not what nature prevents or enables, but to consider how ‘nature’ might be produced in ways more democratic, more just and more subject to collective control (see Biro, 2005).

Placing analytical limits on ‘the production of nature’?

As we have seen, Smith appeared to believe that capitalist nature was produced ‘all the way down’. This testified to how powerfully Hegelian holism, materialised by Marx, permeated his thinking. In this he presaged neo-Marxist Steven Vogel’s plenary argument in *Against Nature* that what “we take for granted as ‘natural’ turns out on investigation to be the product

of human labor and hence *literally* socially constructed” (1996: 7). Yet in *Uneven development*, and subsequent essays, close readers could (can) spot some signs of equivocation. For instance, Smith observed that “Unlike gravity, there is nothing natural about the ‘law’ of value” (1984: 82) – a statement which posits the very distinction his book was intended to challenge. Similarly, in a chapter published the following decade, he said of his ‘thesis’ that “If it indulges a certain anthropomorphism, ... it expresses the extent to which advanced capitalist societies have intruded human activity at the centre of nature” (1996: 50). Here the image of ‘intrusion’ and the concept of the ‘anthropos’ both suggest/ed a residual Kantianism (or, if one prefers, Cartesianism) that Smith otherwise dissented from.

Was Smith simply inconsistent, or did his apparent vacillation reflect something important about late twentieth century capitalism? After all, by the mid-1990s biotechnology firms were routinely crossing species barriers at the genetic level with considerable precision. Meanwhile, a new and thoroughly global regime of capital accumulation seemed both to exhaust nature’s bounty (e.g. oceanic fish stocks) and to overestimate the environment’s capacity to absorb waste (witness ozone layer thinning and ‘global warming’, both of which were headline news not long after *Uneven Development* was published). Perhaps capitalism produced some natures but not others, meaning that Smith (and other Marxists) needed a more differentiated sense of the natural according to (i) its malleability and (ii) which capitalist were seeking to profit from its use. A number of analysts, though working separately, together addressed this need. None paid particular attention to Smith’s thesis, but their use of Marxian concepts makes it easy enough to establish the connections with hindsight. I will focus briefly on seven published contributions, organising them into two clusters.

The uneven internalisation of ‘nature’ by capitalism: biophysical barriers and opportunities

The first five pertain to the analysis of agriculture and the question of how capitalists explore new frontiers in their desire for profit. Like mining, fisheries, forestry and other natural resource industries, agriculture must ‘confront nature directly’. In what became a classic intervention, the rural sociologists Susan Mann and James Dickinson (1978) argued that agriculture’s economic ‘exceptionalism’ – that is, its historic resistance to capitalist social relationships – had something to do with its biophysical basis. For instance, the naturally-determined gap between investment and work (e.g. buying a tractor and sowing seeds), and return on investment (because food-stuffs take time to grow) can make agriculture unattractive to capitalist entrepreneurs. Following Marx, and his epigones Karl Kautsky and V. I. Lenin, Dickinson codified and elaborated this argument in *Agrarian Capitalism in Theory and Practice* (1990). The ‘obstacle’ of nature, she showed, helped explain why agriculture remained dominated by rentiers, families and various small holders.

Yet these obstacles, others showed, were not all of a piece. In their book *From Farming to Biotechnology*, neo-Marxist agro-food analysts Goodman, Sorj and Wilkinson (1987) focussed on how capitalist firms had ‘taken hold’ of some aspects of agriculture. They focussed on ‘appropriation’ – manufacturing things farmers needed (e.g. combine harvesters) by altering their sense of what precisely they need – and ‘substitution’ – replacing on-farm inputs to farming (e.g. cow manure) with manufactured ones (e.g. chemical fertiliser). The same year, Marxist rural sociologist Jack Kloppenberg showed how both processes had

unfolded historically in the United States in his monograph *First the Seed* (1987). In effect, his account of how agricultural science and democratically-elected government had indirectly founded a new set of private firms supplying genetically altered seeds (and other inputs) to farmers year-on-year was an illustration of ‘the production of nature’ in all but name. At both a discursive and physical level, Kloppenberg showed, these firms created new commodities that circumvented previous biological obstacles to agrarian accumulation (see Castree, 2001). Capitalist production in an expanded sense here produced ‘nature’ in a concrete sense.

All this suggested that capital literally circulated *through* some elements of nature but had to circulate *around* others, depending on prevailing technology. In his magisterial book about the growth of large-scale agriculture in California, geographer George Henderson (1999) evidenced the latter in compelling detail. He showed how ‘finance capital’ (banks, in this case) made money by extending credit to aspiring commercial farmers confronting the barriers to accumulation Mann and Dickinson had identified. The banks thereby enabled the intrusion of ‘productive capital’ into farming, notwithstanding the obstacles, and made money in the process. As Henderson argued in a trailer essay for his book, the point “is that nature repels and attracts capital in different ways according the historical ... contingen[cies]” (1998: 76). This enjoins us to attend to different circuits and sectors of capital, and – if we broaden the point beyond agriculture and money-lending – the differential affordances nature presents entrepreneurs.

Capitalism’s biophysical outsides

Few, if any, of the contributions just mentioned paid attention to the concerns expressed by environmentalists from the early 1970s onwards. Additionally, their analyses were focussed on aspects of nature deemed directly ‘useful’ by capitalists and others. However, what about all those elements of nature, from fresh water to oxygen to human intelligence, that capitalism treated as ‘free inputs’ or else as ‘sinks’ for the release of the bi-products of production? This question preoccupied a group of what became known as ‘eco-Marxists’. Their aim, achieved differently in the detail, was two-fold: first, to explain how and why capitalism was systematically degrading the biophysical basis of its own existence; second, to thereby explain to Marxists and left-leaning environmentalists alike that they needed to make common political cause.

It will suffice to point to two authors who, like Smith, drew directly on Marx’s original writings in presenting their late 20th century critique of capitalism-nature relationships. In *The Future of the Market* German Elmar Altvater attended to the “largely neglected dimension of economic processes [whereby] ... transformations [are] undergone by raw materials and energy in the course of production, consumption and distribution” (1993: p. 5) – ignored, that is, by mainstream economists and Marxists alike (in his view). He placed capitalist labour – in both its concrete and abstract senses – at the heart of these transformations, highlighting the partial way ‘nature’ registers as use values:

Nothing can be defined as a use-value ... without regard to the ... biotic and abiotic environment. But this is *precisely what happens* if it becomes a bearer of value and acquires the properties of a commodity in the capitalist social formation (1993: 193, emphasis added).

On this basis Altvater identified “five dimensions of the contradiction between ecology and economics” (p. 198) arising from a clash of the “ordering principles” (p. 204) governing capital accumulation, on the one hand, and a nature not designed for use by capitalism on the other.

Independently of Altvater, American Marxist James O’Connor was making similar arguments. Assembled in his 1998 book *Natural Causes*, O’Connor’s many essays presented the concepts of ‘conditions of production’, ‘under-production’ and ‘second contradiction of capitalism’ – all of which have since become influential in certain Marxist circles. The first pointed to all those things (biophysical and social) upon which capitalism relies at any one moment but which it had no hand in (re)producing. The second pointed to these things’ scarcity once capitalists utilise them as if they are limitless. This scarcity results in rising costs, new regulatory requirements (imposed by governments) and other burdens that are not shouldered by capitalists alone and may become politicised. The third concept pointed to an ‘ecological dialectic’ arising from capitalism’s engagement with nature. O’Connor regarded this as just as important as Marx’s ‘first contradiction’ between the ‘relations and forces of production’. Accordingly, he suggested that radical environmentalists should join trades unions, communist organisations and others in any revolt against capitalism. ‘Green’ politics needs to be ‘red’, and vice versa.

From Altvater’s and O’Connor’s perspective, Smith’s thesis – had they engaged with it at the time – would doubtless have appeared more metaphorical than literal: for them, we might say, capitalism treats all nature *as if* it is (or can be) ‘produced’, yet eventually runs-up against the physical contradictions and political backlash this creates. This arguably reflects the influence of neo-Marxist historian Karl Polanyi (1944) on their work. Polanyi’s concept of ‘fictitious commodities’ pointed to all those things – values, relations, institutions, norms and physical entities – whose characteristics *exceeded* those ‘demanded’ by capitalism at any one time.

An imagined Smithian response

How might Smith have responded to the slew of Marxian work summarised in the two subsections above? I say ‘might’ because in neither of his two substantial 1990s essays about nature (Smith, 1996, 1998) did he refer much to any of this scholarship. The seemingly equivocal Smith, with which I introduced this section, might have appreciated the qualifiers everyone from Mann to O’Connor introduced to the question of capitalist nature. He might have applauded the way a politics of class was thus shown to be wedded to a politics of nature, especially given that trades unions and socialist political parties were no longer in the vanguard after the economic crises of the 1970s and 80s.

However, the apparently unequivocal Smith of the previous section would surely have argued something else: namely, that these authors (re)imported ideological thinking into Marxism by implying that much of ‘nature’ can be understood as possessing ‘independent’ qualities that capital either cannot profit from, circulates around or ignores at its peril. He had criticised Alfred Schmidt (1971), one of the first to systematically theorise nature as a Marxist, on just these grounds (see chapter 1 of *Uneven development*). Against any “neo-Kantian revival” (1998: 266), as he called it, we need, he argued, to resist “the fetishism of nature”

(1996: 51) evident in both the environmental movement *and* attempts to ‘green’ capitalism from the early 1990s (witness The Nature Company: see Smith, 1996: 36-9, 51-2).

It is with the unequivocal Smith that I wish now to end this chapter. As I will explain, a critique of capitalist nature can proceed under the sign of ‘production’ without falling prey to a *tabula rasa* argument (‘capitalism can produce nature willy-nilly’) and without, on the other hand, appealing to aspects of ‘nature’ that supposedly exist outside the production process. But this ‘both/and’ view necessitates understanding production in a broader sense than the literal fabrication of things like genetically modified organisms. Misinterpreting this breadth as covering nature ‘internal’ and ‘external’ to capitalism is, I believe, why Neil Smith can be misread as a ‘hyper-constructionist’ who accords ‘nature’ neither agency nor moral worth.

Capitalism, nature and radical politics in the Anthropocene

Contextual considerations

The early 21st century has been exceedingly eventful. First, earlier warnings about the magnitude of ‘global environmental change’ have been repeated more loudly. Recent IPCC reports foresee ‘dangerous climate change’ if runaway atmospheric pollution is not abated, while a network of environmental scientists proclaim the recent period of Earth history (the Holocene) over: people are now, they argue, equivalent to the ‘great forces of nature’, such is ‘the human impact’. Second, this has given environmental politics a boost of sorts, and comes after the wave of anti-capitalist protests that helped to re-politicise this mode of production from the late 1990s. Third, the global financial crisis of 2008-9 reignited these protests and offered widespread opportunities to think about a more humane, eco-friendly capitalism (if not its outright replacement). ‘Decarb-onising’ capitalism has become a seeming priority, and many identify the massive stored energy of fossil fuels as the motor that has carelessly driven it forward this last 150 years (see Huber, 2013).

However, and fourthly, critics suggest that the sting of radical thinking has been drawn, or simply ignored, by the powers that be. Despite the Rio+20 Earth Summit, ‘environmental issues’ have slid down the agendas of most major governments (witness the dismal international attempts to curb greenhouse gas emissions). Meanwhile, environmental economics and broader neoliberal policies now seemingly dominate attempts to give the invisible hand a ‘green thumb’. Everything, even a ‘nature’ recognised as in need of better ‘management’, must conform to the imperative of economic growth in these times of recession and austerity. What’s more, some capitalists remain determined to physically remake nature, rather than ‘adapt’ to it, as they harness the latest science to their profit-seeking ventures. Noted American biotechnologist and businessman Craig Venter is, one might say, the poster child of this attempt to denaturalise ever more matter. Fifth, despite the evident problems with contemporary capitalism (environmental and otherwise), the relevance of Marxism is not widely appreciated outside (or often within) universities where people like me ply my trade. Furthermore, because ‘environmental issues’ are widely understood to be serious ones, it is likely that future attempts to popularise the Marxian critique will fare best if they speak to these issues and the political responses they have inspired.

In this context, Smith's idea of the production of nature may, as it approaches middle age, appear 'jarring' and 'quixotic' for all the wrong reasons. Unless carefully qualified, it seems unable to speak the plethora of analytical and normative questions pertaining to a world of dwindling oil supplies and higher ambient temperatures. The context has changed and so, perhaps, should our assessment of what value Smith's thesis (any longer) possesses. Even if one appreciates its analytical thrust, its refusal to grant the category of 'nature' political potency appears to make it irrelevant to the many radicals who want to protect, defend, restore and preserve whales or ice sheets.

A renaturalised Marxism?

Given all this we can see the appeal of more recent work by certain Marxist political ecologists. Chief among them is John Bellamy Foster and his associates. Their idea of a 'metabolic rift' between capitalism and the biophysical world has become well-known and influential in some Marxist academic circles. Though they acknowledge the specific and contingent character of all human-environment relationships, in *The Ecological Rift: Capitalism's War on the Earth* (Foster et al. 2010) they suggest that capitalism is pushing the Earth's biophysical systems beyond their capacity to function. In a recent essay Foster (2012) refers to the new scientific idea of 'planetary boundaries' (of which there are said to be nine) to describe this capacity. This argument echoes those made by Altvater and O'Connor. However, Foster and his associates focus more on "high impact planetary ecological crises" (*ibid.* 16), thus mirroring the Earth-system focus of many campaigning environmental scientists like James Hansen and Manchester University's Kevin Anderson.

This focus seems apropos. It serves as a corrective to the 'Prometheanism' and 'utopianism' some critics detect in earlier strands of Marxist political ecology (see Soper, 1991 and Benton, 1991). Yes, we live in world where capitalist firms can remake nature forensically, but it is also one where capitalism's unintended 'environmental externalities' must be acknowledged and arrested for fear of massive and uncontrollable Earth-system changes. Indeed, high-level discussions of 'green capitalism' show that even (some) capitalists realise that 'the second contradiction' is no figment of the Marxist imagination. So how can Smith's critique of neo-Kantianism remain in-tact given the 'fact' of our Anthropocene condition? Surely Marxist analysis and politics must reckon with nature's agency at the largest scale?

Since Smith himself provided an answer to these questions we do not, fortunately, have to speculate. In *Socialist Register 2007* (Smith, 2006) and the 'Afterword' to edition 3 of *Uneven Development* (Smith, 2008) he addressed the new way 'nature' was being mobilised by capitalist elites, by environmentalists and by certain Marxists. Two arguments stand out. First, he identified 'nature-washing' as "the process in which social transformations of nature are well enough acknowledged, but in which that socially changed nature becomes a new super-determinant of our social fate" (2008: 245). Nature (external and/or universal) here becomes an ontological reference point justifying arguments for 'carbon offsetting' or, more radically, 'the revenge of Gaia'. Either way, Smith argued, its invocation fails to properly politicise capitalism, since the problem is not 'technology', 'over-consumption' or over seven billion human mouths to feed. Equally, the solution is not simply 'clean technology', less consumption and fewer babies.

Second, Smith argued that – notwithstanding the widespread recognition that nature needs better looking after – capitalism today

absorbs nature more fully and completely ... For all that capitalism is more voracious than ever in vacuuming a supposedly external nature in search of commodifiable use values, we can also glimpse the starts of a new ...regime whereby the task of producing a useable nature begins to pass from so-called external to social nature. (2006: 26)

How, we might ask, are capitalist attempts to price (and profit from) environmental ‘bads’ and ‘goods’ (aka ‘services’) a form of ‘production’? Smith’s answer is that these goods and bads are not, in the end, ‘natural’ – though they are clearly anchored in real biophysical phenomena. Instead, they are phenomena framed discursively and practically by capitalists, usually working hand-in-hand with various field scientists. To bear ‘value’ in the Marxist sense, Smith argued, what we call nature becomes visible in circumscribed ways that are governed by capital’s ‘laws of motion’ – *even when it is nature’s ‘real qualities’ that are supposedly being valued for their own sake or for non-economic reasons* (see Robertson [2012] for more on this). A critique of capitalist political ecology cannot thus fall prey to its own kind of ‘nature-washing’, even as it objects to the way capitalism virtually usurps the power to determine our relation with the non-human world and our own corporeality (see Bakker and Bridge, 2006). Much of the new ‘critical resource geography’ aims to strike this balance (see the chapters by Bakker, Loftus, Mansfield, Prudham and Robertson this volume).

Conclusion

This chapter has explored some big questions all-too-briefly. I have ignored relevant literatures about environmental in/justice and ecological economics. I have also ignored the writings of many talented (neo-)Marxists writing about nature, among them Karen Bakker, Ted Benton, Uli Brand, Gavin Bridge, Dan Buck, Stephen Bunker, Paul Burkett, Bram Buscher, Esteve Corbera, Gareth Dale, Peter Dickens, Michael Ekers, Vinay Gidwani, Matt Huber, Ray Hudson, Maria Kaika, Joel Kovel, Mazan Labban, Richard Levins, Richard Lewontin, Alain Lipietz, Alex Loftus, Minqi Li, James McCarthy, Philip McMichael, Jason Moore, Sandra Moog, Martin O’Connor, Tom Perreault, Scott Prudham, Morgan Robertson, Allan Schnaiberg, Richard Smith, Erik Swyngedouw, Richard Walker and Michael Watts (the list goes on). But, by focussing on Neil Smith’s notion of nature’s ‘production’ in relation to a selection of other Marxist writings, I have gone some way to addressing key analytical and normative issues subtending the work of these authors. Is ‘nature’ internal or external to capitalism (or both), a constraint or opportunity (or both)?; is it the ‘enemy of nature’ and if so what sort of ‘nature’?; and what should a ‘politics of nature’ look like in the critique of capital? As is now plain, I believe Smith’s notion has analytical merit, while its political message is hopeful: for him, we can (and should) change our collective relation with what we call nature, but not because of any ‘objective’ imperatives emanating from the biophysical world. Analytically, the challenge is to find a way of registering ‘the difference that nature’ makes to all our lives while avoiding recourse to all those dualisms that have organised Western thought for centuries. Arguably, that challenge is being met in much of the

recent research reviewed in this Handbook, even if – as I said at the outset – the sort of ‘political ecology’ practiced by Smith largely ran parallel to the evolution of political ecology as a field.

Finally, what of politics and action? After all, Marxism famously aspires to change the world not only to understand it. Smith’s arguments arguably remain too counter-intuitive to be of service in politics outside the academy. ‘Production’, conventionally understood, seems a strange concept – a peculiar *metaphor* even – to organise an ecologically-aware anti-capitalist discourse. Moreover, like many academic Marxists writing about nature, Smith wrote virtually nothing about *real politik*: how, practically, might the social relation with ‘nature’ be changed for the better? Interestingly, certain strands of environmental and body-politics operative outside universities are now dispensing with ‘nature’ as an ontological referent (see, for example, Shellenberger and Nordhaus, 2007). In a generic sense, this mirrors Smith’s insistence that we need new terms of radical political discourse. The challenge, though, is to find a lexicon that resonates in everyday life without becoming assimilated to a soft reformism that does nothing to reign-in capitalism’s appetite to commodify everything. Whatever happens, biophysical questions – questions of ice sheets, sea levels, atmospheric temperature, genes, fresh water, and much else besides – will be absolutely central to politics (mainstream and radical) in the 21st century. How those questions are answered discursively and practically may, literally, determine the future of life on this planet. Can Marxists provide solutions that have mass appeal without invoking ‘common sense’ terms like ‘nature’? Notwithstanding the bad name capitalism currently has in many quarters, the prospects are not terribly promising.

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