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Post-structuralist ecologies

[I]t is not a question of anti-humanism, but a question of whether subjectivity is produced solely by internal faculties of the soul, interpersonal relations, and intra-familial complexes, or whether non-human machines such as social, cultural, environmental assemblages enter into the very production of subjectivity itself. (Goodchild, 1996)

Introduction

In the preceding pages, we have charted a course across the rocky terrain of post-structuralist geography. We have taken in landscapes of fluidity and insta-bility, as well as landscapes of permanence and solidity. We have encountered spaces of discipline and confinement, as well as spaces of movement and trans-formation. We have analysed heterogeneous associations, as well as the spatial imaginaries that animate such associations. We have reviewed the metaphorical terms used by post-structuralists to describe space and place and, in so doing, we have engaged with processes of network building, processes of emergence, processes of stabilization, processes of division, processes of *de/re*territorialization and so on and so forth.

Some of these post-structuralist geographies were explored in the case-study chapters, which concentrated in the main upon the various ways in which spa-tial relations interact with spatial locations. In the first case-study chapter, we investigated this interaction in the domain of 'nature' and saw that efforts to secure nature within clearly demarcated spatial zones inevitably lead to the surfacing of heterogeneous relations. These relations refuse to respect zoning operations; rather, they perform transgressive movements which undermine on-going efforts to shore up spatial defences. Although this finding implies a requirement to abandon strategies of spatial purification (that is, spaces *for* nature and spaces *for* society), it also indicates that a new interaction between spatial relation and spatial location could and should be generated, especially if natural entities are to be effectively stabilized in dynamic ecological contexts.

In the second case-study chapter, it was suggested that any full engagement

imaginaries must be recast and recombined in order to allow the development of an 'ecological imaginary'. This 'ecological imaginary' would bring into being new collectives of heterogeneous entities. Within these collectives, 'partner-ships' between humans and non-humans would be stabilized in ways that allow both 'types' to bolster the integrity of the other. This requires attention to the general ecological conditions enjoyed by the collective, the distribution of resources amongst the collective's members, as well as the ethical principles upon which the collective is maintained. In all these aspects, planning has a key role to play: it can orchestrate novel and innovative alignments of entities in its plans and decision-making processes; it can work to offset the power relations that generate unequal distributions of resources; and it can elaborate ethical principles for the governance of ecological space. However, ecological plan-ning implies a new form of planning, one that is amenable to multiplicities of various kinds and one that is prepared to entertain future trajectories of devel-opment, which are somehow open and somehow disordered.

In the third case-study chapter, we looked in some detail at how networks operate to orchestrate spatial arrangements in practice (rather than just in the theoretical imagination). We compared two networks and their spaces: a 'fast' network of prescription and standardization and a 'slow' network of fluidity and diversity. We showed that the first of these aimed to establish a simplified ecol-ogy in which relational alignments allowed resources (for example, food, tech-nology, customers) to be gathered in, while troublesome elements (for example, pollution, obesity, waste) were sifted out. This contrasted with the second net-work, which sought to bring as many aspects as possible within the ambit of its operations (for example, taste, culture, ecology, social relations) on the under-standing that this would lead to unsavoury aspects being reduced in number (for example, pollutants, adverse health effects, cultural erosion). It was suggested that the second of these networks – which broadly conformed to Probynn's (2000: 57) conception of a 'palatable recombination of affect, eating and ethics' – might deliver some important insights for (ecological) strategies that aim to combine ('globalized') spatial relations and ('localized') spatial locations. In Massey's (2004) terms, it shows how the 'local' can be mobilized within 'global' networks so as to challenge dominant or Panoptic modes of spatialization.

In a variety of ways, then, the case-study chapters take forward the parallels between post-structuralism and ecology that were referenced in the opening chapter. Yet, while many commonalities between the two approaches have been identified (that is, their shared concern for relations and relationalism), there is perhaps a need now to clarify the benefits that might accrue to geography from any closer alignment of post-structuralist and ecological theories. In other words, what insights can be generated by a post-structuralist standpoint on ecological relations and what assistance might these insights provide to the practice of human geography?

between social actors and material spaces to the fore in spatial analysis. The aim of this chapter is to provide a general context for this finding by showing how post-structuralist theory incorporates some measure of ecological thinking. The account provided below follows closely that given by Conley (1997), where it is argued that ecology lies close to the heart of post-structuralism. However, while this general insight is endorsed here, it is also proposed that post-structuralism should be tailored to the requirement for ecological action on the part of *humans*. Thus, it is suggested that post-structuralism may need to qualify its traditional anti-*humanism*, if it is to generate political progress on environmental issues. In other words, the chapter argues that post-structuralist geography can retain its radical or critical 'edge', if it sets humans *within* ecological relations but resists dissolving them into such relations.

Post-structuralism and ecology

As we saw at the beginning of Chapter 1, structuralism 'decentres' the human subject, so that change and development come to be seen as the unfolding of impersonal, underlying structures. One of the arenas in which Lévi-Strauss developed this structuralist approach was in his analysis of 'myth'. Lévi-Strauss argued that all forms of cultural organization are built upon myths of various kinds (Lévi-Strauss, 1964). Myths play a role in binding socio-cultural phenomena together and make patterns of social organization intelligible and meaningful. One myth of particular interest to Lévi-Strauss was that of the rational, male subject, controlling and dominating the human and nonhuman environment. According to Conley (1997: 43), Lévi-Strauss was concerned to show that these all-powerful male subjects are nothing but a 'living species'; thus, he argued, they are enmeshed in nature as well as culture ('nature is in and of culture', Conley, 1997: 51). Nevertheless, while Lévi-Strauss recognized that 'man' is embedded in nature, he also bemoaned modifications of nature by this same 'man'. In particular, he was concerned about the destruction of non-Western cultures and environments by the expansion of advanced industrial societies. He saw the spread of Western culture and associated economic practices as undermining the viability of non-Western cultural forms. This was to be deplored, he argued, because non-Western cultures tend to nurture their environments rather better than cultures in the West.

Interestingly, Conley suggests that, for Lévi-Strauss, respect for other (non-Western) peoples was an 'ethical' question:

Upon humans as ethical beings devolves the responsibility to assume the duty of safe-guarding the diversity of the living. Unlike grasshoppers, tent caterpillars, locusts,

species. Lévi-Strauss's ethics are set in a chain of creation in which all links are connected. An extinction of one species unfastens the whole, depriving other species of their right to live. (1997: 47)

Thus, while humankind in general must carry responsibility for its ecological actions, it is one particular version of humankind that must carry most responsibility as it tends to engender the most destruction: the Western self and its associated ego; 'the self and personal identity are a trap that cuts humanity off from the world' (Conley, 1997: 52). Lévi-Strauss therefore aligned his affirmation of human ethical duties towards the environment with his structuralist anti-humanism: humans can only act well towards nature once they realize that they are part and parcel of nature, thereby accepting a more humble role in the making and shaping of the world.

Lévi-Strauss's studies indicate that structuralism might be effectively associated with ecology. As we move towards post-structuralism the linkage between the two becomes even more pronounced. However, ecological post-structuralists initially pay rather more attention to the systemic qualities of eco-systems than to the specific duties of humans. One of the leading theorists in this regard is Michel Serres. As we have already seen (in Chapter 4), Serres is interested in relations, in the 'signals' or 'messages' that circulate across space through relational webs. Like Lévi-Strauss, he decentres the human from its previously privileged place in the firmament: 'man' is now part of a 'living organism'; he is made up of 'interlocking information or language systems, the most complex of which is biological language itself, that which orders all social organisations in humans' (Conley, 1997: 61). In Serres's view, these systems are turbulent and unstable, given to fluctuating movements. And humans too are subject to recurrent destabilizations: 'human bodies are in constant flow, maintaining a delicate balance between stasis, redundancy and disorder in themselves, among each other, and with the environment' (Conley, 1997: 62). Thus, Serres downplays the 'humanness' of humans: he shows that they are 'structurally similar to *all* of creation, both organic and inorganic' (Conley, 1997: 61). Humans are defined only by their embeddedness in (ecological) systems: in this context 'being – no longer separable from information – cannot define itself against another being, or an object. It is a complexity, both microcosm and macrocosm, part of a larger microcosm and macrocosm' (Conley, 1997: 64).

Again, however, knowing humans are addressed in Serres's theory, although these are not disembodied, disengaged humans; rather, they are humans as part of wider collectives, situated within ecological formations. Serres (1995) argues that, in the wake of changes in the global environment, humans must forge a 'natural contract' with the earth in order to establish 'balance' and 'reciprocity' with nature. This contract would explicitly aim to democratize (or 'horizontalize', Serres, 1995) the position that humans hold in the overall scheme of things.

only an engagement with unpredictability and disorder will suffice. Thus, for Serres, human actions in the domain of ecology must aim at the retention and promotion of biological diversity, but they must also be attuned to a context in which nature is defined by its incorporation in dynamic and complex systems. The 'politics of nature' must, therefore, aim to establish some sustainable mixture of order and disorder, chaos and calm, information and noise.

Further clues to the composition of a new post-structuralist politics are provided by Deleuze's collaborator Felix Guattari (2000) in his short book, *The Three Ecologies*. Like Serres, Guattari sees humans as located in a complex system that is constantly changing. Thus, Guattari devises a form of eco-subjectivity 'that is immanent and in constant becoming' (Conley, 1997: 93). This new eco-subjectivity unfolds in a territory of multiplicities and emergent relations; thus Guattari argues for a 'mobile subject', one that is 'affectively' engaged to ecological territory: 'beings, neither quite autonomous nor endowed with an immutable foundation, assembling for affective reasons on a common *'Grund'*, an existential territory in movement and transformation, open onto becoming and process' (Conley, 1997: 94). These beings are bound to territory by relations of various kinds: 'humans interact with each other and the planet' (1997: 94).

Guattari here appears to take up Serres's systemic approach to ecological process and politics. However, he goes on to identify a form of politics that is overtly *ethical* in character. In Guattari's view, ecological action would challenge dominant ways of thinking that subordinate ecological entities to the working of capitalist economies. In Deleuzian/Guattarian terms, ecological politics should engender a *de*territorialization – that is, a 'flight' from dominant ways of thinking and restrictive forms of behaviour, so as to allow a reterritorialization – that is, an affective and relational engagement with ecological space. In order to achieve this double movement (de/reterritorialization) Guattari argues for a 'reconstruction of subjectivities' (Conley, 1997: 96). This consists of three aspects:

1. *Mental ecology*, including 'myriad relations from which we make selections and draw diagrams that contribute to the construction of ever-changing ecosystems' (Conley, 1997: 96). Mental ecologies are important because they not only shape perceptions of nature but also influence actions towards natural entities. As Conley (1997: 98) puts it: 'mental ecology consists of multiple relations in and with the world. By deterritorialising and reterritorialising, the subjects break off from a territory and build new, virtual worlds with the imaginative wherewithal that an ecological mode of thinking is best able to provide'. Through the imaginative generation of these new, virtual worlds, 'we trace new lines of flight, new diagrams [...] everything evolves in continually changing assemblages' (1997: 99).

2. *Social ecology*, including everyday practices of citizenship, consists of 'devel-

(Guattari, 2000: 34). Social ecology effectively means re-establishing the social bond, but in ways that are sensitive to ecological requirements.

3. *Machinic ecology* stimulates a reconsideration of nature. No longer is environmental action predicated on the simple defence of nature; now a more dynamic, evolutionary approach is required. This approach would be concerned not with discrete natural entities but with the complex assemblages in which these entities are inevitably situated. Thus, Guattari (2000: 66) suggests 'we might just name environmental ecology *machinic* ecology'.

These three aspects of eco-subjectivity give us some insight into a post-structuralist ethos for environmental action. We can see that such action must be conducted in three registers simultaneously: in the arena of concepts and visualizations (as in Chapter 6 above on planning); in the arena of social relations and political mobilization (as in Chapter 7 above on food); and in the arena of environmental action and the harnessing of dynamic ecological processes (as in Chapter 5 above on urban–rural distinctions). Guattari's eco-subject must also develop an acute spatial sensibility through these three registers. This sensibility must be strongly relational and strongly affectual; it must aim not at the controlling or closure of space, but rather at the artful steering of dynamic socio-spatial processes:

> By definition, the 'art of the eco' is process itself. A practice based on openness constitutes the very essence of an art of the science of ecology that goes through all existing ways of domesticating existential territories, modes of being, the body, the environment, the contextual assemblages of ethnic groups, including general rights of humanity. Vertical hierarchical power assemblages (*pouvoir*) are replaced by horizontal, spatial assemblages (*puissances*) that enable social change. (Conley, 1997: 103)

Guattari gives us, then, a forceful characterization of the eco-subject, the post-structuralist political ecologist working in new ways to challenge the ecologically damaging trajectory of contemporary capitalism. However, Guattari himself admits that his concern for 'subjectivity' may strike some (post-structuralist) readers as rather odd. As he says:

> in the name of the primacy of infrastructures, of structures or systems, subjectivity still gets a bad press, and those who deal with it, in practice or theory, will generally only approach it at arms length, with infinite precautions, taking care never to move too far away from pseudo-scientific paradigms, preferably borrowed from the hard sciences: thermodynamics, topology, information theory, systems theory, linguistics etc. It is as though a scientistic superego demands that psychic entities are reified and insists that they are only understood by means of extrinsic coordinates. Under such conditions, it is no surprise that the human and social sciences have condemned themselves to missing the intrinsically progressive, creative and auto-positioning dimensions of processes of subjectification. (2000: 36)

human and social sciences. As we have seen in previous chapters, topology, systems theory, information theory, linguistics have all fed into post-structuralism in one way or another, and all have generated a great deal of valuable work on relationality and the composition of space. However, as Guattari indicates, this literature has also struggled with subjectivity and in arguing for his 'three ecologies' he feels the need to reinstate the notion of the (eco-)subject. Thus, the question is raised as to whether this reinstatement moves us out of post-structuralism's traditional anti-humanism back into a humanistic frame of reference.

Relationality and reflexivity

The various post-structuralist contributions to ecological thinking presented above all propose forms of relational thinking as the most appropriate way to capture ecosystem dynamics. Claude Lévi-Strauss stresses the way culture is embedded in nature; Michel Serres sees nature as but one part of dynamic and turbulent systems, in which various entities are thrown together in unexpected and unpredictable ways; Felix Guattari describes nature in terms of territories of emergence and becoming, in which multiple processes flow both together and apart, thereby generating further rounds of complexity. Interestingly, despite their post-structuralist predilections, all these authors retain a concern for human actions and knowledges (especially Lévi-Strauss and Guattari). Their theorizing is aimed at generating some form of ecological action on the part of human actors and human social groupings. This is taken furthest by Guattari, when he calls for new forms of 'eco-subjectivity' based on revised mental, social and environmental sensibilities. Here, then, post-structuralism displays an avowed political–ecological intent.

The conjoined emphasis on relationalism and subjectivity means that these post-structuralist accounts emphasize the building of new connections between social and natural entities. They take an almost holistic approach to this endeavour and stress the way humans are necessarily encompassed within multiple sets of relations and multiple forms of belonging. In fact, Guattari goes so far as to argue that the 'human' is disintegrated into these relations and belongings. He says:

'rather than speak of the "subject", we should perhaps speak of components of subjectification, each working more or less on its own. This would lead us, necessarily, to re-examine the relation between concepts of the individual and subjectivity, and, above all, to make a clear distinction between the two. Vectors of subjectification do not necessarily pass through the individual, which in reality appears to be something like a 'terminal' for processes that involve human groups, socio-economic ensembles, data-processing machines, etc. Therefore, interiority establishes itself at the crossroads of multiple components, each relatively autonomous in relation to the other, and, if need be, in open conflict. (2000: 36)

of 'subjectification'. This relational subject can be seen as an ecological subject – indeed, Guattari aligns the two in the notion of eco-subjectivity so that ecological action comes to be seen as a (key) form of relational action.

However, if we think back for a moment to Chapter 7, it will be recalled that in the analysis of ecological action in the food sector, relationality was conjured up in concert with 'reflexivity' (these two aspects were spliced together in the rather clumsy phrase 'relational reflexivity'). Thus, eco-subjectivity might be seen to have a dualistic quality. On the one hand, ecological action requires the establishment of new connections between subjects and objects so that ecological alignments (or 'partnerships') can be consolidated. On the other hand, eco-subjects must assess social and environmental relations in reflexive terms. Such reflexivity requires that a 'critical distance' is established between the subject and object so that the most appropriate course of (ecological) action can be ascertained. By combining these two aspects, we can suggest that the relational ethic provokes eco-subjects into an awareness of themselves as reflexive and knowing participants embedded within complex ecologies. We therefore arrive at a position where humans are seen as enmeshed within heterogeneous relations but also that they retain distinctive qualities as participants in such relations. Thus, while we no longer see humans as disembodied subjects, or as actors who always and everywhere retain a privileged status, we nevertheless recognize that humans hold reflexive capacities that set them apart in some way from other entities.

In identifying how we might understand the role of different entities in relational contexts, we can turn to Ian Hacking's (1999a) attempt to redraw the rather crude distinction that currently exists (in geography, as elsewhere) between 'nature' and 'society'. In so doing, he introduces the notion of different 'kinds' so as to focus our attention on differing forms of socio-ecological action. In particular, Hacking introduces a distinction between 'interactive' and 'indifferent' kinds. In his view, humans are interactive kinds because they can reflect upon their incorporation into socio-material relationships and can act upon these reflections. In particular, humans can use language-based resources to assess how they are being represented (by, for instance, other humans) or how they are being acted upon (by, for instance, heterogeneous sets of relations). Hacking uses the term 'interactive kinds' to show how forms of agency are linked to the ways in which people conceptualize themselves and how they then act upon these conceptualizations. He claims that other entities do not behave in quite this way. In illustrating this point, Hacking cites (following Pickering, 1994) the example of quarks, and he argues that, although they are quite capable of action, quarks are not aware of the classifications made about them: 'Our knowledge about quarks affects quarks, but not because they become aware of what we know, and act accordingly'. Hacking calls entities of this type 'indifferent kinds': 'the classification "quark" is indifferent in the sense that calling a quark a quark makes no difference to the quark' (1999a: 105)

'interactive' is dependent upon immersion in such relations); yet, it is proposed that natural and social entities will respond in different ways to their position-ing within particular relational arrangements and these differences are attribut-able to some stable and immutable characteristics that are not fully reducible to surrounding relations (in other words, there is a humanist residue, a trace of subjectivity). These differences hinge on the reflective abilities of humans, abilities that derive from social relations (in particular, shared languages and cultures). Therefore, (human) entities cannot always simply be thought of as potential 'allies', to be enrolled in processes of relational fabrication (as argued by Latour, 1987, for instance), for they can make conscious, reflexive responses to the act of enrollment and can thereby alter the whole functioning of the relational configuration. (Although other entities can obviously modify their various associations these modifications are not normally based on reflexive processes of deliberation).

Hacking illustrates how the distinction between interactive and indifferent kinds can be brought to bear in his book, *Mad Travellers* (1999b), which deals with the appearance and disappearance of a mental illness known as 'fugue'. The term 'fugue' referred to a strange compulsion to wander, a compulsion that was preceded by insomnia, migraine and amnesia. It was initially diagnosed in 1887, but it remained a recognized medical condition for only twenty years. Hacking thus calls fugue a 'transient mental illness': it is a social phenomenon that emerges from a particular set of 'ecological conditions'; once these condi-tions changed then the phenomenon disappeared. In this case, the ecology that allowed the illness to flourish included the following: systems of detection, notably identity-card checks on travellers; a taxonomy that recognized certain behaviours as illnesses; a cultural polarity that valorized certain forms of behav-iour and disapproved of others; and the apparent need on the part of a number of individuals to engage in behaviours commensurate with the condition. This last aspect draws our attention to the interactive nature of transient mental ill-nesses: Hacking explains that, during the early stages of fugue development, patients and doctors together elaborated a set of symptoms that came to dis-tinguish the illness. Hacking emphasizes the interaction of doctor and patient and explains that each was very accommodating to the expectations of the other. In the process of interaction the condition known as 'fugue' began to take shape such that it came to be seen as a discrete phenomenon.

This account of 'fugue' shows how the illness was nested in a complex ecology. But what made this a *transient* mental illness was its reliance on the *social* aspects of this ecology, and when those aspects changed so did the illness. The ecology of fugue can be compared to the conditions that surround a *non-transient* mental illness, for instance, schizophrenia. Here we find a condition that appears not only as a result of social causes but also *physical* factors such as ~~which~~ ~~relate the onset~~ of the disease (Crichton, 2000). The ecology of

analysis of systems of classification and doctor/patient relations, understanding the causes of schizophrenia requires some attention to the interaction between natural and social entities.

Hacking emphasizes that processes of ecological symbiosis involve entities of different types, and in order to distinguish these types he reinstates a division between humans and nonhumans in the distinction between interactive and indifferent kinds. In comparing fugue and schizophrenia, he draws attention to the central role of reflective action in the former and the diminished signifi-cance of such action in the latter. Thus, Hacking asserts a need to attend to the particular forms of reflexive calculation that are associated with human behav-iour. However, he still emphasizes that human behaviour is embedded within complex ecologies. Hacking also believes that ecologies are heterogeneously composed. But he emphasizes that we can only make sense of ecology-dependent action if we retain a fundamental distinction: humans are (often?) 'interactive' and (most?) nonhumans are 'indifferent'. This distinction is fundamental because it remains potentially salient even when set within heterogeneous sets of (eco-logical) relations. It implies that different entities retain the potential for differing behaviours, despite the precise configuration of any particular ecology. Ecological action therefore needs to be attentive to the 'mix' of entities so that ecological strategies are tailored appropriately, that is, where ecological conditions stem from the actions of interactive kinds, a rather different approach is required to conditions that depend on indifferent kinds. Thus, the components of subjec-tivity identified by Guattari will vary according to the ecological contexts in which subjects emerge.

Eco-subjectivity and spatial strategy

Hacking's ecological approach allows us to accompany post-structuralism into relational space, so that we can describe the heterogeneous relations that com-prise complex ecosystems. At the same time, however, it insists we take note of a fundamental distinction between natural and social actors, one that is based upon their differing abilities to reflect upon, and thus change, the social arrange-ments in which they are enmeshed. As Hacking (1999a: 32) says: 'people are aware of what is said about them, thought about them, done to them', and they act on the basis of such awareness. And, as this awareness extends to what is done to others, including nonhumans, it provides a moral and ethical dimen-sion to human action (Hacking, 1999c: 13). For Hacking, people have the potential to become moral agents – morality is 'firmly rooted in human values and the potential for self-awareness' (Hacking, 1999a: 59) – and this is not something that applies to indifferent kinds.

It is no surprise that some of those most concerned with the pursuit of an

responsibility for the fate of nonhumans. As Kate Soper argues, there can be no ethical prescription that does not presuppose some kind of demarcation between humans and nature:

> Unless human beings are differentiated from other organic and inorganic forms of being, they can be made no more liable for the effects of their occupancy of the ecosystem than can any other species, and it would make no more sense to call upon them to desist from destroying nature than to call upon cats to stop killing birds. (1995: 160)

In other words, the need to act 'ecologically' is a human need, one that is given voice within human languages and cultures. However, following the insights of post-structuralist geography, we need to consider how human relations are woven into heterogeneous ecologies. By attending to the (spatial) zone where nature and society 'meet', we might begin to elaborate an ecological approach that displays the full ecological consequences of human action. It may also enable us to situate the components of subjectification (identified by Guattari) in spaces of multiplicity and affect (McCormack, 2003). This approach perhaps give rise to a form of 'relational ethics', one which emphasizes 'the situatedness of ethical agency and the extralinguistic connectivities of the ethical community' (Whatmore, 1997: 44). Such an ethics will require attention to the heterogeneous composition of human action, the nonhumans that lend themselves to this action and the ecosystem in which it unfolds. It also implies a very human sense of responsibility towards both nonhumans and ecosystems as subjects are composed from relations that extend into ecological contexts (Murdoch, 2001). In such circumstances it seems obviously beneficial for humans to be 'extended into' rich and diverse, as opposed to simple and denuded, ecological surroundings.

The relational ethic described by Whatmore (1997) can be seen not only as an 'ecological ethic' (Conley, 1997) but also more generally as a 'spatial ethic'. In previous chapters, it has been shown that space is relational in nature and that spatial 'permanences' (to return to Harvey's, 1996, term) are carved out of complex and dynamic processes of change. The turn to more overtly ethical questions leads us to consider the kinds of permanences that should be provided and supported. The principles of ecology are of some help in providing an answer as they propose that permanences should consist of alignments or partnerships between natural and social entities (Merchant, 2003). This brings us back to Latour's (2004) proposals for political ecology outlined in Chapter 6. Latour argues that the aim of political ecology is not to root politics in nature; rather it is to 'convoke a single collective' (2004: 29) made up of 'associations of humans and non-humans', associations in which humans and nonhumans 'exchange properties' (2004: 61). All that matters, in this approach 'is the production of a common world, one that [...] is offered to the rest of the collective as an occasion to unite' (2004: 141). Permanences should therefore aim to embrace a range

core of geography as lying in the study of nature–society relations: to repeat, 'geography looks at how society shapes, alters and increasingly transforms the natural environment, creating humanised forms from stretches of pristine nature, and then sedimenting layers of socialisation, one within the other, one on top of the other, until a complex natural–social landscape results'. Given this focus, clearly geography should be able to contribute its extensive reserves of knowledge to new processes of ecological 'world-building'. And yet, there is some doubt about geography's abilities in this regard. For instance, Noel Castree (2003: 207) observes that 'it is a peculiar fact that a discipline [geography] which, in part, defines itself as the study of society–environment relations has conspicuously failed to engage with questions on the political status of the non-human'. Thus, Castree goes on to suggest that geography needs to:

- Abandon the idea that political rights and entitlements only apply to people.
- Confront the problem of defining political subjects in a world where the boundaries between humans and nonhumans are hard to discern.
- Expand political reasoning to include nonhumans 'without resorting to the idea that the latter exist "in themselves"' (Castree, 2003: 208).

Castree encourages geographical work that thinks through the significance of the 'relational turn' in order to develop a new geographical vocabulary. This vocabulary should be capable of describing and assessing the heterogeneous complexities that now animate relational spaces. However, he also emphasizes that this vocabulary must be accompanied by 'substantive political concepts that ground new forms of practice (2003: 208). This brings us back once again to the 'reflexive subject'. It has been suggested above that a geographical engagement with political ecology must be predicated on the assertion of new forms of 'eco-subjectivity'. If we return to Guattari's description of the 'three ecologies', we can perhaps see a little more clearly how geographical subjectivities might be re-composed:

1. *Mental ecology*, which would include the relationship between geography as an intellectual discipline and the 'external' geographical world. Geography plays an important role in 'performing' the world, of bringing it into being through representational and non-representational practices. In the new political–ecological context, geography needs to ensure it plays this role in ways that enable the building of new, virtual worlds which 'trace new lines of flight, new diagrams' (Conley, 1997: 99). As previous chapters have argued, these new diagrams will need to sketch out some alignment between topographical and topological spaces – that is, between spatial locations and spatial relations, in ways that bolster ecological integrity.

with which *human* geography is most familiar. As shown in Chapter 1, post-structuralist geography has spent a great deal of time looking at social inclusions and exclusions. It has acted to open out the geographical enterprise so that it can embrace previously excluded groups and identities. However, this concern for 'otherness' and 'marginality' might be turned more explicitly towards a concern for nonhuman 'others', to those natural entities that have to yet to be brought within social collectives.

3. *Machinic ecology* specifies that any incorporation of nonhumans into the geographical collective should be predicated not upon the simple defence of discrete entities and their associated spaces but on a concern for dynamic and complex systems of heterogeneous relations. As Guattari (2000: 66) puts it: 'natural equilibriums will be increasingly reliant upon human intervention, and a time will come when vast programmes will need to be set up in order to regulate the relationship between oxygen, ozone, and carbon dioxide'. Geography can clearly play a key role in articulating such programmes.

These three aspects of 'eco-subjectivity' help to define geographical subjectivity a little more closely. They suggest that the relational perspective now pre-eminent within human geography must be thought in the three registers simultaneously so that spatial imaginaries ('mental ecologies') are aligned with social practices ('social ecologies') and an assessment of general ecological effects ('machinic ecologies'). The discipline of geography is therefore being asked to reflexively assess how it might generate new and innovative relations between itself and the ecological world. New geo-subjectivities are proposed that embrace the mental, social, machinic ecologies identified by Guattari. While differing 'geo-' or 'eco-' subjects will interiorize these ecologies in differing ways, all will maintain an acute sensitivity to interactions between societies and natures, humans and nonhumans, territories and relations, singularities and multiplicities, orders and disorders. These and other such (ecological) interactions define the spatial imagination of a post-structuralist, 'more-than-human' geography (Whatmore, 1999).

Conclusion

In this chapter, an ecological perspective on post-structuralism has been outlined in order to show that post-structuralist geography might best be positioned at the interfaces between nature and society and between human and nonhuman worlds. The suggestion has been made here that what defines geography is exactly this focus on natural and social relations. It has been claimed that 'heterogeneity', the mingling of various entities in complex assemblages, networks

obviously constitutes humankind's greatest challenge, but because the distinctive nature of the geographical enterprise can be discerned most clearly at the point where the 'social' becomes embedded in the 'natural' (or where the 'human' becomes immersed in the 'nonhuman'). Geography becomes, then, the study of relations, it investigates the various ways in which entities of differing kinds are connected and disconnected. But more than this, it shows that the entities themselves are relationally composed so that any coherence they achieve is only provisional and reversible, something that is carved out of dynamic, unstable, turbulent contexts and something which always threatens to dissipate into such contexts.

While the relational perspective has been largely endorsed in the preceding pages, this final chapter has added one or two qualifications to the overall analysis. Yes, entities may be relational achievements, but the 'centering' of relations in subject positions can lend entities a stability that begins to look like a clear distinction between the entity and the relation. In actual fact, of course, this distinction emerges so frequently it gets given many names – organic/inorganic, human/nonhuman, social/natural. In the preceding discussion we added another distinction into the mix: interactional/indifferent. This suggests that some entities (usually, but not always, humans) acquire the ability to reflect upon the relations that comprise or surround them. Through processes of reflection, bodies are made to move, relations are made to change, and new classifications are made to come into existence. Given the significance of reflexive action, it has been suggested that modes of subjectivity might be thought of as 'reflexive relationalities' (or perhaps 'relational reflexivities'), so that reflections *upon* action can never be fully distinguished from the heterogeneous relationships that *facilitate* action.

Moreover, it has been argued that the modes of subjectification performed within geography should be oriented to ecological relationalities – that is, to the promotion of human–nonhuman partnerships that work to sustain biodiversity and other such ecological 'goods'. In this context, geography obviously has an important role to play: it can provide ways of analysing, understanding and promoting ecological ways of being and it can be attentive to the shifts in social and spatial arrangements that will be required if such ways of being are to be established in practice. Geography thus potentially lies at the heart of processes of 'eco-subjectification' for it can help to build alignments between the mental, social and machinic ecologies that Guattari and others see as so significant at the present time.

In conclusion, then, we can suggest that post-structuralism in geography is not simply a theoretical endeavour. It is a way of shifting spatial imaginaries so that new forms of geographical practice come into being. From a post-structuralist perspective, no longer should geographical practitioners be detached

imperative here is not simply 'subsumption for its own sake': it is 'subsumption with a purpose' and the purpose is a strengthening of heterogeneous associations within given ecological contexts. Thus, the aim of geographical practice becomes not some form of detached spatial 'mastery' but rather the iterative development of ecological 'steering mechanisms'. These mechanisms must necessarily be sensitive to interactions between natures and societies, humans and nonhumans, knowledges and materials, singularities and multiplicities, territories and relations. They must also comprise effective interventions in processes of spatial (de-)formation so that stronger alignments between all the interacting phenomena are established (in line with ecological principles).

'Steering the spatial' is perhaps not a slogan likely to inspire great enthusiasm, but it seems well-suited to an era in which complex socio-natural processes *always* escape geography's dominant modes of ordering. In this context, the value of post-structuralism is its simultaneous attention to processes of ordering *and* disordering and it has been argued that post-structuralism's demand that both sets of processes be integrated into the *same* spatial framework provides a useful starting point for geographical analysis. In the preceding pages this framework has been identified and investigated and it has been suggested that it be used to assist the efforts of political-ecologists, planners, food movements and all those various others who now strive to bring rich and diverse ecologies into being. In other words, geo-subjectivity should now become a core component of eco-subjectivity so that heterogeneous and relational spatialities are consolidated in both theory and practice.

SUMMARY

In this chapter, the parallels between post-structuralist theory and ecological thought have been identified and discussed. It was argued that a number of post-structuralist authors, notably Michel Serres and Felix Guattari have explictly addressed ecological concerns in their works. Both these theorists believe social formations should be seen as set within complex and dynamic ecological systems. They therefore emphasize the turbulent character of nature–society relations. However, both also recognize that social formations (especially in the capitalist West) are threatening nature as never before. Thus, Guattari calls for the assertion of new modes of 'eco-subjectivity'. Drawing upon Hacking's work, it was suggested that 'eco-subjectivity' can be thought of in both relational and reflexive terms: it requires human subjects to acknowledge their embeddedness in ecological formations while also requiring that they consider the most appropriate forms of ecological action. This notion of relational-reflexive eco-subjectivity, it was argued, provides a model for

FURTHER READING

The key text on relationships between post-structuralism and ecology is Vera Andermatt Conley's (1997) book, *Ecopolitics: The Environment in Poststructuralist Thought*. On relationality and reflexivity, Ian Hacking's (1999) book, *The Social Construction of What?*, ranges widely but is very accessible. Again, Bruno Latour's (2004) *Politics of Nature* has general relevance to the ideas expressed above.

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