

Chapter 11

Dissolving Dualisms: Actor-networks and the Reimagination of Nature

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Thinking Beyond Binaries

The distinction between society and nature is so familiar and fundamental as to seem unquestionable. Profoundly ingrained in Western culture, it is a distinction which not only organizes the imaginations of ordinary people but one which has for decades organized the academic division of labor in schools and universities. Hence, those things which are deemed nonsocial have long been the subject of 'natural science' research and teaching, while putatively nonnatural entities are the preserve of the 'social sciences.' Located in the middle ground between this macrodisciplinary distinction, geography, since its foundation as a subject in the late nineteenth century, has been touted as the 'bridging science' which would study human-nature interactions (Mackinder, 1887). Over the course of the twentieth century, geography as the study of human-nature relations underwent several paradigmatic shifts, from the 'environmental determinism' of the 1910s (e.g. Semple, 1911) through the 'possibilist' positions of the 1930s (e.g. Febvre, 1932) to the post-1950 recognition that humans seemed to be transforming nature more than nature was affecting humans (e.g. Thomas, 1956). Whatever position was taken, though, throughout the twentieth century geography maintained in microcosm the wider academic and lay separation between the human and the natural. 'Physical geographers' were expected to study the natural environment and 'human geographers' were expected to investigate the spatial organization of people's activities. Though several geographers worked on the human-physical 'interface,' few fundamentally challenged the belief that the natural and the social were ontologically different and distinct.

However, in the last few years this has (at least seemingly) started to change. As the essays in this book testify, several 'critical' human geographers and those

working in related fields¹ have recently sought to "trespass over ... the categorical cordon that has marked off 'the non-human world' and the grounds for understanding it" (Whatmore, 1999a: 23). In an exciting and disconcerting set of arguments, these geographers have claimed that nature is not at all – or not simply – 'natural' but in fact *a human construction*. Whereas in the past, geographers and others have imagined a world in which nature was the *antithesis* of society, a newer generation of commentators has argued that nature is social through and through. In the words of Neil Smith (1984: 30), one of the earliest of these commentators, "nature is nothing if it is not social." Crudely speaking, there have been two basic versions of this 'social constructionist' argument (Whatmore, 1999b). The first claims that we can only know nature through culturally specific systems of meaning and signification, such that nature cannot be understood by people 'in-and-of-itself.' This is not at all to deny the reality of the things we routinely call 'natural.' What it is to say, though, is that human representations of those things – in the form of words, concepts, and explanations – are not simply 'mirrors of nature.' Rather, they are seen as cultural products freighted with numerous biases, assumptions, and prejudices (see Braun and Wainwright's chapter in this volume). Moreover, on this argument even the supposed guardians of factually derived truths about nature – the natural sciences (including much physical geography) – cannot step outside culture to comprehend nature 'as it really is' (Demeritt, 1998). The second version of the 'social construction of nature' argument takes a more economic and less cultural focus. In this version the thesis is that nature is increasingly being reconstituted materially, even down to the atomic level (think of genetically modified organisms), as industry-led science and technology exert increasing control over it. Here, then, nature is seen as being physically 'produced' to order in the pursuit of money and profits (see Castree's chapter 10, above, on capitalism and Marxism). In both its cultural and economic permutations, the constructionist line is that nature is not only humanly fabricated at some level but also a tool or effect of power. For the ability to define nature's 'truths' or to alter it physically can, it is argued, help secure relations of cultural and economic dominance in society.

So far so good. The social constructionist arguments, it seems to us, have achieved two important things. First, they have shown the intellectual incoherence of imagining nature as essentially nonsocial. Secondly, they have also provided the political weaponry to attack the dubious invocation of 'nature' as a separate domain to which appeal can be made to legitimate existing or new economic, social, and ecological arrangements. Even today, for instance, much of the environmental movement argues that we need to 'get back to nature' (see, for example, McKibben, 1989), as if nature and society could be separated. Likewise, and despite the apparent differences, 'life-science' companies such as Monsanto justify their ventures in genetic engineering on the grounds that nature (again invoked as ontologically distinct) has 'inherent limitations.' By

undermining political projects predicated on this kind of 'separate spheres' logic, the social constructionists have created space for a different kind of nature politics. Not surprisingly, several critics argue that the social constructionists are willfully undermining the truth-claims of natural science or else scuppering green politics with their denial that natural entities have 'intrinsic' value or rights (see, for example, Gross and Levitt, 1994; Soulé and Lease, 1995). However, while a few 'full-blooded' constructionists may indeed be guilty in this regard, most arguably take a moderate line that is not necessarily antithetical to science or the environmental movement.

In light of these comments, it may be thought that our purpose in this chapter is to defend the social constructionist position against the unsupportable versions of 'natural realism' that to this day animate both geographical and everyday imaginations. But that is not, in fact, our aim. While others in this book describe, explain and defend social constructionist arguments in some detail, our intentions here are rather more subversive. For we want to claim that *both* social constructionists and those natural realists they criticize actually have something in common. That common something is *an inability to imagine human-natural relations in a nondichotomous way*. Though social constructionists *seem* to breach the social-natural divide which organizes academic and lay thinking, they arguably go on to *reinstall it* at another level. What we mean is that bringing nature within the domain of the social simply shifts the causal and ontological arrows from one 'side' of the social-natural dichotomy to the other. The dichotomy itself arguably remains intact. This is true even in the most complex of social constructionist positions. Consider, for example, the Marxist position discussed in chapter 10 by Noel Castree. As Castree shows, Marxist geographers such as Neil Smith argue that society and nature exist in a dynamic, two-way relationship (or 'dialectic') in which societies remake nature but nature, in turn, remakes society. Though this argument appears to transcend the human-nature divide, it is arguably just a sophisticated way of making the divide more permeable – swapping the awkward 'either/or' choice for a 'both/and' compromise.

We are thus faced with two key questions. How can we 'think beyond' the nature-society dualism? And why might it be important to do so? In this chapter we offer an answer to both questions by explaining and evaluating a new and exciting body of ideas known as 'actor-network theory' (ANT). ANT has diverse origins, but is particularly associated with a group of sociologists and anthropologists of science (such as Michel Callon, Bruno Latour, and John Law). In geography, it is currently being embraced with enthusiasm by a cohort of researchers dissatisfied with what they see as the impasse between social constructionists and natural realists. This cohort – dominated by UK-based geographers like Nick Bingham, Jonathan Murdoch, Lorraine Thorne, and Sarah Whatmore – is now trying to find conceptual, empirical, and political ways to see the world as hybrid, chimeric, complex, and entangled. In the next

section we summarize ANT and show how it reconfigures the geographical imagination. Many readers confronting these ideas for the first time will, we hope, find ANT challenging and disconcerting. In the rest of the chapter we evaluate the logic and usefulness of actor-network thinking. In particular, we seek to follow through the implications of ANT for the kind of social constructionist arguments critically elaborated in the other chapters of this book. We conclude that 'strong' versions of ANT are as problematic as they are useful and suggest the need for a 'weak' version of ANT that does not completely undermine the strengths of existing social constructionist arguments.

Embracing Imbrolios

ANT is a set of overlapping propositions intended to guide thinking and research about human–nature relations (it is what Latour (in Latour and Crawford, 1993: 250) calls an "infralanguage" rather than a 'theory' in the traditional sense). As will be seen later in the chapter, it has major implications for political struggles over those relations. For ANT's geographical advocates, the problems with most past and present disciplinary work on nature – of the constructionist *and* realist kind – are fourfold, revolving around binarism, asymmetry, an impoverished conception of actors/action, and a centered understanding of power. Let's take each in turn.

i) Binarism refers to the above-mentioned habit of understanding the world in terms of conceptual dichotomies. Against the nature–society dichotomy characteristic of 'modern' geographical thought, ANT argues for an 'amodern' ontology in which we recognize the 'hybrids' or 'quasi-objects' that litter the world we inhabit. As Rebecca Roberts (1995, p. 673) puts it, in a world where pig livers are implanted in humans and plastic may soon grow on trees, "such hybrids are ubiquitous rather than rare – as [the] modern [imagination] . . . would have us believe." This ontology of not-quite-natural, not-quite-social entities rejects the pure transcendences of binarist thinking and urges us to see them as *outcomes* that illicitly compartmentalize a messy, impure, heterogenous world. Secondly, this rejection of ontological binarism is intended as an encouragement to think *relationally* in terms of associations rather than separations. Where conventional, nonrelational ontologies lead us to identify "ontological primitives" (Fuller, 1994: 746), ANT argues that things (including humans) are only definable *in relation to* other things.

This leads, thirdly, to the *network* as a favored metaphor for conceptualizing socionatural imbrications. Emerging from work by Latour and others on how scientific claims about nature are extended beyond the laboratory, the notion of networks points towards chains of connection between putatively 'social' and 'natural' entities. These networks are multiple and "relentlessly heterogenous" (Murdoch, 1997a: 745), typically involving the unique alignment of humans,

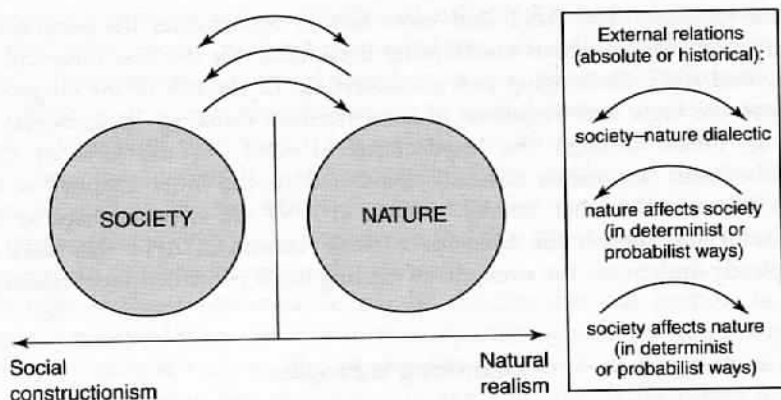


Figure 11.1: Dualistic approaches to nature and society

machines, animals, inscription devices, and other materials in relations which vary in stability, time-space extension and time-space form. For actor-network theorists, they describe a world far richer than the society-nature dichotomy can allow because they stitch back together the siconatural imbroglios that dichotomy has rent asunder.

In turn, this relational, network ontology yields a set of theoretical advantages – and this is the fourth aspect of ANT's rejection of the nature-society binarism. Where dichotomous thinking ultimately resorts to one or other pole (society or nature) as explanatory, ANT refuses to look for causes lying *outside* siconatural networks (an 'ostensive' approach: Latour, 1986). Moreover, it refuses the presumption that *different* networks are driven by the *same* (social or natural) general processes or factors. Instead, the processes determining the constituents, stability and reach of a particular network are deemed to be *internal* to it and, at some level, to involve all the network entities (a 'performative' approach: *ibid.*). Far from appealing to causal forces separate from and prior to networks (which explain but do not themselves need explaining), it is only *after* each network has been carefully described that explanation can emerge. As Latour (1991: 129) puts it, "the explanation emerges once the description is saturated". Consequently, ANT is suspicious of general theories, supposedly applicable to many different situations, which offer systemic explanations grounded in ostensibly social or natural imperatives. The upshot, in a cheeky and subversive move, is that actor-network theorists see the society-nature dualism as a *post hoc* attempt by analysts to oversimplify complexity by attributing responsibility for network construction to one or other set of entities (see figure 11.1).

ii) In light of this critique of dualism, the actor-network principle of symmetry becomes easy to understand. As ANT advocates in geography are

right to point out, binarist thinking ultimately forces the analyst to make a choice: to prioritize one or other domain or actor on ontological, causal, or normative grounds. For instance, we've already seen how the social constructionist desire to resist versions of natural realism has inadvertently led to a certain asymmetry in that the natural is seen as merely a construct of the social – "a substrate for the external imposition of arbitrary . . . [social] form" (Ingold, 1993: 37). The corollary is an anthropocentrism in which, ultimately, nature can only be understood and valued in human (*sic*) terms. Against this, ANT proponents like Whatmore, Thorne, Murdoch, and Bingham argue for a more symmetrical 'greening' of human geography in which nature is re-recognized not on ecocentric grounds (since this is the mirror opposite of anthropocentrism and therefore also asymmetrical) but on a hybrid basis. That is, precisely because the social and the natural are *co-constitutive* within myriad networks, a symmetrical perspective is the only one that is viable. Attending to the ontological, causal, and moral particularities of natural entities is, from this perspective, possible and necessary *without* reverting to the notion that nature is, should or could be a/nonsocial (Whatmore, 1997; Whatmore and Thorne, 1998).

iii) If ANT reveals the binarism and asymmetry of many geographical approaches to nature, it also questions the notions of actors and action which, it is claimed, are built into most of these approaches. According to Bingham (1996: 647) and Whatmore (1999a), these approaches routinely make the following dubious assumptions: that actors' capacities to act are defined by their *intrinsic* powers and liabilities; that the significant actors are *human*; and that action is associated with *intentionality* and *linguistic competence* (logocentrism). Against these impoverished views of actors and action, ANT argues that "every actor is also a network" (Bingham), that actors are social *and* natural (or, more properly, 'socionatural'), and that action – as Callon's (1986) oft-cited study of scallops in St. Brieuc Bay shows – does not necessarily require speech or intentionality (as we normally understand it). As geographers Laurier and Philo (1999: 1060) put it, "The nonhumans are in effect 'levelled up' to the status of humans, and the humans are 'levelled down' to the status of nonhumans." Accordingly, ANT sometimes prefers the term 'actant' to 'actor.' This evokes the idea that "agency is a relational effect generated by . . . interacting components whose activity is constituted in the networks of which they form a part" (Whatmore, 1999a 28) – hence the couplet 'actor-network.' Moreover, it implies that the capacities of an actant will *vary* according to its place within given networks. In short, geography's ANT advocates call for a conception of action and actors which is multiple, contingent, and non-essentialist.

iv) The final main challenge of ANT to existing approaches to society–nature relations in geography and beyond relates to the question of power. Whatever their substantive differences, the various constructionist attempts to bring nature 'back in' to critical human geography are seen to have a conception

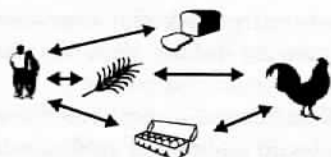
of power which is anthropomorphic and overly centered. In other words, power is seen to be 'held' and projected by particular social actors or to reside within a distinct social system (like 'capitalism' or 'culture'). As a result, nature is all-too-easily reduced to an *effect* of power in recent green constructionist writings in geography – or so Whatmore and others argue. In challenging this restrictive notion of power (in which the natural is discounted), the champions of ANT insist that power is a *shared* capacity – involving myriad natural actants as much as social ones – which is thoroughly *decentered* in different networks. In Murdoch's (1995: 748) words, "those who are powerful are not those who 'hold' power but ... those able to enrol, convince, and enlist others on terms which allow the initial actors to 'represent' the others." According to ANT's exponents, to see power as a wholly human attribute which is concentrated rather than dispersed is, therefore, to be deceived. It is also to overstate the power of power. Once power is seen as a relational achievement – not a monopolizable capacity radiating from a single center or social system – then it becomes possible to identify multiple points (neither social nor natural but both simultaneously) at which network stability can be contested.

To summarize, ANT poses a major challenge to existing attempts in geography and elsewhere to theorize human–nature relations. ANT, in effect, encourages us to imagine the unimaginable by doing away with dualistic, categorical thinking (figure 11.2). But how does the nature–society nexus look in practice when one uses ANT to analyze real-life situations? What does a politics of nature look like when one views the world in ANT terms? And how, finally, are we to evaluate ANT's subversive approach to conceptualizing, studying, and agitating politically over social–natural relations? The rest of the chapter addresses each question in turn and, in so doing, seeks to show both the importance and limitations of actor-network ideas about socio-natural relations.

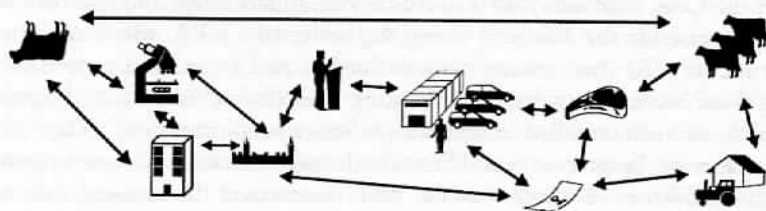
Practicing Hybridity

So wide-ranging are the insights of ANT that it can be used to make sense of a vast array of environmental practices. Here we focus on a recent study by the British geographers Sally Eden, Sylvia Tunstall, and Susan Tapsell (2000). Eden et al. use ANT to describe a project to make a stretch of the river Cole, in southern England, 'more natural.' This so-called 'river restoration' project saw a 2km section of the Cole returned to a 'natural,' meandering flow path during the mid-1990s. A group called the River Restoration Project (RRP) orchestrated the funding, planning, and engineering that this entailed. Using Eden et al.'s analysis, we can make sense of the restoration of the Cole under the four headings from the previous section, as follows.

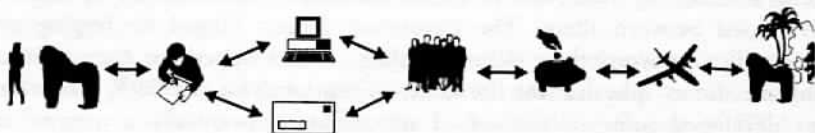
- i) At first sight the practice of river restoration is easily explained. A natural



Short network, few actants, e.g. an organic family farm



Complex network, many actants, e.g. BSE in the UK



Long network, many actants, e.g. releasing a captive animal into its 'natural' habitat

Key:
 Icon - actant
 ↔ two-way relationship

N.B.

- 'natural' and 'social' entities are constantly interacting and co-constituting
- causality and power are complex, not reducible to sides of a dualism

Figure 11.2: ANT and the reimagination of nature and society

realist (of a 'deep' or 'shallow' green kind) might approvingly argue, for instance, that river restoration is all about getting 'back to nature,' while a social constructionist might conversely claim that it is about certain social actors changing rivers to conform with their culturally produced image of what nature is supposed to look like (here, then, the claim is that a 'fake nature' is being restored). ANT, by contrast, does not see the practice of river restoration in these dualistic terms. This is why Eden et al. try to elucidate the myriad 'translations' that crosscut the social/natural binary, while highlighting the illicit

'purification' that enables many analysts to incorrectly think that river restoration is either a social *or* natural phenomenon. As before, there are four elements to this.

First, the identity of the river Cole as 'social' or 'natural' is established as an *outcome* of the restoration process, so there can be no question of predetermining whether the restored Cole would be one *or* other in the manner of the environmental realists or social constructionists. The restoration process was predominantly one of *hybridity* involving multiple, indissoluble links between the RRP, the Cole, machinery used to cut new meanders, maps and calculations designed to persuade the National Rivers Authority (the NRA, which regulates river use in the UK) that restoration was feasible, and so on. But successfully enrolling these 'actants' involved coordinating their diverse interests and capacities, which in turn entailed moments of 'strategic purification.' Thus the 'human' actors in the process tended to offer binarist accounts of their actions. For instance, Eden et al. show that the RRP represented the restored river to the NRA as controlled and nonnatural, thus aligning restoration with the NRA's legal responsibility for active flood management.

Second, the river Cole was defined and remade only *in relation* to other actors, such as the RRP, the NRA, or the maps and river flow calculations that passed between them. The restoration project hinged on forging new relationships between these actors, leading, it was hoped, to their eventual transformation – physical for the Cole, institutional for the RRP. The vision plan developed prior to the act of restoration – essentially a map of the proposed changes – was crucial to this process, setting out new associations between the river, the RRP, the construction contractors who would physically alter the Cole, and many others. Third, however, contrary to its name, the plan was much more than just a vision – it was its physical inscription on actual pieces of paper that made it a key actor in building this new *network*. The RRP translated the river Cole, the contractors, vast amounts of computerized data, and distant funding bodies into this single inscription device, which was sufficiently stable and movable to act as a common linkage point for the different actors in the new network. The NRA could thus approve the plan in committee and the contractors could take it with them to the construction site, ensuring that each actant was enrolled in the same project.

According to ANT, it is only by tracing this network that we can explain the restoration process. So, fourth, restoration was not caused by some prior external factor, but by the actual relations between the changing actors *within* the network. This means that there was no unitary cause of the restoration as an event, settling on one or other side of a binary ontology, but many different associations that wove it together as a process. In fact, there is not even a single river or restoration process to be explained, since the processes of translation and purification constantly remake the entire actor-network. To look 'outside'

this network for causes, in either 'society' or 'nature,' is to admit that crucial parts of it have escaped analysis.

ii) So far we have focused on the hybridity of the restoration process and of the river that was restored, and how the processes of translation and purification remake them and define them dubiously as social *or* natural. However, ANT's principle of symmetry rules that the same criteria must apply to all actors. We cannot claim that the restored river is hybrid and mutable, *and* assume from the start that the RRP was the social driving force behind the whole network.

On one side, therefore, Eden et al. insist that the RRP was also hybrid: a network as well as an actor. The group was formally launched in 1992, but it was not conjured out of social thin air. It began as a network linking together several delegates who had met at a conference two years earlier. Once the conference had ended, their common interest in alternative river engineering would have vanished had they not been able to act on each other at a distance via documents (e.g. plans) and other devices that translated actual rivers and engineering works into manageable, intelligible forms, culminating in a feasibility study of river restoration. So, just as the river was not asocial prior to restoration, nor was the RRP nonnatural. The RRP was not just an institution or a group of individuals – it was this hybrid network of people, rivers, and other things.

On the other side, like the river Cole, the RRP was also remade during the restoration process. Once the Cole had been selected as a suitable site for restoration, a subcommittee called the Cole Working Group (CWG) was established. As with the river, the CWG/RRP's vision plan was a crucial site of translation and moment of transformation for the group itself. By ascribing the RRP authorship, the plan set out the group's leading part in the proposed project. As the other actors in the network also took on their ascribed roles, the RRP found itself in authoritative new relationships with construction contractors, funding bodies, and of course the river Cole. This success saw it change markedly, with increased offers of funding and a raised budget, a shift to a more advisory role in restoration, and a name-change to the River Restoration Centre.

iii) When it comes to agency, Eden et al.'s account of river restoration seems paradoxical: at one moment it claims that causes are relational and that networks are made up by (and make up) diverse actors; at another, it suggests that the RRP was the prime mover through its network-building 'vision plan.' Two points are important here. First, in ANT, actors only emerge after the event. The RRP only became the key agent as the vision plan, which ascribed it that authorship, enrolled the other actors. The proposal's success and the RRP's agency rested on all the other actors complying with the plan, as opposed to any alternative, and making their envisaged roles reality. Through the plan, the hybrid RRP was remade as a coherent social actor and the driving force in restoration. As we have seen, this purified representation of the RRP as *the*

agent played an important part in transforming its subsequent aims, name, and budget.

Second, unsurprisingly, the other actors have only conformed approximately to the 'vision plan'. Most prominently, perhaps, the river itself acted in an unforeseen way, requiring construction contractors to return to the site a year after the main earth-moving work was complete. The plan had instructed the contractors to dig new meander bends with 45-degree slope angles, on the assumption that the river would erode the outer banks into a 'natural' profile. The clay in the banks refused to be eroded, however, so the contractors were re-enrolled to cut a new, vertical profile, in line with the plan's objective. Another unanticipated actor came in the form of a tax recalculation in 1995, allowing the RRB to add an extra set of excavations to the original design. In sum, the RRB's agency rested first on the degree to which other actors also conformed to the plan it had authored, and second, on the persistence of the network after the initial phase of construction, allowing any unruly actants to be re-enrolled.

iv) Finally, just as agency was diffused throughout the changing network of river restoration, so power was shared between the different actants. Of course, some emerge as more powerful than others, via the same processes of translation, enrollment, and purification. The point is not that there is no way to distinguish power differentials, just that we cannot assume what these differentials will be from the start. For ANT, power is an effect of successfully enrolling and representing other actors.

In this case, the RRP was certainly powerful, since it 'spoke for' a large number of other actors. The vision plan and other inscription devices may have been crucial to this process of representation, but insofar as they attributed their authorship to the RRP it was the latter that was powerful. The plan began as a work of fantasy, but gradually came to represent reality. Since the Cole acted more or less as the RRP predicted, for instance, the group became able to speak on the river's behalf to other actors. As Eden et al. (p. 268) point out, this silenced the river itself: "the Cole is represented as 'weak' (having 'low stream power' in terms of energy per cross-sectional area), so that the RRP acts 'for' it by constructing in weeks meanders that the river could only have cut over decades." Similarly, the RRP enrolled organizations such as the NRA and spoke on their behalf to others actors, such as scientists or local residents.

By the same token, though, the RRP was simultaneously represented by other actors, since power is a relational property that cannot be monopolized. The most obvious example is the vision plan itself, which represented the RRP as its author – as *the real* representer (figure 11.3). Similarly the NRA enrolled the RRP into its own projects, justifying its funding expenditures with the RRP's success stories. More subtly, the Cole also spoke for the RRP's success, both directly to the visitors who walked along the new meanders, and through inscription devices such as before-and-after photographs.

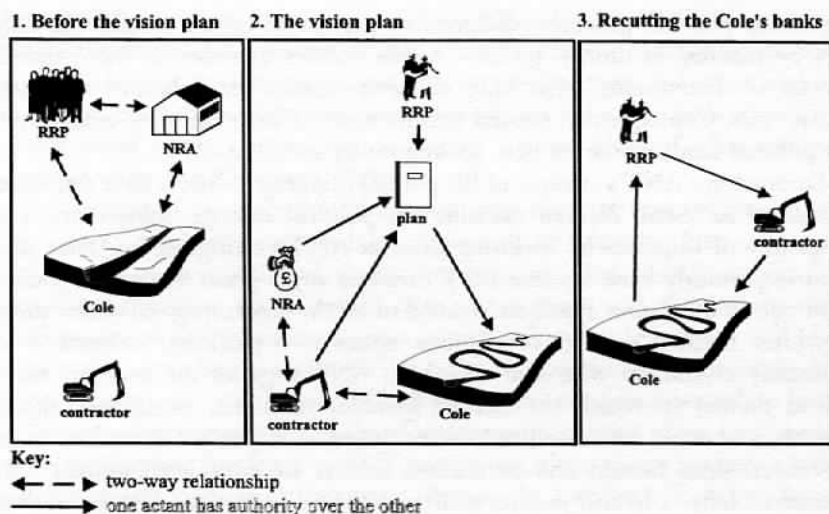


Figure 11.3: How the actants and power relations between them change through the process of 'restoring' the river Cole

The Politics of Impurity

The case of the Cole's restoration demonstrates how ANT's counterintuitive concepts allow us to analyze current environmental practices in a new way. Likewise, ANT offers a fundamental challenge to the assumptions underpinning the broad spectrum of contemporary political views about nature. From an ANT perspective, most shades of political thinking about nature are too 'pure' insofar as they take the side either of nature or society. For instance, despite their seeming political differences, the radical 'deep green' organization Earth First! and the multinational biotechnology company Monsanto actually have something in common: namely, both seek to justify their actions by reference to 'nature in itself.' Though Earth First! opposes the kind of science-led 'tampering' with nature advocated by Monsanto, both organizations are ultimately natural realists: Earth First! wants to reverse current patterns of production and consumption and 'get back to nature,' while Monsanto points to nature's 'inherent flaws' as a way of legitimizing genetic modification. As noted in the introduction to this chapter, the value of the social constructionist argument is to question actions grounded in any appeal to a putatively external, nonsocial nature. But, from an ANT perspective, the problem with a politics of nature founded on social constructionist ideas is that it's as pure or one-sided as the natural realist politics it opposes. For, in the constructionist

argument, political programs designed to protect or exploit nature can only ever be justified in human terms – nature politics becomes no more than a process of determining what kind of nature should be fashioned to satisfy whose ends. Consequently, natural entities have no voice: they are erased from the political landscape or, at best, spoken for by social actors.

So much for ANT's critique of the politics of purity – does it have a political agenda of its own? We can examine the political strategy, subjectivity, and geography of impurity by revisiting three of ANT's transgressions. First, and most importantly here, because ANT dissolves any *a priori* division of society from nature it requires a politics attuned to *all* the actors in given socio-natural networks. Because the fate of any one actant in a particular network is so intimately bound up with that of others, ANT suggests the necessity for a hybrid politics in which the fate of humans, machines, organisms, plants, animals, and so on are considered *simultaneously* – and on a case by case basis. Moreover, since human and nonhuman actants are considered ontologically equivalent here, a hybrid politics of nature should be neither anthropocentric nor ecocentric: it would refuse to serve the interests of one or other actor in a network.

What or who would be the 'subject' of this impure political strategy? As we have seen, ANT unravels the human–nonhuman, self–other and indeed subject–object binaries that are so crucial to most nature politics. For example, the nature-first politics favored by moderate and deep greens extends liberal conceptions of rights – centered on an autonomous human self – to more or less exclusive groups of nonhumans, embracing so-called 'charismatic megafauna' such as elephants, or even all sentient beings. As Whatmore (1997) points out, ANT rejects this individualistic subjectivity altogether, in favor of a relational ethics and politics that does not discriminate on such arbitrary grounds. As we saw in the previous section, the 'individual' agent is a network effect, and therefore cannot be the subject of ANT's politics. Instead of prioritizing one 'actor' or 'group' over another, the politics of impurity highlights their ethical connectivity and the impossibility of discrete political subjects.

Politics is always geographical, and the politics of impurity is no exception. As the river restoration case shows, time and again 'nature' is identified with certain spaces – such as 'rural' spaces (as the River Cole was supposed to be), zones of 'wilderness,' and formally designated 'nature reserves.' Typically, it is these spaces that become foci for environmental politics and action – by governments, nongovernmental organizations, new social movements, and the like. Hence, to offer just one example, Clayoquot Sound in western Canada has recently been designated a World Heritage Site by the United Nations because of its 'special' natural attributes. Natural realists from Greenpeace to the Global Environmental Facility might approve of this and other spatially targeted attempts to 'save nature,' while social constructionists might claim that

the nature being saved is but an imaginary ideal (Braun, 1997). But from an ANT perspective, this equation of 'nature' with certain delimited geographical territories where environmental politics can focus many of its energies is problematic: for these spaces are neither wholly natural nor merely zones where certain social actors impose their culturally specific ideas of what nature is supposed to be (see Zimmerman, 2000).

For instance, Clayoquot Sound is not merely home to rare old-growth trees but a social landscape occupied for thousands of years by Nuuchahnulth native peoples. A politics of timber preservation thus illicitly purifies and simplifies Clayoquot, rendering the native voice mute and denying the dense imbrications of native practices, trees, berries, salmon, roots, bears, and birds. At the same time, by designating Clayoquot a space of nature, the implication is that *other* spaces – of the city, of heavy industry, of agriculture, of the home, and so on – are 'unnatural' and therefore beyond the point where environmental politics applies. But from an ANT perspective, these spaces are just as hybrid and real as are areas like Clayoquot. Pigeons in London's Trafalgar Square, domestic animals, microbes in hospital petri dishes: all these are also networked with humans, machines, and other actants. Accordingly, for actor-network theorists *all* forms of political thinking and action must have an environmental dimension, for the spaces of nature cannot be confined to a few fast-shrinking areas (Latour, 1998).

Evaluations and Discriminations: Modalities of ANT

Throughout this essay we've shown how actor-network thinking calls into question the seemingly opposed worldviews of natural realism and social constructionism. ANT encourages us to imagine a world where socionatural relations are multiple, messy and complex. Like most of the authors in this book, we're very sympathetic to the actor-network critique of 'nature-in-itself' thought and politics. However, despite being persuaded by the core claims of ANT, we remain uneasy about its implications for social-construction-of-nature arguments. For it seems to us that a 'strong' version of ANT – which is precisely what we've been outlining in this chapter – too readily throws out some of the valuable elements of social constructionist thinking. This is apparent at several levels.

First, ontologically there is "the problem of installing a great *indifference* between the countless things of world . . . which arises when they end up being portrayed as potentially *all the same*" (Laurier and Philo, 1999: 1016). In other words, "the flattening process [of ANT] leads to an obscuring of *differences* between different . . . 'noun chunks' of reality" (p. 1014). Second, there is a further ontological problem arising from the assumption that each actor-network is unique and qualitatively distinct. Though actor-networks are

unlikely ever to be similar in every detail, what if the processes constituted by, and constituting, otherwise different actor-networks happen to be the same? Does this possibility not create space for a theory which can abstract from differences in order to identify general processes (economic, cultural, etc.) of 'socio-nature'? Or does inquiry into socionatural networks have to start afresh each and every time? Third, there is a theoretical problem. Arguably, there is, in strong versions of ANT, a potential underemphasis on the explanation of networks. As Murdoch (1997a: 750) asks, "Can . . . we ever do anything more than *describe*, in prosaic fashion, the dangerous imbroglios that enmesh us?" Furthermore, even when explanations are offered – once network description is complete – it is unclear what form it takes. Since full-blooded versions of ANT see networks as 'overdetermined' – such that 'determining' actors/processes and 'determined' actors/processes cannot be readily distinguished – "one can justly ask whether such . . . florescence obviates the need for any theoretical commitment at all, that is to say, the need for any weighting of social forces . . . with systematic logic or causal processes" (Walker, 1997: 273).

Finally, there is a political problem. Though ANT offers a powerful critique of all dualistic forms of nature-society thinking it threatens to remain strangely agnostic about the actor-networks it seeks to describe and explain. Perhaps we should, as Murdoch (1997a: 750) recommends, "ask whether a focus on the performative outcomes of network formation can be brought to bear on the [critical] . . . social scientific concerns of . . . equality and injustice, concerns which have normally been associated with the *responsibilities* of human institutions." Though it may well be liberating to reveal the myriad 'nonhuman' actants obscured by social constructionist arguments, it will count for little if those actants are merely described in their subjugation to others. That is, geographical advocates of a strong ANT agenda risk ignoring the possibility that some actants 'marshall' the power of many others and, in so doing, limit the latter's agency and circumscribe their existence (something Eden et al., to their credit, try to show).

In light of these several problems, it is possible to conceive of a 'weaker' version of ANT which can learn something from social constructionist approaches to nature even as it censures those approaches in the four ways discussed earlier in the chapter. This weaker version of ANT would thus remain critical of binarist thinking, of asymmetry, of limited conceptions of agency and of centered conceptions of power. However, at the same time, it would concede the following points: namely, that many actor-networks are driven by similar processes, notwithstanding their other differences; that these processes are social and natural but not in equal measure, since it is the 'social' relations that are often disproportionately directive; that agents, while social, natural, and relational, vary greatly in their powers to influence others; that power, while dispersed, can be directed by some (namely, specific 'social' actors) more than others; and that a politics of nature attuned to the needs and rights of

both human and natural entities must ultimately be orchestrated through putatively 'social' actors. By splitting the difference between ANT and social constructionism in this way, geographers would not just describe existing networks, but could also refresh their own struggles to build a more imaginative, just and inclusive socioecological future.

Note

- 1 In particular, environmental anthropology, history and sociology, and critical science studies: see Milton (1993), Worster (1988), Hannigan (1995), and Hess (1997) respectively.

Further Reading

Whatmore (1999b) provides an elementary introduction to social construction of nature arguments and to ANT, while Whatmore (1999a) offers a more advanced discussion. Murdoch's (1997a; 1997b) essays on ANT are a particularly lucid but challenging read. For more critical discussions of ANT read Laurier and Philo (1999) and Lee and Brown (1994).

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