Unsafe Ground: Technology, Habit and the Enactment of Disability

By Jonathan Paul Mitchell

Abstract

This paper discusses how everyday technologies contribute to the enaction of disability, in particular by continually frustrating the formation of a general sense of ease in the world. It suggests that bodies have a fundamental relationality, within which technology comprises a central aspect; and that the very entity called the human is constituted through relationships with technologies. Then, it considers two ways that the organisation of technology is involved in the realisation of both ability and disability. First, it describes how the distribution of technological resources for activity are centred around bodies that are attributed normality and correctness, which also de-centres bodies falling outside this category: the former are enabled to act while the latter are not. Second, it proposes that ability and disability also involve habit: activities that have not only been repeated until familiar, but in which body and technologies can be forgotten. That typical bodies are centred allows them to develop robust habitual relationships with technological environments in which body and technologies can recede from attention, and crucially, to acquire a sense that their engagements will generally be supported. Atypical bodies, as de-centred, lack this secure ground: they cannot forget their relations with environments, and cannot simply assume that these will support their activity. This erodes bodily confidence in a world that will support the projects, whether ordinary or innovative, that constitute a life.

KEYWORDS: ability, disability, technology, the human, embodiment, distributed agency, habit.

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Introduction

This paper discusses how everyday technologies and environments contribute to the enaction of disability, in particular by continually frustrating the formation of a general sense of ease in the world. Well-known work in disability studies outlines how relationships with the world can be splintered, such that the body stands out as radically objectified (Paterson and Hughes, 1999). I am proposing that a less-evident phenomenon coexists with these more dramatic occurrences: a persistent, low-level uncertainty that arises because environments are not especially habitable in the first place, and prohibit some bodies from forming stable relations. Very mundane technological dimensions of everyday environments are organised around material characteristics of bodies identified with a normal human type: this enables them to act, and, though habituation, to become generally at ease in the world. Their relations with things and environments rarely come into question. Since the bulk of such environments rarely consider the organisation of anomalous embodiments, these individuals are less able to act, and are hampered from developing robust habitual relationships. The body, and its hold on the world, remain perpetually in question. To address this, I first sketch some common ways of understanding bodies and technologies, before outlining my alternative position on these: that bodies have a fundamental relationality, within which technology is a core dimension; and that common and ubiquitous ways of relating with technologies constitute the very entity called 'the human'. Then, I consider two ways that technologies, as ordered around a certain idea of the 'normal human subject', contribute to the realisation of both ability and disability. First, typical bodies are centred by the distribution of technological resources for many ordinary activities (these bodies, while merely numerically prevalent, are attributed normality and correctness) which also de-centres atypical bodies (bodies that are attributed abnormality and error): the former are enabled to act while the latter are not. Second, it considers how ability and disability also involve habit: by habit I mean not just something repeated

until familiar, but in which body and technologies can be forgotten (Ahmed, 2007). Because typical bodies are generally centred, they can develop robust habitual relationships with technological environments (that include very banal mundane technologies that support or inhibit activity while themselves going unnoticed). Crucially, they can acquire a sense that technological environments will generally support their engagements. Atypical bodies, as de-centred, lack a secure ground, and cannot simply assume that environments will support their activity. This erodes bodily confidence in a world that will support the projects, whether ordinary or innovative, that constitute a life.

Human Autonomy and Instrumental Technology

I will first outline some settled notions about humans and their relationships with technology, followed by implications for how disability is understood. These notions concern what Christopher Watkin (2017) calls 'host properties' and 'host capacities': attributes or powers deemed essential to and definitive of the human. In one story that has prevailed in the West at least since modernity, both in philosophy and more broadly, the hallmark human capacity is autonomy as "independent, rational self-determination" (Scully, 2014, 212). Here, individual humans possess an inbuilt faculty for reason. This furnishes objective and universal knowledge and precipitates self-caused action by disengaging from and transcending particularities (Solomon, 1988): from bodily exigencies and emotional attachments, to norms and conventions of concrete social contexts (Latour, 2008). Put simply, humans are autonomous because they can—in principle, if not always in fact—independently formulate goals and bring these to fruition. This modern account makes several distinctions. It differentiates humans from everything non-human. Humans are subjects: they alone have meaning, value, and freedom as possibilities. Everything else—nonhuman organisms, vegetal life, manufactured artefacts—gets thrown together as so many objects arrayed within neutral geometric space

(Latour, 1993). It conceptualises freedom as separation from or transcendence of relations and attachments. This also carves the human into an active, rationally-free subjectivity and a passive, causally-determined body. Moreover, only the former bears the hallmark of the human; nothing bodily truly defines humanness. Indeed, realisation of autonomy involves appropriation of that very body (Esposito, 2015; Esposito, 2012).

The primacy of autonomy is evident in a common understanding of technology. In 'instrumentalism' (Borgmann, 1984), technologies are mere instruments, and are "subservient to values established in other… spheres" (Feenberg, 2002, 5). That is, technologies are epistemically and morally neutral: the values determining their design, fabrication and application come from humans alone. Moreover, technologies do not contribute substantively to autonomy: they are mere vehicles that only expedite or extend freedom that resides solely in human users (Latour, 1999). Again, we see distinctions between essentially different kinds (Sharon, 2014): subjective and active humans, objective and passive technologies. Significantly, this implies a definition of the human as independent of technology. If technology depends upon a prior and preeminent human sphere, such a sphere must exist, and along with it a pre-technological human. This dovetails with the foregoing humanist account: in both the human host capacity—namely, autonomy—pre-exists, and is independent of, technology and relations more generally (Watkin, 2017). I will dispute these positions in due course.

This cluster of ideas about the autonomous human informs a common understanding of ability and disability. Here, ability is the capacity to do things voluntarily and independently; this lines up closely with the aforementioned conceptualisation of autonomy. Ingunn Moser notes how a nondisabled, 'normal subject' is said to possess "a sort of disposition or available functionality" that permits voluntary, detached action, because it is "discontinuous, bounded and detached" (2006, 383). It is free because it can transcend attachments. This capacity is always available, even when not in use. In a similar vein, Joel Michael Reynolds (2018) describes how humans are purported to enjoy an objective standard of normal ability that is largely invariant (notwithstanding normal phases of relative ability during certain life stages). Furthermore, during these long phases of ability, humans are taken as "independent, not in need of care, and effectively invulnerable" (Scully, 2014, 214).

In such an understanding, disability identifies something about a body that precludes or inhibits the autonomy available to normal humans. Disability drags someone away from transcending human freedom and towards limiting material objectivity, leaving them "trapped in and by the body" (Frost, 2016, 7). Put differently, disability implies dependency, the antithesis of autonomy. Disabled people are dependent in the same measure that they lack the pristine autonomy of normal human subjects. Indeed, disability is often identified with dependency upon others, state apparatuses, and technologies (Scully, 2014). Disabled subjects, for instance, depend upon prosthetic technologies to artificially compensate for the autonomy they lack (Moser, 2006). Here we see a further division. While disabled people may be human in principle, this status remains ambiguous: since they are diminished in a signature human capacity—with purportedly inevitable entailments for their potential to enjoy the good life—they are separated from full humanness.

Bodies and Technological Praxis: Actor-Network Theory and Postphenomenology

I will now outline an alternative approach to embodiment and technology. This begins from a phenomenological claim about bodily praxis: that in their everyday, engaged modality, bodies are not closed and static objects, but lived, pragmatic 'organs' of movement and connection, that are centrally involved in thinking and acting (Merleau-Ponty, 2012). Embodied existence is inescapably dynamic, since bodies are perpetually in dialogue with their surroundings; particular, since bodies are always "somewhere and at some

time" (Sharon, 2014, 137); and perspectival, since bodies apprehend things from their relative, limited, and changing position. This local perspective involves significance. Things do not manifest as blank presences, but as imbued with meanings produced by interplay between bodily concerns and surroundings (Merleau-Ponty, 1964). When someone is hungry and tired, a restaurant appears farther away, a chair more comfortable, than when they are satiated and well-rested. This is an initial way that bodies are relational: they are "open [systems] of dynamic exchanges with the world" (Weiss, 2008, 89), where this world comprises immediately significant things and situations.

Bodies are relational in another sense. Embodied activity overflows corporeal boundaries to integrate bits and pieces of the extra-somatic world. This is illustrated by Maurice Merleau-Ponty's oft-cited description of a non-sighted man whose cane is so deeply absorbed within engaged activity that it becomes one sense organ among others (Merleau-Ponty, 2012).[1] I take these intimate, pragmatic relationships among bodies and technologies to be pervasive. I also understand technology very broadly as the outcome of any world-making and -transforming activities: from flint knapping tools to smartphones; from earthworks to cryptocurrencies; from spoken or signed, to written or machine language. I will now consider body-technology relations in terms of distributed agency (via actor-network theory), then in terms of habituation (via postphenomenology), before amalgamating these approaches in a concept I call 'ensemble'.[2]

Actor-network theory (hereafter, ANT) is partly an approach to agency that includes technologies, or 'nonhumans' (Latour, 1994; Latour, 1988). Here, agency requires only that something modifies the action of something else: anything that does so—whether a person, text, technology, habit, or concept—is a veritable actor, or 'actant' (Latour, 1999; Mol, 2010). Humans and nonhumans are symmetrical in this respect. Humans are customarily overestimated as sources of pure agency, yet nonhumans participate in most human actions (Mol, 2010). Nonhumans, meanwhile, are not passive vehicles for human agency, but

full-fledged actants. This is because agency does not ultimately separate into the pure activity of subjects and pure passivity of objects. First, it is not occasioned by a single subject or object; agency is an emergent property of sets of associations among humans and nonhumans, called 'actor-networks'. These very associations are what afford actors their capacity to act. And, second, participants in such networks modify their associates (Pyyhtinen and Tamminen, 2011). Put differently, actants acquire their specific properties, capacities, and dispositions in a network from their associations: "[a]ctors are enacted, enabled, and adapted by their associates while in their turn enacting, enabling and adapting these" (Mol, 2010, 260). In Bruno Latour's well-known example (1999), neither shooter nor firearm are the total cause when a gun is fired. The agency is realised by a composite person-gun agent whose participants modify each other: the person has different capacities and proclivities when armed; the weapon has different capacities and affordances when held. There are many alternative terms to 'actor-network'. I will use 'enactment', which captures how "acting and being enacted go together" (Mol and Law, 2004, 50): something is enacted by the relations that constitute it, which concurrently enacts an agency or effect.

I will also draw upon postphenomenology for its focus on bodily praxis, including how relations with technologies become so familiar that bodies and technologies can be ignored during activity (Ihde, 1990; Ihde, 1993; Ihde, 2003; Rosenberger and Verbeek, 2015). This deep familiarity is thanks to what Don Ihde calls a "polymorphous sense of bodily extension" (1990, 74), whereby the boundaries of the lived body contract or dilate according to present associations and goals, such that technologies become 'incorporated' within lived embodiment. These no longer feel entirely separate; attention goes 'through' them towards the activity enabled by the body-technology coupling (Ihde, 1990). Incorporation is possible thanks to 'habit memory' (Bergson, 1988), which is the bodily past as habituated into comportments. This accrues as repeated activities—relations with others, things, situations—gradually give rise to sedimented

bodily dispositions. Henri Bergson distinguishes habit memory from recollection. The latter represents a past event like an image, making it prior to and separate from the current recollective act, and ultimately disconnected from present action. Habit memory, by contrast, continuously informs current perception and action, by prolonging a conserved bodily past into the present, without explicit representation or reflection. It continually enlivens things and environments by imbuing these with practical meaning: it makes familiar tools immediately available for use, and traces customary situations with vectors of possible action. I follow Robert Rosenberger (2014) to use 'stabilisation' to describe habituated bodily techniques that come alive spontaneously and non-reflectively upon encountering the relevant technology. Importantly, habituation not only means that an action has become familiar (Ahmed, 2007), or even that bodies acquire immediate cues from familiar things and situations. It means actions can be performed with scant preparation, while the body, and often the technology, recede from attention during the action. Indeed, attending to these would disrupt activity. Ihde calls this condition 'transparency' (1990). The canonical example is eyeglasses: the wearer looks through these, they transform vision, but attention is squarely upon what is seen; body and glasses are marginal throughout. Ihde identifies four distinct types of technological relation. Two are salient here.[3] I have just discussed one: 'embodiment relations' wherein technologies are incorporated during habitual bodily activity. The others are 'background relations' involving the likes of shelter technology, traffic control systems, automatic household appliances, lighting, and temperature systems. These contribute to activity without being incorporated. They fall farther outside both body and awareness, to "remain in the background or become a kind of near-technological environment itself" (Ihde, 1990, 108).

Ensembles and Abilities

I will now amalgamate these approaches—especially their insights concerning distributed agency and habit memory—by outlining what I call 'ensembles'.[4] These describe associations of relatively proximal elements that are conjoined, organised, and maintained around bodies during engaged activity. Bodies enter relations to make something happen; ensembles are arrangements that make things happen. Body, hammer, nail, surface: all are elements of a (simplified) hammering ensemble. Such associations enact capacities and affordances that otherwise would be different or impossible. Ensembles are everywhere and are very prosaic: they include relations with eyeglasses, microscopes, hammers, bicycles, smartphones. As geared towards activity, they obtain just as long as the activity obtains: after hammering, a body transitions to another ensemble—albeit with some continuities of association—and acquire different capacities. Bodies vary in their powers, and are constituted differently, according to the character of their associations (Spinoza, 1996).

I take from ANT that agency is a property of a relational ensemble. Furthermore, activity seldom, if ever, involves just a body and a technology. It encompasses multiple, heterogeneous, and potentially widely distributed relations among actants that each contribute something to activity. I take from postphenomenology that habit memory stabilises and organises this relational manifold. Ensembles are particular types of enactment, that meaningfully involve habit memory. Each technological relation in the ensemble has its corresponding stabilisation: some are stabilised embodiment relations; others, stabilised background relations. The former type involves incorporation of the technology; the latter does not. Nevertheless, both types involve transparency: spontaneous activity wherein both body and technology recede from awareness. Many such relations can be at work simultaneously, organised by habit memory according to current aims. Habit memory permits bodies to negotiate complex associations with relative fluidity (though, as we will see, this involves much more than bodily powers). Bodies do not experience these relations as decomposed elements, but as opportunities or predicaments, routes or blockages, tools that are intuitive or obscure, places that are habitable or hostile.

When someone cycles to work, the ensemble includes not only relatively constant embodiment relations (body, bicycle, helmet, eyeglasses), but other changing relations (weather and air quality, and crucially, background relations with concrete roads, tree-lined avenues, traffic systems, spatial distributions).

Overall, then—in contradistinction with individualist and instrumental accounts—no division exists here between mental and bodily aspects; the body is no object, but a dynamic complex of relational comportments that produces itself through activity. It continually goes beyond itself towards incipient possibilities: it never realises a complete state. It continually goes outside itself in relation with other bodies, things, situations: its composition varies with ensembles. Consequently, we cannot define the body by an intrinsic property (Watkin, 2017). Moreover, we nowhere encounter entirely unconditioned humans using truly passive objects. Agency and capacities emerge from distributed and relational complexes. Consequently, we also cannot define humans by an essential host capacity (Watkin, 2017). Indeed, since different, transformative relations are always possible, there cannot be any final accounting of bodily powers (Deleuze, 1988). Rather than escaping attachments, freedom becomes a matter of being well-attached, making possible the question of what 'well-attached' might mean (Moser, 2006).

One of my aims when discussing autonomy and agency is to contrast different versions of ability. Understood through the autonomy account, ability is a spontaneous, ever-present capacity of bounded, individual human subjects; disability is a bodily condition that perturbs this capacity. In my preferred alternative, however, ability resembles relational and distributed agency. If the ability to do something involves technologies, these are part of that ability. Abilities are not innate, but enacted in and by ensembles: as Reynolds writes, they "neither end nor begin at the skin, but instead supervene on and extend to the world in which one lives and on which one ever depends" (2018, S34). This holds whether the enabling elements are proximal, as in a hammer, or distal, as in the agency distributed through every point of a metro

system (Galis, 2011). Indeed, most situations will involve a combination of these. Put otherwise, abilities are complex, and produced in spatially and temporally expansive networks: the ability to run a five-kilometre race involves myriad factors—equipment, environmental conditions, childhood and adult interests, economic situation—that greatly surpass the body (Reynolds, 2018). Finally, abilities are dynamic, and enacted moment by moment: they hold just so long as the network holds, and vary as bodies move through ensembles.

This suggests a 'universal cyborgism' wherein all bodies are prosthetically scaffolded. If involvement with technologies is the rule and not the exception, and agency is realised with, rather than by escaping, attachments (Moser, 2006), the dichotomy between innate ability and disability evaporates. At minimum, and running counter to individualistic and medicalised models, many disabilities are not caused exclusively by individual bodies.[5] Yet the categories of ability and disability do not also dissolve. These may not be intrinsic characteristics, but they exist, as real outcomes of unequal distribution of technological resources among different bodies. Before elaborating how disability happens, I must outline how distribution happens more generally.

Technology, The Human, and Disability

Realisation of agency and sedimentation of habits occur in pre-existing technological surroundings. These surroundings have been modified, or prepared for activity. This modification has a long history, because technological development is bound up with the development of 'the human' itself. I do not mean that humans just happen to use technologies, but that technological activities constitute the human *as human* (Zylinska, 2010). Human and technology are reciprocal causes with a common history (Malafouris, 2016; Introna, 2014; Latour, 2003). Consequently, there is no question of drawing back the technological curtain to reveal an innocent human essence. The human—whatever that means—is progressively specified by its

associations (Latour, 1999): were there anything characteristically human, it would be found among these associations.

The 'shape' of the human, then, is not a natural given; it coheres via the organisation of technological relations. Bodies are not immediately and simply human; they become human because various technological distributions—or, enactments—instantiate, stabilise and propagate activities that come to be called human. The entities and situations that comprise human existence, however complex and far-reaching, do not ultimately decompose into enduring brute givens and ephemeral social constructs. 'The social' is instead "materially heterogeneous: talk, bodies, texts, machines, architectures, all of these and many more are implicated in and perform the 'social'" (Law, 1993, 2). Entities are comprised of relations among heterogeneous materials, and the interactions that organise and maintain these. They are effects of 'ordering practices' (Mol, 2010; Moser, 2006; Law, 1993), that organise and distribute relations among these heterogeneous materials, to enact entities as the kinds of things they are. The stability of enactments is neither given in advance nor secured in one blow: associations "gradually come to hang together by means of small forces" (Mol, 2002, 70). Coherence is never final, and ongoing effort is necessary: maintaining associations, reducing frictions, bridging gaps, even "keeping potentially competing versions of reality… out of each other's way" (Mol, 2010, 264). While practice is central, intercorporeal interactions are insufficient to cement associations and circulate these across time and space (Latour, 2005). This brings us back to nonhumans, which are not only full-fledged actors, but also essential participants in enactments (Law, 1992): associations are more stable and durable, power can travel further, when "exercised through things that don't sleep and associations that don't break down" (Latour, 2005, 70). Nevertheless, a particular effect or power relation still requires the relevant associations: prison walls accomplish confinement only when guards are also present (Law, 1992). With enough durable connections, an enacted entity can become a quasi-universal, seemingly independent

"'macro' feature of the 'whole' world" (Latour, 2005, 180).

This returns us to consideration of the preeminent account of the human. The various orderings that enact the human are far from systematic or exhaustive: they involve countless overlapping regimes, including many that are incompatible or even antagonistic. Furthermore, modernity ramifies the number and complexity of relations in which bodies are enfolded, making it increasingly difficult to establish definite origins or foundations. Nevertheless, the human is also intimately linked with a coincident but countervailing modern aspiration to 'purify' what exists into the discrete categories 'Society' and 'Nature' (Latour, 1993). While there exists no originary and insuperable ontological division between social and natural kinds—indeed, "it is this very division which is a complete artefact" (Latour, 2005, 76)—this bifurcation is effectually foundational because it is *done as such*. This major vector of power runs through modern ordering practices: while myriad domains that emerge within or are transformed by modernity—science, economics, medicine—assemble heterogeneous actants, they sort these into social subjects and natural objects. They attribute the powers of distributed agents to humans alone, while denying nonhuman agency and reducing these to passive objects (Watkin, 2017). This engenders the characteristic modern worldview: here, an exceptional domain of freedom, value, subjectivity, populated solely by the self-identical and self-governing human subject (Shildrick, 2012); there, an inhuman outside world of determinism, meaninglessness, and objectivity, in which exist bodies and technologies. This notion of the human may be an effect of modern ordering practices (Sharon, 2014), but this makes it no less robust or efficacious. It remains a guiding motif for distribution of technologies.

We can also understand one aspect of disability in this way: disability as a brute fact or objective bodily property. I suggest that disabilities *qua* objects are enactments: stabilised effects of associations among bodies, texts, statements, artefacts, objectives, and so on, maintained by "*masses of little overlapping and variably successful practices*" (Law and Singleton, 2013, 499).

Many different enactments coexist: disability as biological reality, oppressive social arrangements, resistant group identity. The same body can be enacted *as* disabled differently in different sites (Mol, 2002). Some enactments oppose, chafe against, or even repel one another; others are complementary, and fortify one another. No one captures the final truth of disability, which, as a relational effect, lacks objectivity and self-identity (Kafer, 2013). Despite this plurality, medical and medically-informed enactments of disability predominate. Modern disciplines tend to view bodily and cognitive anomalies as biological problems that warrant medical solutions. This produces knowledges (e.g., scientific discourses that inaugurate new diagnostic categories), practices (e.g., medical intervention, rehabilitation), and subjectivities (e.g., 'disabled people') (Tremain, 2018; Foucault, 2001b; Stiker, 1999). Such approaches involve a predilection for normalisation guided by the notion of the normal, autonomous subject: restoration, correction, or rehabilitation, even biopolitical strategies of elimination (Kafer, 2013). Crucially, while medical approaches purport merely to produce positive knowledge, and to intervene into problems that exist on a natural and value-free register, their activities precisely enact disability *as* a biological defect localised in a pathological individual body, and consequently as a brute natural given (Tremain, 2018). Here, the purifying modern logic is evident: disability is evacuated of its complex, relational status, and redistributed into the body—itself placed with a natural domain—as a problem for positive science. Medicalised approaches and normalising tendencies have spread far beyond the remit of medical professionals (Kafer, 2013): they largely inform common-sense understandings of disability, as well as bioethics, medical ethics, and theories of justice (Tremain, 2018; Boorse, 1977; Buchanan et al., 2000).

Disability and the Uneven Distribution of Agency

Disability exists in another register: as something that happens to bodies during practical activity in environments that do not support them. This aspect of disability will be the focus of what remains. In the enactments I just discussed, disability is enacted by explicit regard: medically-informed practices single out atypical bodies, to enact these as disabled via diagnosis or rehabilitative strategies. Now, I mean that another aspect of disability occurs due to disregard: atypical bodies are not accounted for in the distribution of everyday enabling relations, resulting in environments that do not permit them to live (Stiker, 1999). These aspects are closely linked. If the preeminent picture of disability is as an objective deviation from the human norm, preferred responses will aim, where possible, to 'return' someone to the sanctioned normal condition. Modifying the everyday world will be, at best, of secondary importance, especially when that world is taken as an objective background.

I will now flesh out this practical aspect of disability. I said that abilities generally involve participation from technological resources. Commonplace technological environments are products of a long history of ordering practices, organised by explicit and implicit norms about what is proper to the human (Pyyhtinen and Tamminen, 2011; Foucault, 2001a). Which orderings become stabilised, which technologies become ubiquitous, reflect what has been valued and endorsed as human (Mitchell, 2020). After all, technologies are counterparts of conduct, that "elicit from us the sort of behaviours we have come to call 'human'" (Watkin, 2017, 179). This is also seen in how technologies are fine-tuned or 'tailored' to readily allow incorporation and stabilisation. Put differently, technologies anticipate how they will be used, are orientated towards the bodies that will use them (Ahmed, 2006; Rosenberger, 2014).

Ordering and tailoring practices have been partial and uneven: they have overwhelming assembled technologies around the material properties of typical bodies. I use 'typical' and 'atypical' here as admittedly imperfect indicators that bodies are merely numerically common or unusual, without also imputing innate ability or disability. Typical bodies, then, are "enabled to act in and by the practices and relations in which they are

located, and… become actors because agency is distributed and attributed" (Moser, 2006, 384). They can readily form ensembles, and acquire the associated agencies. Not only that. Such ordering is structured by the guiding motif of modernity: the autonomous human, or 'normal subject'. Indeed, it is only on account of practices, both historical and contemporary, that have distributed technological resources around typical bodies, that they can move and act in ways that correspond with the autonomy they are alleged to possess naturally (Moser, 2009). The modern, *able* self is fleshed out by its technological consorts, and can realise the standard of the 'properly human'. For ability to be enacted reliably and repeatedly, the appropriate technologies must consistently be in place; otherwise "many, if not most, bodies end up *dis*-abled" (Reynolds, 2018, S34). However, technologies routinely do meet typical bodies halfway, bringing abilities to life.

If ordering practices enable typical bodies, they have rarely acknowledged or accommodated those outside the sphere of purported normality. Atypical bodies have been ignored within, or placed outside, the domain of validated human action. However, this disregard is not truly passive, or simple oversight. The centring of typical bodies does not just happen in the natural course of events. Making a habitable world for any body requires effort. Expending effort on some bodies simultaneously de-centres others: it distributes enabling relations away from them, to positively produce the conditions for disability to happen (Moser, 2006). One aspect of disability occurs because ordering practices create routes to agency for typical bodies at the expense of atypical bodies. This distributes agency away from the latter, making alternative ways of interacting less realisable. Disability, like ability, does not reduce to physical properties. It exists within body-technology arrangements, at the level of ensembles. It is not intrinsic to atypical bodies that they cannot act in some environment; historically-ordered environments accommodate activity only for typical bodies. In a time-worn example, a wheelchair-user becomes disabled only on encountering space that is incompatible with their capacities. In congruent

spaces, ability happens, because they enter an ensemble whose elements—that include their body—can create agency.

Mundane Technology and the Technological Unconscious

However, ability and disability do not only involve straightforward presence or absence of appropriate technological associates. They also involve the degree of ease bodies feel about entering technological relations. To address this, I will now build upon the foregoing ANT-inspired section by taking a more phenomenological tack that considers the roles of habit and anticipation in both ability and disability, and how inadequate technological support frustrates habituation and familiarisation, to hamper more general ease in the world.

While this involves technological relations in general, I am particularly interested in some that resemble Ihde's background relations. Those, recall, involve technologies that are not incorporated during activity, but instead are part of a quasi-natural technological background. I will first expand upon Ihde's definition, to call 'intermundane technology' anything artefactual, whether simple or complex, that contributes to activity without being incorporated, where that contribution eludes attention, and—as we will soon see—that is orientated only to certain bodies, even though this is not obvious. Even walking typically involves technology. A pathway is as much a technology—for expediting movement, but also for demarcating territory, domesticating 'nature', modifying spatio-temporal relations—as is a stone axe or a smartphone. It is a modification, undertaken for human activities, whose consequent role in ambulation—in a walking ensemble—typically goes undiscerned. Alongside Ihde's examples—shelter technology, traffic control systems, automatic household appliances, lighting and temperature systems—we might consider other mundane technological features and characteristics: the textures, dimensions and gradients of pathways and roads; the dimensions of everyday and domestic spaces, and how elements are distributed therein (for instance,

standardised heights for counters and light switches); distances between buildings in public space; lighting and shade. These fall somewhere between technical artefact and environmental feature. These are *mundane* not only due to their ordinariness, but—as the etymological antecedent *mundus* suggests—because they are immersed within a background world and scarcely register as artefactual at all. Where embodied technologies invite engagement and become incorporated, intermundane technologies are simply assumed, without incorporation. By *inter-*, I mean that these modifications exist 'between' or 'among' other technologies. Because they are not incorporated, their contribution generally is not closely linked to an activity or goal. They are more like connective tissue between more evident tools, and perform an auxiliary role from the obscure periphery of ensembles. Despite their marginal status within awareness, they are highly consequential: as ubiquitous semi-constants, these contribute to and expedite agency by quietly supporting engagements with other technologies, and smoothing out movements within, and transitions between, technological environments.

Intermundane technologies resemble aspects of what Nigel Thrift (2004) calls the 'technological unconscious'. Bodies, Thrift suggests, repeatedly stage relations with quotidian technological artefacts: from roads and lighting to cables, screens, and wireless signals. Through repetition, there arises a "prepersonal substrate of guaranteed correlations, assured encounters, and therefore unconsidered anticipations" (Thrift, 2004, 177). Thanks to "their utter familiarity" (Thrift, 2008, 91), these technologies sit in the background and scarcely register as products of human work. Moreover, relations with these also acquire a quasi-natural status. This technological unconscious, then, encompasses both technological environments made to efface or naturalise themselves, whose contribution to activity goes unheeded (these resemble intermundane technologies); and correlated bodily comportments that tacitly anticipate these environments (these resemble the stabilisations of habit memory). The technological unconscious is like the totality of

stabilisations with mundane and intermundane technologies, and the technologies themselves. When this state obtains, not only can bodies generally transition from here to there—from ensemble to ensemble—with unbroken transitions. Crucially, they can *anticipate* that such transitions will go smoothly.

Unsafe Ground

For the most part, these conditions are available only to typical bodies. They inherit a world in which things are already 'reachable' (Ahmed, 2007), having been ordered to ensure smooth passages (Moser and Law, 1999). This has several outcomes. These bodies can comfortably stabilise technological relations. These relations can enable without demanding explicit attention, especially intermundane forms whose artefactuality is already obscure. Situations simply appear habitable, as availing possibilities, while all the work involved in producing and maintaining such habitability can disappear. Typical bodies need not explicitly thematise how to act in common environments; they simply can 'do things'. Finally, the point where body ends and world begins becomes obscure (Ahmed, 2007).

Since these conditions obtain in most situations, typical bodies *generally* experience smooth transitions, while perturbations are limited in amount and extent. They can enjoy a feeling of extempore and endogenous freedom. A well-established technological unconscious, then, is like transparency writ large: it allows bodies to generally, reliably, and repeatedly forget themselves and their relations. Typical bodies find their world, if not homely, at least manageable. This also engenders a generalised sense of spontaneity: a feeling that free action is possible even in environments that have yet to be encountered. I do not mean that activity is always perfectly fluid, only that when the preponderance of encounters goes smoothly, an anticipatory dimension of agency results: an 'ambient faith' in the world at large. Beneficiaries can confidently anticipate that in most cases, the world will come to them as they go to

the world, that neither body nor technologies will cause problems or stall the flow of action.

This is a second dimension of agency, in addition to its distributed character. Not only do technologies participate in the enaction of abilities, where these are understood as 'bare' functional capacities. The 'shape' of technologies permits stabilisation, which is part of the capacity to act extemporaneously. As such, the technologies are part of that capacity. Phenomenology suggests that bodies have an 'I can' relation with the world—they can simply gear into possibilities without reflection—on account of bodily powers of habituation. I suggest, however, that spontaneous action also centrally involves the continual, silent presence of countless technological auxiliaries: embodied and intramundane technologies, arrayed to not only avail of avail of use, but to extend the shape of the body (Ahmed, 2006).

Disability also has an anticipatory dimension. This involves consequences for stabilisation and transparency when technologies are unsuitable or absent. Since most ordinary embodied technologies—stationery, cutlery, computers, automobiles—are tailored for typical bodies, anyone outside this range of bodily characteristics may find these less manageable. This hinders incorporation, and formation of durable habitual relations. As for intermundane technologies, the fact that these are not incorporated, are not brought close to bodies, may suggest that they are not tailored towards particular users. However, they are just as much orientated to typical bodies. An apparently unremarkable walkway surface may be a tripping hazard; what seems like natural interior light may induce migraines; an ostensibly manageable distance between conference venues may prove exhausting. These background technological arrangements are far from obvious, but are tailored to the properties of typical bodies, and can disable atypical bodies. This also frustrates the formation of stable relationships with these dimensions.

However, the world does not always and identically frustrate expectations. Agency is not precluded outright. That atypical bodies are de-centred does not mean they are entirely ignored. Rather, they are enabled inconsistently, in

something like what Florence Caeymaex calls a "continual process of inclusion and exclusion, and the unequal distribution of agency" (2014, 112). The aforementioned non-visual man may enjoy spontaneous activity thanks to prosthetic incorporation. However, when this complementary arrangement associates with non-complementary elements, agency collapses: "[w]hen he cannot safely cross a street because of a lack of curb cuts or audible walk signals, that incorporation is also disrupted" (Reynolds, 2017, 424). Again, this has more general effects. Where enablement is inconsistent and perturbations more likely, relations between body and space cannot readily be forgotten. Someone may navigate their accessible campus comfortably using colour-coding signage and differentiated floor surfaces. This does not mean that they can expect to do so when visiting another campus. The point is not that they cannot—it may well be accessible—but that they cannot do so spontaneously, without planning. They realise, correctly, that environments generally distribute agency away from bodies like theirs. Overall, someone may incorporate certain technologies, but not to the point of transparency, because these are not made with them in mind; they may carve out a sphere in which spontaneous action is possible, but when moving beyond this, find that things change. This can lead to something broader and more general concerning the sense of possibility: the obverse of ambient faith, which I call 'unsafe ground'. This does not mean one can never act, but that a not-quite-habitable world unsettles confidence that it will support possibilities (Ratcliffe, 2012). A permanent question hangs over the reliability of relations. Uncertainty colours encounters. This impedes formation of robust stabilisations with technological environments (or perhaps uncertainty itself becomes a disposition).

This has additional ramifications concerning anticipation about the future in a general sense (Ratcliffe et al., 2014; Ratcliffe, 2012). While formed via repetition, habits are fulcrums for innovate activities, and means "of altering our existence through incorporating new instruments" (Merleau-Ponty, 2012, 145). They anchor the vectors that run from present realities to future

possibilities. By destabilising habituation, unsafe ground attenuates this anticipatory structure: it dampens the potential to reckon otherwise, to incarnate new relations, to imagine that things will be different (Ratcliffe et al., 2014; Ratcliffe, 2012). It slackens the threads connecting anticipation to what Matthew Ratcliffe calls 'teleological time': directedness toward more remote but not necessarily less determinate goals. Instead of a future of significant possibility, there is one where possibilities are bounded in advance.

(In)visibilisation

Finally, I will outline how the local enabling and disabling events I have just discussed contribute to the wider effect of naturally-able and naturally-disabled bodies. This centrally involves how technological distributions become invisible even as they enable or disable. I concur with Moser (1999) that enactment of the entity called the 'normal subject' involves how technological distributions produce agency while remaining invisible. Not only is technology "made invisible by its own success" (Latour, 1999, 304), standing out only when malfunctioning or ill-fitting. Further, since technologies are ordered around the contours of typical bodies, technologies generally do work for them, and "agency [flows] without constant interruption" (Moser, 2006, 384). Their technologically *en*-abled status does not come into focus: they become normal subjects without needing to stake any claim as such (Moser and Law, 1999). Bodies that meet normative standards, though technologically-enabled, are attributed freedom in the same measure that the enabling role is leeched away from technologies, including all the work, both historical and contemporary, that goes into making such enablement happen. Again, technologies get inscribed in a passive domain of things: "the commonsense external background of human and social action" (Latour, 1999, 308). Additionally, the consolidation of the normal subject involves habituation. When technologies can be smoothly incorporated, and transparency can result, this only ramifies the existing propensity of technologies

to become obscure. In such cases, technologies are invisibilised because working, *and* transparent because familiarised. The body, for its part, can 'trail behind' action, to also become invisible (Ahmed, 2006). What really gets invisibilised here is the pre-established compatibility of technologies with some bodies: a compatibility that permits this very invisibilisation, that is not natural, and is the effect of ordering work. Moreover, habituation occurs in contexts where the prevailing common sense has the idea of active subjects and passive objects as an implicit premise, and in whose orderings the shape of the autonomous human subject is deeply ingrained. The upshot is that the normal subject, already common sense, is confirmed time and again—often on a habituated and pre-reflexive level—for those whose bodies already fit.

For atypical bodies such invisibilisation is often impracticable. Disturbances occur. Since neither relations nor body can disappear, transparency is less achievable. Moser suggests that "the distributions remain visible and present in the situation" (2006, 385). Indeed, an incongruity manifests in relations between body and world. This 'visibilisation' could provide an impetus for radical revaluation, were it accompanied by recognition that the congruence of any body whatsoever with environments is no natural occurrence, but the result of ordering work. However, this is made unlikely by the common-sense position in which the world is objective and independent: here, all bodies inhabit the same space, that affords the same opportunities to each, in the same way. This being so, when disruptions do occur, even allowing that these are arise from a mis-fit between body and world, the ultimate cause cannot be the world. After all, normal subjects can act there without disruption. The problem must instead flow from the body that does not fit (Garland-Thomson, 2011). Put differently, a common-sense picture of free subjects and passive objects cannot accommodate relational agency: when 'visibilisation' occurs, focus does not remain on relations. Intermundane technologies are especially germane here. Where embodied technologies are at least somewhat conspicuous when not working, when intermundane forms do not cooperate, they simply remain

obscure. Overall, when disability occurs, the locus of disruption is shifted away from relations and towards the atypical body. It is made visible, even hypervisible, precisely as a problem. This is another way the heterogeneous and relational reality of disability gets reduced and simplified. A problem of disabling distributions becomes one of pathological bodies.

Concluding Remarks

Ability and disability are not inherent bodily properties. They are events, enacted by relations among bodies and extra-somatic bits and pieces of the world. Indeed, ability is different from 'normal ability'. Ability emerges from relations: "if the networks are in place, if the prostheses are working, then there is ability" (Moser and Law, 1999, 201). This holds for typical and atypical bodies alike. Each can enjoy ability. Merely atypical embodiment neither equals nor causes disability. Normal ability is different. It is that type of ability that occurs first, between a typical body and normalised relations; second, where technologies are ordered to allow such bodies to feel at ease in the world; and third, where relational aspects of ability get obscured. Disability, as I have discussed it, occurs, first, because normalised relations do not enable atypical bodies; second, because this produces a sense that the world is not generally hospitable; and third, because atypical bodies are made visible as problems. This is not an exhaustive explanation of disability. Disability is produced within a great many regimes, from religious to medical, moral to legal, to administrative and bureaucratic. What I have described is just one vector of its production that becomes imbricated with these others.

The organisation of technologies, then, is highly consequential. Living involves association with myriad technological elements. Some, as incorporated, may be intimately involved in that life. Others, while less intimate, still comprise a persistent dimension of activity. All are participants in engagements through which bodies constitute themselves. Atypical bodies find participants consistently unsympathetic. This attenuates agency, ungrounds habit, and erodes confidence in a world. Such effects unsettle, or even preclude, the establishment of secure footing from which to launch the projects that comprise a life. Resistance to these effects entails focus upon ability as much as disability: a recognition that ability is relational and distributed in every case; that the normal subject and its putative autonomy are effects of enabling technologies; that the primacy of the latter, and the invisibilisation of its technological enablement, have deleterious consequences for atypical bodies. Such recognition would help to dissolve sharp categorial distinctions between ability and disability, and could greatly expand the scope when imagining how all bodies might live with technologies.

Notes

[1]   Though this example is certainly open to criticism, like that of (Reynolds, 2017)
[2]   I will not address the acknowledged differences or incompatibilities between actor-network theory and postphenomenology. For work on this topic, see (Langsdorf, 2015; Kroes and Verbeek, 2014; Verbeek, 2009)
[3]   The others are hermeneutic relations (with technologies like wristwatches, that feature a readout or display that, when interpreted, gives a transformed relation with the world); and alterity relations (with, e.g.,

GPS devices or smart assistants, in which the technology is encountered in a self-other relationship as a 'quasi-subject'). See (Ihde, 1990)

[4]   This concept resembles what Gilles Deleuze and Félix Guattari call an 'assemblage', and of course an actor-network. I have opted for different terminology because this concept also draws upon the phenomenological tradition to incorporate habituated relations with technologies. (Deleuze and Guattari, 1987; Law, 1992)

[5]   I am not discussing chronic illness or chronic pain, about which there is debate about whether this is a brute reality, or is to some extent conditioned by social structures. These topics are very complicated, and fall outside the scope of this paper.

Works Cited

Ahmed, S. (2006) *Queer Phenomenology: Orientations, Objects, Others*. Duke University Press, Durham, NC.

Ahmed, S. (2007) A phenomenology of whiteness. *Feminist Theory*, 8, 149-168.

Bergson, H. (1988) *Matter and Memory*. Zone Books, New York.

Boorse, C. (1977) Health as a Theoretical Concept. *Philosophy of Science*, 44, 542-573.

Borgmann, A. (1984) *Technology and the Character of Contemporary Life*. University of Chicago Press, Chicago.

Buchanan, A.E. et al. (2000) *From Chance to Choice: Genetics and Justice*. Cambridge University Press, Cambridge.

Caeymaex, F. (2014) Critical and Political Stakes of a Philosophy of Norms: Part II: Theory of Norms and Social Criticism. In *Care of Life: Transdisciplinary Perspectives in Bioethics and Biopolitics,* (Eds, de Beistegui, M., Bianco, G. & Gracieuse, M.) Rowman & Littlefield, London, pp. 109-120.

Deleuze, G. (1988) *Spinoza: Practical Philosophy*. City Lights Books, San Francisco.

Deleuze, G. & Guattari, F. (1987) *A Thousand Plateaus: Capitalism and Schizophrenia*. University of Minnesota Press, London.

Esposito, R. (2012) *Third Person: Politics of Life and Philosophy of the Impersonal*. Polity, Cambridge.

Esposito, R. (2015) *Persons and Things: From the Body's Point of View*. Polity, Cambridge.

Feenberg, A. (2002) *Transforming Technology: A Critical Theory Revisited*. Oxford University Press, Oxford.

Foucault, M. (2001a) Space, Knowledge, and Power. In *Power: Essential Works of Foucault, 1954-1984,* (Ed, Faubion, J.D.) The New Press, New York, pp. 349-364.

Foucault, M. (2001b) The Birth of Social Medicine. In *Power: Essential Works of Foucault, 1954-1984,* (Ed, Faubion, J.D.) The New Press, New York, pp. 134-156.

Frost, S. (2016) *Biocultural Creatures: Toward a New Theory of the Human*. Duke University Press, London.

Galis, V. (2011) Enacting Disability: How Can Science and Technology Studies Inform Disability Studies? *Disability & Society*, 26, 825-838.

Garland-Thomson, R. (2011) Misfits: A Feminist Materialist Disability Concept. *Hypatia: A Journal of Feminist Philosophy*, 26, 591-609.

Ihde, D. (1990) *Technology and the Lifeworld: From Garden to Earth*. Indiana University Press, Bloomington and Indianapolis.

Ihde, D. (1993) *Postphenomenology: Essays in the Postmodern Context*. Northwestern University Press, Evanston.

Ihde, D. (2003) If phenomenology is an albatross, is postphenomenology possible? In *Chasing Technoscience: Matrix for Materiality,* (Eds, Ihde, D. & Selinger, E.) Indiana University Press, Bloomington, pp. 131-144.

Introna, L.D. (2014) Towards a Post-human Intra-actional Account of Sociomaterial Agency (and Morality). In *The Moral Status of Technical Artefacts,* (Eds, Kroes, P. & Verbeek, P.-P.) Springer, Dordrecht, pp. 31-53.

Kafer, A. (2013) *Feminist, Queer, Crip*. Indiana University Press, Bloomington and Indianapolis.

Kroes, P. & Verbeek, P.-P. (Eds.) (2014) *The Moral Status of Technical Artefacts* Springer, Dordrecht.

Langsdorf, L. (2015) Why Postphenomenology Needs a Metaphysics. In *Postphenomenological Investigations: Essays on Human-Technology Relations,* (Eds, Rosenberger, R. & Verbeek, P.-P.) Lexington Books, London, pp. 45-54.

Latour, B. (1988) Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer. *Social Problems*, 35, 298-310.

Latour, B. (1993) *We Have Never Been Modern*. Harvard University Press, Cambridge, MA.

Latour, B. (1994) On Technical Mediation – Philosophy, Sociology, Genealogy. *Common Knowledge*, **3**, 29-64.

Latour, B. (1999) *Pandora's Hope: Essays on the Reality of Science Studies*. Harvard University Press, Cambridge, MA.

Latour, B. (2003) The promises of constructivism. In *Chasing Technoscience: Matrix for Materiality,* (Eds, Ihde, D. & Selinger, E.) Indiana University Press, Bloomington, pp. 27-46.

Latour, B. (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford University Press, Oxford.

Latour, B. (2008) A Cautious Prometheus? A Few Steps Toward a Philosophy of Design (with Special Attention to Peter Sloterdijk). *Networks of Design, Proceedings of the 2008 Conference of the Design History Society,* 2-10.

Law, J. (1992) Notes on the Theory of the Actor-Network: Ordering, Strategy, and Heterogeneity. *Systems Practice*, **5**, 379-393.

Law, J. (1993) *Organizing Modernity: Social Order and Social Theory*. Wiley–Blackwell, Oxford.

Law, J. & Singleton, V. (2013) ANT and Politics: Working in and on the World. *Qualitative Sociology*, 36, 485-502.

Malafouris, L. (2016) *How Things Shape the Mind: A Theory of Material Engagement*. MIT Press, London.

Merleau-Ponty, M. (1964) The Primacy of Perception and Its Philosophical Consequences. In *The Primacy of Perception,* Northwestern University Press, Evanston, pp. 12-42.

Merleau-Ponty, M. (2012) *Phenomenology of Perception*. Routledge, London.

Mitchell, J.P. (2020) Disability and the Inhuman. In *Perception and the Inhuman Gaze: Perspectives from Philosophy, Phenomenology and the Sciences*, (Eds, Daly, A. et al.) Routledge, London, pp. 298-307.

Mol, A. (2002) *The Body Multiple: Ontology in Medical Practice*. Duke University Press, Durham.

Mol, A. (2010) Actor-Network Theory: Sensitive Terms and Enduring Tensions. *Kölner Zeitschrift für Soziologie und Sozialpsychologie. Sonderheft*, 50, 253-269.

Mol, A. & Law, J. (2004) Embodied Action, Enacted Bodies: the Example of Hypoglycaemia. *Body & Society*, 10, 43-62.

Moser, I. (2006) Disability and the promises of technology: Technology, subjectivity and embodiment within an order of the normal. *Information, Communication & Society*, 9, 373-395.

Moser, I. (2009) A body that matters? The role of embodiment in the recomposition of life after a road traffic accident. *Scandinavian Journal of Disability Research*, 11, 83-99.

Moser, I. & Law, J. (1999) Good passages, bad passages. In *Actor Network Theory and After,* (Eds, Law, J. & Hassard, J.) Wiley-Blackwell, pp. 196-219.

Paterson, K. & Hughes, B. (1999) Disability Studies and Phenomenology: The Carnal Politics of Everyday Life. *Disability & Society*, 14, 597-610.

Pyyhtinen, O. & Tamminen, S. (2011) We have never been only human: Foucault and Latour on the question of the *anthropos*. *Anthropological Theory*, 11, 135-152.

Ratcliffe, M. (2012) Varieties of Temporal Experience in Depression. *Journal of Medicine and Philosophy*, 37, 114-138.

Ratcliffe, M., Ruddell, M. & Smith, B. (2014) What is a "sense of foreshortened future?": A phenomenological study of trauma, trust, and time. *Frontiers in Psychology*, 5, 1-11.

Reynolds, J.M. (2017) Merleau-Ponty, World-Creating Blindness, and the Phenomenology of Non-Normate Bodies. *Chiasmi International*, 19, 419-436.

Reynolds, J.M. (2018) The Extended Body: On Aging, Disability, and Well-being. *Hastings Center Report: What Makes a Good Life in Late Life? Citizenship and Justice in Aging Societies*, 48, S31-S36.

Rosenberger, R. (2014) Multistability and the Agency of Mundane Artifacts: from Speed Bumps to Subway Benches. *Human Studies*, 37, 369-392.

Rosenberger, R. & Verbeek, P.-P. (2015) A Field Guide to Postphenomenology. In *Postphenomenological Investigations: Essays on Human-Technology Relations,* (Eds, Rosenberger, R. & Verbeek, P.-P.) Lexington Books, London, pp. 9-41.

Scully, J.L. (2014) Disability and Vulnerability: On Bodies, Dependence, and Power. In *Vulnerability: New Essays in Ethics and Feminist Philosophy,* (Eds, Mackenzie, C., Rogers, W. & Dodds, S.) Oxford University Press, Oxford, pp. 204-221.

Sharon, T. (2014) *Human Nature in an Age of Biotechnology: The Case for Mediated Posthumanism*.

Shildrick, M. (2012) *Dangerous Discourses of Disability, Subjectivity and Sexuality*. Palgrave Macmillan, Basingstoke.

Solomon, R.C. (1988) *Continental Philosophy Since 1750: The Rise and Fall of the Self*. Oxford University Press, Oxford.

Spinoza, B. (1996) *Ethics*. Penguin, London.

Stiker, H.-J. (1999) *A History of Disability*. University of Michigan Press, Ann Arbor.

Thrift, N. (2004) Remembering the Technological Unconscious by Foregrounding Knowledges of Position. *Environment and Planning D: Society and Space*, 22, 175-190.

Thrift, N. (2008) *Non-Representational Theory: Space | Politics | Affect*. Routledge,

Tremain, S. (2018) *Foucault and Feminist Philosophy of Disability*. University of Michigan Press, Ann Arbor.

Verbeek, P.-P. (2009) Cultivating Humanity: Towards a Non-Humanist Ethics of Technology. In *New Waves in Philosophy of Technology,* (Eds, Berg Olsen, J.K., Selinger, E. & Riis, S.) Palgrave Macmillan, Basingstoke, pp. 241-264.

Watkin, C. (2017) *French Philosophy Today: New Figures of the Human in Badiou, Meillassoux, Malabou, Serres and Latour*. Edinburgh University Press, Edinburgh.

Weiss, G. (2008) *Refiguring the Ordinary*. Indiana University Press, Bloomington.

Zylinska, J. (2010) Playing God, Playing Adam: The Politics and Ethics of Enhancement. *Bioethical Inquiry*, 7, 149-161.