

Chapter 2

Reconstructing bodies, technologies, and environments.

Introduction

This chapter explores the relationships between bodies, technologies, and spaces in order to problematize and rethink the constitution and construction of embodied environments. It reviews literature that suggests these relationships make the use of categories such as the “natural body”, and the “natural environment” extremely problematic. Such categories are regularly mobilized in contemporary cultures of consumption. In a situation where human culture apparently seems to be infringing on and threatening the purity of these spaces, whether it be the unseen risks associated with chemicals and toxic substances or pressure to develop the economic potential of the “wilderness”, notions of the “natural” are highly commodifiable. While health experts extol the virtues of the natural body and environmental activists call for the protection of natural areas such as federal parks, corporate advertising frequently mobilizes the ideal of that which is “natural”, and thus “pure” and untainted, in order to improve product marketability.

At the same time, technologies are always clearly demarcated from the “natural” environment. Whether such technological objects are seen as dangerous and threatening, or as useful tools for the cleaning up of the natural body and the natural landscape thereby improving how these are experienced by human subjects, technologies, as artificial, are almost always seen nature’s Other, as that against which the naturalness, non-artificiality and purity of natural environments are defined. In this way, the boundaries between natural forms and environments and those that are technologically and artificially constructed are maintained and reinforced.

Terms such as “the natural environment” and “the built environment”, which serve to maintain the boundaries between the natural and the artificial, operate both in popular and academic discourse. For example, throughout much of the history of systematized geographical knowledge, the spaces of physical landscape and the body have both been unproblematically considered as natural. This has had significant practical consequences. In the colonial context, the mapping of the natural landscape of territory to be controlled was crucial to the exercise of power, as was the control of the population. “Natural” differences were seen as the foundation of “cultural” superiority. However, the ways in which “natural” spaces such as the “wilderness” and the body are constructed has been the focus of sustained critical attention in the social sciences. Much of this critique has centered around the ways in which “natural” bodies, and the “natural” environment are discursively constructed and thereby made culturally intelligible.

Reconstructing bodies

In a seminal work on the place of the body in society, Turner (1982: 8) noted that,

the body is at once the most solid, the most elusive, illusory, concrete, metaphorical, ever present and ever distant thing - a site, an instrument, an environment, a singularity, and a multiplicity.

Given this, any attempt to precisely define what “the body” is and map its position in space is a problematic and perhaps foolhardy project. Despite this, an engagement with the forms, experiences, and practices of embodiment is extremely important precisely because, as this thesis seeks to illustrate, the types of bodies referred to when the term embodiment is mobilized may not be restricted merely to “human” bodies.

The work of the French theorist Michel Foucault has provided much of the impetus for the reassertion of the body as an object of study within the humanities and social sciences, largely as result of his genealogical investigations into the production, control, and regulation of bodies and spaces within networks of power. According to Foucault (1981), the question of power cannot be abstracted from that of knowledge. Particular historically and geographically specific discursive formations constitute regimes of power in that they provide the rules which determine what can be said and how this can be said. This is not to suggest that discourses merely designate and name objects. Rather, discourses may be thought of as composed of practices which actually produce or constitute the objects that they name. This idea has been used to critically interrogate the ways in which discourses constitute particular objects and subjects in particular spaces. Importantly, from such a perspective the exercise of mapping loses its scientific objectivity (and the innocence often associated with such objectivity) and comes to be seen as a discursive practice which actively produces the world, a process which renders certain spaces (in)visible and (un)intelligible.

Central to Foucault’s work on the body, and inextricably bound up with his conception of power, is the idea of “disciplines” by which he refers those “methods, which made possible the meticulous control of the operations of the body, which assured the constant subjection of its forces and imposed upon them a relation of docility-utility” (1995:137). Organized around an “analytics of space” (143), such disciplines served to individualize “bodies by a location that does not give them a fixed position, but distributes them and circulates them in a network of relations” (146). Disciplines also attempt to control with exact precision the temporal location of the individual body. Thus, “a sort of anatomico-chronological schema of behaviour is defined. The act is broken down into its elements; the position of the body, limbs, articulations is defined; to each movement are assigned a direction, an aptitude, a duration; their order of succession is prescribed. Time penetrates the body and with it all the meticulous controls of power” (152). In such a “correct use of the body..nothing must remain idle or useless” (152). The relationship between bodies and machines was also defined in terms of a meticulously meshed “body-machine complex” (153). For Foucault, “through such techniques of subjection a new object was being formed...the natural body, the bearer of forces and the seat of duration.....susceptible to specified operations, which have their order, their stages, their internal conditions, their constituent elements...a body of exercise” (156).

The body then is the target for a whole range of disciplinary techniques which attempt to regulate its form and control its position. In *Discipline and Punish* (1995), Foucault argues that carceral spaces such as the prison were key locations for these disciplinary techniques. But the techniques at work in these places were symptomatic of a whole range of disciplinary techniques

at work in society, by which bodies were precisely mapped and distributed, which in turn produced docile, obedient, and productive, bodies. These ideas are obviously useful in their explicitly spatial treatment of how particular bodies are disciplined, produced, and regulated. Significantly, they combine this spatial sensitivity with an appreciation of the ways that disciplines involve the precise mapping of bodies onto machines, in order that the total mobilization of the resources of these human-machinic assemblages may be realized.

For Foucault, the power that is exercised through such disciplinary techniques does not merely “act upon” an individual. Rather, it is through being the object of these disciplinary techniques that the individual comes to know itself. The individual subject is produced and constituted through the action of such disciplinary techniques. According to Foucault,

He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power; he makes them play spontaneously upon himself; he inscribes in himself the principle of his own subjection (1995: 202-203).

Notions of surveillance and panopticism are important here. Based upon his reading of the workings of Jeremy Bentham’s model of the panopticon, Foucault suggests that disciplinary techniques work by internalizing surveillance, the individual then becoming his or her own overseer. Through being engaged in this constant self-policing the individual assumes the responsibility for the maintenance of social order.

In his later work on sexuality, Foucault engages more directly with the ways in which the individual subject is produced and comes to know itself by investigating the techniques which individuals practice in order to transform themselves into particular types of persons. In doing this he refers to “technologies of the self” which he says are those practices,

which permit individuals to effect by their own means a number of operations on their own bodies and souls, thoughts, conduct, and way of being so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality (1988: 18).

For Foucault, the multiplicity of technologies of the self which individuals practice upon themselves cannot be considered in isolation from wider technologies of power. Rather, they must be situated within the broader networks of power that flow, in a capillary-like manner, through societies. From this perspective power is neither merely a macro or micro level phenomena but “is an impersonal set of negotiations between practices, discourses, non discursive events, a mode of management of a multiplicity of relations, a set of technologies linking the most massive cultural movements to the most minute day by day events in interpersonal life” (Grosz, 1994:147). For Foucault then, individual technologies of the self, discursive regimes, and disciplinary techniques are all linked and together contribute to the production and maintenance of what he calls “bio-power” through which the productive potential of individuals as elements of modern industrial complexes is realized.

This liberation of “bio-power” is one aspect of the art of government, or “governmentality”, by which Foucault refers to the “right disposition of things, arranged so as to lead to a convenient end” (1991: 94). However, the idea of governmentality does not mean that power is “located” in a central authority such as the state. Rather, because power acts at all “levels” of society the “governmentalization” of the economy and society involves the enmeshing of individuals and groups “within the tactics and strategies of a complex form of power whose institutions, procedures, analyses, and techniques loosely manage mass populations and their surroundings in a highly politicized symbolic and material economy” (Luke, 1995: 68). In this way, individual bodies, the populations that they constitute, and the territories which they inhabit are all worked, arranged, and produced as the target of a range of techniques of governmentality.

A crucial aspect of this is the extent to which key metaphors move between the economic and the corporeal, discursively weaving bodies and economic organizations together in a mutual intelligibility. For instance, in the nineteenth century the “human motor” became

a metaphor of work and energy that provided nineteenth-century thinkers with a new scientific and cultural framework. Through this metaphor, scientists and social reformers could articulate their passionate materialism, embracing nature, industry, and human activity in a single, overarching concept (Rabinbach, 1992:1).

In this way the body came to be seen as a machine requiring maintenance, composed of different parts which, when working, formed a well oiled system. A body conceptualized as a machinic entity needed to be disciplined and trained in order to fit in with the organization of industrial capitalism. As Virilio (1995) also illustrates, the idea of the body as motor, or more accurately as something to be “motorized” and thus brought up to speed with contemporary technological developments continues today.

While technological metaphors, whether they be mechanical or informational can give intelligibility to organic bodies the opposite is also true. Various organic discourses are employed in the description of individual economic organizations and economies in general. In much economic discourse for instance, the economy is described using metaphors of the body, the “health” of which needs careful “treatment” (Gibson-Graham, 1996). Additionally, particular bodies and the economies within which they exist are constructed as objects within the discourse of development, as a reservoir of productive potential to be brought up to speed with the “developed” world through the application of economic models which, development experts insist, are the best way to guarantee the health of an economy (Escobar, 1995).

In such ways are bodies and machines inserted into larger political, economic and discursive economies. There is therefore, according to Foucault, an “etching of the civilized body by discursive systems” and this “body must be regarded as a site of social, political, cultural, and geographical inscriptions, production or constitution” (Grosz, 1994:142, 23). Foucault’s work

then, suggests that bodies and embodied subjects are constructed in and through particular spaces by the exercise of power at all “levels” of society.

Bodies and Geography

Foucault's richly suggestive ideas have fed into a growing increase in questions of corporeality across a range of academic disciplines, including geography. Yet, for a long time it is as though the body has acted as "Geography's other, both denied and desired depending on the particular school of geographical thought under consideration" (Longhurst, 1995:99). It is not surprising then that within geographical work, bodies (or precisely specified aggregates of bodies) have often been represented as points on a two dimensional map, objects to be enumerated, measured, quantified, and statistically analyzed. In cruder Marxian influenced geographies, the body is that biological space, mapped into the circuits of capital accumulation, from which labor power, and thus surplus value, is extracted.

Rose (1993) suggests some of the ways that geographers have been guilty of ignoring the body. For instance, she suggests that "time geography tries to ignore the body" (31) because it takes little account of "bodily passion or desire", and thus "represses all reference to a feminized other". Humanistic geographers are seen by Rose as at least attempting to recover the body from its invisibility within geography through their emphasis on the need to "consider differently embodied subjectivities for understanding spaces as places". However, Rose argues that they nevertheless fail to recognize the significance of these bodies as being colored, sexual, and sexed.

Despite this, "even feminist geographers have been guilty of treating the body as Other" in that "by trying to avoid the accusation of biologism they have ignored the possibilities of examining the sexed body in space" (Longhurst, 1995:100). Recently though, geographers have engaged with these issues in edited collections such as *Body Space* (Duncan, 1996), *Writing Women and Space* (Blunt and Rose, 1994), and *Mapping the Subject* (Pile and Thrift, 1995).

In such work there has been an attempt to engage with the ways that the identities of bodies and spaces are intertwined. This relationship can be mapped particularly usefully by employing Butler's ideas about performativity. Butler's discussion of the performativity of bodily identities must be set within the context of her discussion of the materiality of bodies. For Butler (1993:2), "what constitutes the fixity of the body, its contours, its movements, will be fully material, but materiality will be rethought as the effect of power, as power's most productive effect. Thus the materiality of the body including its 'sex' is, thus, not simply what one has, or a static description of what one is; it will be one of the norms by which the 'one' becomes visible at all, that which qualifies a body for life within the domain of cultural intelligibility". In playing upon the different meanings of the word "matter" Butler refuses to let the category of sex, which is frequently mobilized to reinforce hegemonic heterosexual gender regimes, to stand outside discourse as a "natural" attribute. This does not mean that there is nothing "tangible", "concrete" or "material" that can be touched, felt, worked on, or physically reshaped, but in not being considered pre-, or a-discursive, the "material" construction of the body is always seen as located within and constituted by discursive practices.

According to Butler the identity of bodies is constituted by "performativity" which she understands "not as a singular or deliberate 'act', but, rather, as the reiterative and citational

practice by which discourse produces the effects that it names” (1993:4). Thus for Butler, gender has a performative aspect in that it “is the repeated stylization of the body, a set of repeated acts within a highly rigid regulatory framework that congeal over time to produce the appearance of substance, a natural sort of being” (1990:33). It is only in this way that bodies are constructed as coherent, bounded and meaningful identities. In contemporary culture the dominant stylization of the body is one that has a fixed heterosexual gendered identity. Identities other than these, insofar as they transgress the boundaries of this regulatory framework, do not “matter” as much, both in terms of their visibility and acceptability.

These ideas are useful in the sense that they provide an analytical vocabulary to engage with the ways in which the “materiality” of bodies is discursively produced and reproduced. However, Butler’s ideas about performativity are not limited to the body. The construction of the spaces that the body “occupies” can also be examined in the same way. In a recent discussion of how certain places are produced as adult environments, Valentine (1996:206) “considers the way that the production of space is, like gender, also a performative act, naturalized through repetition”. To this end she looks both at repetitive acts, such as media reports and education campaigns, and regulatory regimes, including policing and corporal punishment, which are charged with maintaining this performance. Lewis and Pile (1996) also make use of the idea that bodies and spaces have a performative character in their examination of the bodies of women in the context of the Rio Carnival. However, this is not to suggest a clear separation between the production of the body and the production of space. Rather, such work lends support to the idea that it is better to think of a mutually constitutive processes in which the discursive practices that give performative force to particular bodies and spaces intertwine.

This engagement with the mutually constitutive relationship between bodies and spaces was in some ways anticipated by the writing of Henri Lefebvre. In *The Production of Space* (1974: 196) Lefebvre observes that;

the living organism has neither meaning nor existence when considered in isolation from its extensions, from the space that it reaches and produces. Every such organism is reflected and refracted in the changes that it wreaks in its “milieu” or “environment” - in other words, in its space.

Such sentiments are echoed in more recent work. In the context of an examination of how women experience chronic illness, Moss and Dyck (1996:748) suggest that “to differentiate body from environment does injustice to the integrity of any experience”. Similarly, noting that “bodies continually negotiate environments and environments negotiate bodies”, Johnston (1996:327) examines how female body builders and their training environments are mutually constitutive, suggesting that “that bodies become constructed and inscribed by the environment”. Recognizing this “provides a window through which to examine performative corporeality” (327).

These researchers also recognize that engaging with the relationship between bodies and environments challenges existing categories. For Moss and Dyck this necessitates “maintaining a

commitment to the fluidity of conceptual and material boundaries” (737). According to Johnston (328) “conceptualizing bodies as mutually constitutive with the environment radically challenges ontological and epistemological assumptions of Western thought, and Geography in particular”. This thesis seeks to contribute to this challenge through further developing the engagement with the ways in which the performative materiality of bodies is a constitutive part of the performative materiality of particular environments.

In doing this it mobilizes a Foucauldian inspired assertion that the attempt to place the body “somewhere”, materially or metaphorically, in “real” or “virtual” environments, always involves the exercise of power. From this perspective, one can problematize the apparently straightforward practice of “working out” in the home, which is no more “natural” or inevitable than any other embodied practice. Rather, the identity of the home as a disciplinary fitness environment may be thought of as having a certain performativity to it, in that it is naturalized through repetitive acts such as advertising, which in turn are situated within complex political and discursive economies. Equally, from such a Foucauldian influenced perspective one can also problematize the academic practice of placing particular bodies and forms of embodiment in neat and well defined categories such as human and non-human. The present study seeks to go beyond most of the existing geographical work on the constitutive relationship between bodies and environments by considering the equally constitutive roles that non-human bodies such as machines and technologies play in this relationship, a question that has received little critical attention.

Reconstructing technologies

*The technology question is inseparable from the question of where technology occurs.*¹

Paul Virilio, *The Art of the Motor* (1995).

The impact of technologies on the organization of space has been a recurrent theme in recent geographical and non-geographical research, the most influential of which has concentrated on the impact of developments in transport and telecommunications, this impact frequently invoked as evidence of epochal political-economic and cultural change. Manuel Castells (1989) for example, suggests that informational technology has led to the emergence of a “space of flows”, referring to flows of information and capital which have become more important than, and have dramatically restructured the geographies (or “geometries”) of space as “place”. David Harvey (1989) argues that the revolution in transport and telecommunications technologies in the latter quarter of the 20th century has led to a situation of “time-space” compression. This annihilation of time and space in order to more efficiently realize profit has undergirded a shift in cultural sensibility, a “postmodern condition”. Elsewhere, attention has been focused on the spatial organization of industry as a result of technological change (e.g. Storper and Walker, 1989).

There are a number of ways in which these accounts of the mediation of the experiences and reorganization of space by technological developments remain inadequate. The first is the scale

¹ Emphasis in the original.

at which they operate. There is a tendency to concentrate on the “global” scale, in the process losing sight of microspaces such as the home. Second, while theorists such as Harvey are all too ready to explain shifts in cultural sensibility as a result of technological changes rooted in capitalist organization, they remain somewhat insensitive to the possibility that these technologies themselves are cultural artifacts, that they need to be made culturally intelligible, and that this is a process that occurs in different ways. As Thrift (1996:1471) notes, “each new technology must take on complex cultural meanings which are by no means self-evident and which allow certain machines, for example the piano, to be seen as ‘natural’ and others, like the computer to be seen as ‘unnatural’”. Third, there is a tendency to attribute too great an ability on the part of technologies, especially information technologies, to effortlessly and efficiently restructure space at will, revealing a willingness to allow a form of technological determinism to creep into analyses of the relation between technology and space. In Castells’ work in particular, the space in which such restructuring is assumed to take place often appears as an almost two-dimensional Cartesian plane, devoid of any of the complex social, cultural, and indeed natural networks which make the relationship between technologies and space a much messier affair. Indeed, such a proclivity to assume that technologies rapidly and effortlessly effect spatial change is part of a broader tendency to unproblematically accept both the impact and the novelty of “new” technologies and human-technological relations (Thrift, 1996).

Finally, and perhaps most importantly for this thesis, there is little attempt to map the relation between bodies and technologies. Tellingly, while Harvey (1996: 281) suggests that

it is, perhaps, wise to consider how transitions in the definitions of space and time through changing social processes are effecting changing conception of the body and consequently of identity, particularities, and where the human body resides in the scale of things,

he nevertheless gives little attention to the role of technologies in these processes. Elsewhere, similar opportunities to examine the relationships between bodies and technologies have been missed. For instance, in the book *Ground Truth* (Pickles, 1995), intended as critical engagement with Geographical Information Systems (GIS), there is little attempt to examine the relationship between bodies and technologies.

Outside the discipline of Geography there has been much engagement with the relationship between bodies and technologies. For example, in the eyes of Kroker and Weinstein (1993) the body is becoming “virtualized” and the flesh of the organic body is rapidly deteriorating to the status of some awkward and obsolete corporeal remainder. Given this, they suggest that “the weakened body has become a prosthetic to the media net” and the contemporary “rage against the body results in a flight into virtuality”(2). Within expanding cyberspaces, perhaps virtual bodies do exist, alongside hybridized and virtualized subjectivities. Yet, it is important not to lose sight of the mundane materiality, both of the physical infrastructures that make these virtual realities possible and of the bodies of those who are interfaced with informational technologies, something not adequately captured by more hyperbolic and overstated accounts such as that of

Kroker and Weinstein. Accordingly, it might be more profitable to examine how the contemporary “rage against the body”, (which is not so novel in the sense that the inadequacy of the human body for various purposes - flight, industrial production, sporting performance etc. - has always led to attempts to alter its capacities and prosthetically enhance its performance) encourages embodied subjects to enter into environments of self-reconstruction such as those provided by fitness facilities and the manufacturers of home fitness equipment. This would be a necessary recognition that, despite the more enthusiastic claims for the inevitability of virtualization, flesh - whether weakened, strengthened, flexible, or inflexible - still matters (Sobchack, 1995).²

There is a particular need therefore for methodological perspectives that more adequately handle the relationships between bodies and technologies and how these relationships problematize the boundaries frequently mobilized in descriptions of contemporary embodied environments. The figure of the Cyborg offers one such perspective. The word cyborg is itself a hybrid, formed of a collapsing of the terms cybernetic and organism. “Cybernetic” has its origins in the Greek word *kubernetes*, meaning “governor”, and “organism” in the word *organon*, meaning “instrument” (Bellor, 1996:193). While ideas about “governing instruments” in the form of cyborg fusions of human and machine have floated about in “hard” science and popular science fiction for quite a while, the work of Donna Haraway, in particular her essay “*Manifesto for Cyborgs*”, has been central to the popularizing of the term in academic discourse. According to Haraway (1991:1),

Cyborgs are post-Second World War hybrid entities made of first, ourselves and other organic creatures in our unchosen ‘high-technological’ guise as information systems, texts, and ergonomically controlled laboring, desiring, and reproducing machines. The second essential ingredient in cyborgs is machines in their guise, also, as communication systems, texts, and self acting, ergonomically designed apparatuses.

Thus, for Haraway, the figure of the cyborg is a boundary creature, material and metaphorical, straddling the boundaries between nature and culture, human subjects and non-human technological objects. Haraway’s “*Manifesto for Cyborgs*” was intended as an ironic yet optimistic fiction, a fiction that would attempt to reclaim some of the ontological territory lost to the world-defining and dominating fictions of “real” and “hard” technoscience. Her work has been crucial in contributing to the problematizing and politicizing of technoscience and its role in the construction and strategic employment of the categories of “nature” and “culture”. By examining the constructedness of these apparently irreconcilable categories, used to justify what kind of persons “we” are, she opens the door to a range of boundary creatures, monsters that do

² Such enthusiastic, and admittedly perhaps more entertaining claims are frequently the product of a certain seduction with speed, where appearing excessively slow, or a little unwilling to let the tenure-procuring pedal power away into the discourse of a disembodied future, is decidedly un-hip. Yet this does not mean that reconceptualizations and disturbances of existing ontological categories are not needed. They certainly are, but can be more of a hindrance than a help if they ascribe too much novelty to the present, and to much inevitability to the future, thereby obscuring and blinking a long and messy past which, if held up to the “contemporary”, makes it seem a little less novel or ontologically radical as is increasingly so often assumed.

not fit within dominant liberal ontologies. There is thus a politics behind the creature of the cyborg, a politics that ranges over the spaces of bodies and the scientific knowledges and technologies used to control, construct and regulate them. For Haraway then, categories are not “innocent” - hence her assertion that “grammar is politics by other means”.

Haraway’s work is perhaps most useful for examining the relationship between bodies and machines, and the category of the cyborg provides a particularly useful analytical fiction with which to examine this relationship. By deploying the category of the cyborg, one can, as Luke (1997) notes, “invoke an ‘as if clause’ in the standard methodological contract allowing us to re-read human behavior as if it is cyborg behavior”, thereby problematizing the boundaries between the categories of human and machine and nature and culture. Such boundaries are continually reaffirmed in the advertising images displayed in the United States. To take a mundane, but telling example, artificial breast forms, sold on the basis of offering the wearer the ability to achieve the “natural” feminine bodily look, serve to perpetuate dominant cultural inscriptions of the gendered body (Balsamo, 1995). Similarly, sports bras enable the wearer to retain the ideal feminine figure while technologically working out. For instance, Champion, the sports apparel manufacturer, who enthusiastically claim that “only Abs should be flat” offer a sports bra to “put your form in performance”.

In contrast, when technologies are used to produce “un-natural” bodies, reactions of disgust and abhorrence are produced. An example of this is the form of the female body builder, which, constructed with the aid of weights and measured resistances is not so intelligible because it upsets and transgresses the traditional masculine/feminine gender dualism (Balsamo, 1995; Johnson, 1996). In such ways are technological bodies made (un)intelligible and (un)inhabitable within hegemonic and ontologically purified cultural categories, the meaning of these technologies being produced “by a complex arrangement or articulation of texts, narratives, institutional structures, economic forces, bodily practices, and other material effects” (Balsamo, 1995:6).

Haraway invests the figure of the cyborg with radically disruptive and potentially transformative possibilities. However, the heady optimism with which she suggests boundary figures such as the cyborg might disrupt the dominant hegemonic technocultural landscape is probably unwarranted given, as Luke (1995) notes, that for the most part, it is liberalism and not cyborgs that give “us” our politics. Additionally, Haraway’s suggestion that cyborgs have only arisen in the second half of the twentieth century is also dubious because of its failure to attribute sufficient history to the figure of the cyborg. They, or more accurately, “we” are not as novel as we might think.

Furthermore, and perhaps more importantly, the methodological fiction of the cyborg may not necessarily be useful for conceptualizing the relation between human-machinic relations at different scales. Indeed, Haraway, by demonstrating an anthropomorphic bias in her analyses of cyborgs may be ignoring other machinic assemblages (Luke, 1997). If this is the case then cyborgs such as the aforementioned wearer of the sports bra might be situated within and considered constitutive of “humachines”,

which might be seen as machinic assemblages of power, space, production, energy, reproduction, matter, organization, and information with their own intelligence and agency that constitute the operational settings and sustainable life worlds of cyborg forms (Luke, 1997).

There is a problematic politics of scale at operation here, in that the mega-machinic is set against the meso-, and also the micro-machinic. If bodies, machines, and environments are mutually constitutive, then mapping the intermediate ground between these and moving between them is not easy, in the same way that moving between the operation of technologies of domination and technologies of the self is not easy. In the following section I examine some work which, combined with the figure of the cyborg, might provide a conceptual language with which to make this task easier.

Reconstructing environments

That body of work which has come to be termed Science and Technology Studies (STS) shares with Haraway the goal of critically engaging with the role played by technoscience in contemporary societies. Actor-Network Theory (ANT) has emerged from within STS as an effort to understand how social and technical relations are embodied and perform themselves in the ordering and re-ordering of texts, artifacts, and the “natural world”.

From the perspective of ANT, materiality is a relational effect, and these relations are not merely those between human actors but also include relations with and between non-human actors. An actor-network then according to Callon et al (1986:xvi) is

an interrelated set of entities that have been successfully translated or enrolled by an actor that is thereby able to borrow their force and speak or act on their behalf or with their support.

Translation here refers to the means by which actor-networks are created and maintained. These means involve

(a) the definition of roles, their distribution, and the delineation of a scenario: (b) the strategies in which an actor-world renders itself indispensable to others by creating a geography of obligatory passage points: and (c) the displacement imposed upon others as they are forced to follow the itinerary that has been imposed (xvii).

Such processes of translation occur at particular translation centers, defined as,

Locations at which translation strategies are evolved, attempts are made to control the diverse elements that make up the actor network, calculations about the return from different strategies are made, [and] which are able to turn themselves into spokesmen for other entities and, in some sense, profit from this asymmetry (xvii).

Power, in this context, does not reside anywhere, but rather, in the networks themselves, and the ability of certain centers of translation to shape the strength and composition of these networks. As Murdoch (1995:748) notes, those centers which are powerful “are not those who ‘hold’ power but are those able to enroll, convince, and enlist others into networks on terms which allow the initial actors (both human and non-human) to represent the others”. Crucial to this convincing and enlisting is what Latour calls the process of mediation. For Latour (1993:78), a “mediator..creates what it translates as well as the entities between which it plays the mediating role”. These mediators include texts, technologies, and also humans, which together give shape to networks and define the roles played by different actors within these networks.

At this point it becomes clear that such a notion of power is not entirely incompatible with some of the ideas in Foucault’s work as discussed above. The “right disposition of things” arranged so as to lead to the most convenient ends can be thought of in terms of attempts on the part of particular centers of translation to construct particular kinds of networks. It then becomes a question of the governmentality of these networks, a governmentality that is nevertheless always unstable, incomplete, and does not take on the form of some overarching totality.

Additionally, like Haraway, ANT makes room for the non-human in ways impossible under the terms of the modern constitution. For Latour, “collectives” are defined by associations between the non-human and the human (1993:4). What is currently included in the category of the “social”, or the “cultural” is, according to Latour, merely one element of our collectives. In this way, who or what gets considered as an actor or agent is rethought in terms of actor-networks of nature and culture, human and non-human.

Latour (1997) has made a number of clarifications about ANT which are worth including here because they have important implications for questions of spatiality. Put simply, Latour suggests that ANT is a “change of topology”, one involving a move from surfaces to filaments. He claims that from the perspective of ANT,

societies cannot be described without recognizing them as having a fibrous, thread-like, wiry, stringy, ropy, capillary character that is never captured by the notions of levels, layers, territories, spheres, categories, structures, and systems (2).³

What Latour is articulating here is a position that asserts that it is not just networks all the way down, but also all the way up and in all other directions as well. It is also not a matter of networks being created and translated within a passive container, but that the very matter under consideration is all networks. There is no “in-between” from the perspective of ANT. Nothing slips through the filaments that make up actor-networks, except perhaps other networks.

³ Latour (1997) makes the point that networks should not be thought of as being analogous to sewage or telecommunication networks. Such networks are only one final and stabilized type of actor-network.

Such topological assertions have profound implications for the way that questions of space and scale are imagined. First, as Latour notes, “the first advantage of thinking in terms of networks is that we get rid of the ‘tyranny of distance’ or proximity” (1997:3). From the perspective of ANT the network offers a topology which is defined neither in terms of social or “real” space but instead in terms of associations. In this situation “real” proximity does not matter. Rather, what matters is how close and durable are the connections between different actors.

Second, the notion of the network attempts to chart a middle ground between the oppositional scales of macro and micro, global and local . This is because from the perspective of ANT the whole “metaphor of scales..is replaced by a metaphor of connections” in which networks are defined in terms of their length and the intensity of their connections rather than in terms of their size (Latour:1997:3). Thus, one can think of a network as a global entity, in terms of its connections, which is nevertheless entirely local, in the sense that all points in the network are local. It makes little sense from this perspective to counterpose the local and the global, just as it makes little sense to counterpose micro and macro.

Along with jettisoning the oppositional categories of far/close and big/small, Latour also points to the fact that the notions of inside and outside are similarly problematized by the network topology. If one moves from an topology based upon surfaces, in which boundaries exist to separate inside and outside, to one constituted by networks, then one quickly loses sight of these boundaries, because, as Latour suggests, “a network has no outside” (1997:4). However, while Latour seeks to “reshuffle spatial metaphors that have rendered the study of society nature so difficult” (1997:4), this is not the same as asserting that there is nothing such as macro, society, outside, proximity, distance, etc., but rather that these are rethought of in terms of the spatial effects of the work done by actor-networks.

In the process of tracing such networks we quickly lose the ontological reference points which Latour claims are provided by the “modern constitution”. Against the terms of this constitution, which struggles to purify the world by categorizing “things” as either subject or object, natural or cultural, human or non-human, Latour argues that the world is constituted by more curious things variously labeled as networks, hybrids, collectives, quasi-objects/subjects, which exist in a “middle kingdom” between the modern categories of “nature/culture”, “subject/object”, and “human/non-human”. These boundary creatures are “*simultaneously real, like nature, narrated, like discourse, and collective, like society*” (1993: 6).⁴ While we “moderns” have struggled to purify, separate, and define different realms of reality through objective scientific analysis, we have been blind to, and have facilitated the proliferation of such hybrids.

Despite the rather selective critique of the discipline of geography by Latour⁵, ANT has found its way into geographical work and “network topologies” have been made visible in a

⁴ Emphasis in the original.

⁵ According to Latour (1997), the “difficulty we have in defining all associations in terms of networks is due to the prevalence of geography. It seems obvious that we can oppose proximity and connections. However,

number of ways. Within the context of “agricultural geography” - itself perhaps a dubious category - Roberts (1995) argues that what is needed

is empirically grounded analysis of the *geography* of the proliferation of nature-culture hybrids in which nature is no longer a simple projection of social change because the full particularity of the social and the natural can be taken into account. Only by differentiating alternative paths and processes in the transformation of nature-society-networks can the complexity of these networks be laid out.⁶

The international financial system has also been examined in these terms by Thrift and Leyshon (1994). They identify four overlapping actor-networks - nation-states, the media, organizations of money capitalists, and “machine intelligence” - which form the structures of governance of the international financial system insofar as together they are “able to assemble the agency, power and size needed to develop, produce and distribute money” (306). By doing this they hope to counter the idea that money, and its increasingly global circulation in the form of information, has become completely disembodied from social and cultural networks. The technological networks that facilitate the increased speed and distance with which money is circulated are only part of broader actor networks and indeed, as Thrift and Leyshon point out, it is the very complexity of the interpretive processes associated with these telecommunication technologies that further embeds them into richly textured socio-cultural contexts.⁷

Bingham (1996) also offers another example of the attempt to utilize the insights of the amodern framework of ANT to re-imagine the ways in which materiality is constituted, positing what he suggests is a materialist semiotics as a “means to grant all sorts of things their rightful place in the (co)construction of the world” (635). Such an approach, which is basically a rearticulation of ANT, would, according to Bingham, be concerned with the ways in which “all sorts of bits and pieces - bodies machines and buildings, as well as texts - are associated together in attempts to build order” (643).

These examples confirm Thrift and Olds’ suggestion that the “topological presupposition of the network is now in common usage in the social sciences” (1996:322). Thrift and Olds suggest that this presupposition is deployed in 4 ways, (a) in order to facilitate a description of modes of

geographical proximity is the result of a science, geography, of a profession, geographers, of a practice, mapping, measuring, triangulating. Their definition of proximity and distance is useless for ANT - or it should be included as one type of connections, one type of networks. All definitions in terms of surface and territories come from our reading of maps drawn and filled in by geographers. Out of geographers and geography, “in between” their own networks, there is no such thing as a proximity or a distance which would not be defined by connectivity. The geographical notion is simply another connection to a grid defining a metrics and a scale. The notion of network helps us lift the tyranny of geographers in defining space and offers us a notion which is neither social nor ‘real’ space, but associations”.

⁶ Emphasis in the original.

⁷ Additionally, Swyngedouw (1996) draws on both Latour’s and Haraway’s ideas, combined with Lefebvre to reconceptualize the political ecology of the city, in the process acknowledging that “every body and thing is a cyborg, a mediator, part social and part natural, but without discrete boundaries, continually internalizing the multiple contradictory relations that re-define and re-work every body and thing” (70).

governance, (b) as an analysis of social networks, (c) to analyze the “performative networks of culture”, and (d) to examine “the logics of connection and separation of bodies and other things”. However, in their own attempt to trace a particular network they neglect to address the last of the ways in which the network topology has been deployed. This omission is symptomatic of a larger deficiency in the ANT perspective, a perspective which has generally failed to engage with questions of the body, embodiment, and corporeality.

A second potential critique of ANT relates to its tendency to offer a totalistic account, which presupposes that the networks being traced can be mapped in their entirety. However, it is only “humanly” possible to begin to “translate” these hybridizations in their local, yet simultaneously global, specificity. The partiality of the ability to map these networks must be constantly recognized and acknowledged, as must the inability of critical observers to remove themselves from the networked environments of which they are part. In this context “collective vision” takes on different meanings, referring not only to the ability of a group of individuals to form coherent sets of goals, but also to the extent to which actor-networks (including those composed in part by geographers) can see the hybridized environments of which they are part. This involves a realization that the ability to “see” these environments is itself a collective vision, a vision not from an abstract omniperspectival “human” viewpoint, but from the networked position(s) of the quasi-object/subject. Armed with a realization of the partiality of collective vision, questions of which “collective” interests promote particular processes of hybridization, and then subsequently purify and deny the existence of these hybridizations under the terms of the modern constitution might become (in)tolerably visible.

Despite these criticisms ANT can contribute to a critical rethinking of what is involved in the construction and constitution of environments. Environments might be provisionally rethought of in terms of networks, and the construction of environments as the governmentality of these networks, a governmentality involving the translation and mobilizing of diverse actors. Additionally, bodies and machines are not assembled as particular cyborg fusions “within” environments. Rather, environments, bodies and machines are produced together, they are implicated in the construction and constitution of each other, as the length and intensity of the connections of particular networks is increased. This then, is the way that actors are mobilized and translated by particularly powerful centers of translation to create the effect of environments.

Given this, it is necessary here to return once again to Butler, whose idea of performativity, applied to the construction and maintenance of the identity of environments, may now be seen as one part of the processes of translation through which networks of human and non-human, nature and culture, take shape. The discursive construction of the home as an environments of fitness, given performative force by repetitive acts such as those continuously visible on contemporary television screens, in magazines, and in retail outlets, might then be seen as merely one aspect of such hybrid networks, but one which is important in defining the types of humans and non-humans arranged so as to lead to the convenient ends of particular collectives.

Thus, as one element in the larger networks that are simultaneously global and local, the environment of the home might equally be seen as a hybrid, a quasi-object, formed of the network of hybridizations between the “natural” building materials such as wood, stone etc., the gendered “cultural” values ascribed to the space of the home, and technological networks such as electricity, sewage, gas, telephone, Internet, and television. Similarly, and inextricably bound up with the hybrid environment of the home, the body might be seen as a quasi-object formed of the thread woven between the “natural” body, its organs and functions, the cultural values ascribed to and inscribed through these, and the technologies and non-animate objects, such as nutritional supplements, pulse monitors, cathode-ray tubes, and ergonomically designed fitness machines. This thesis seeks to examine how the networked relations between these materially and discursively constructed bodies, technologies, and spaces are together what constitutes environments, and fitness environments in particular.

This chapter then has considered some of the complexities involved in thinking about how environments are constructed. The central aim of the chapter has been to situate the relationship between bodies and technologies as a constitutive element of the construction of environments. To this end I have made a number of points, all of which are crucial to the framing of the chapters that follow. First, bodies and the spaces in which they are constructed are not given, they are not “natural”. Rather, and second, bodies can be seen as both materially and discursively constructed and reconstructed in particular spaces using particular technologies, a point taken from Foucault’s work. Third, these technologies, the bodies that “use” them, and the spaces in which they are “used”, may be better conceptualized within the “amodern” framework that thinkers such as Latour and Haraway offer. Environments can perhaps then be provisionally rethought of as being constituted by networks of both human and non-human actors. These networks are mobilized and governmentalized by particular centers of translation which, through appearing to represent these networks, grant them sufficient legitimacy and stability.

Representing and interrogating “things” in this way is definitely not safe (Pred, 1996). Indeed, its result may lead to a marginalization of those doing the representing to the edges of the collectives which define what constitutes the body of knowledge properly considered as geographical. As Latour (1993) suggests, if the networks that we are pursuing, or perhaps more appropriately, those that we are tracking, cross the boundaries of established disciplinary space, “we are no longer understood” (5). Such pursuits do not match up to the standards of the academic “theater of proof” and its criteria of unobscured visibility. “Things”, such as hybrids, networks, and cyborgs can never be “seen clearly”. For many then, perhaps it is better that they are never seen at all, left to proliferate unacknowledged.

Yet, tactically employing and provisionally acknowledging the existence of boundary-blurring categories is important for two reasons. First, it enables a critical appreciation of which collectives attempt to define which “natural” bodies are culturally intelligible, increasing the social and spatial divisions between those bodies marked as fit and able, and those marked as unfit and disabled. The politics of fitness, the environments where this embodied attribute is produced,

and access to these environments, are issues just as important as, and inextricably bound up with, contemporary questions of wealth production and consumption.

Second, it encourages an interrogation of the kind of “material” that forms the “object” of geographical knowledge (Matless, 1996). As Downey notes, “cyborg anthropology..takes the relations among knowledge production, technological production, and subject production to be a crucial area of anthropological research” (1995:264). These questions are also crucial to what might be termed a cyborg, hybrid, or amodern geography. The chapters that follow critically examine the construction of one “amodern” environment in particular, that of the fitness environment of the “home-body-shopper”.