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Toward a New Theory of Waste: from "Matter Out of Place" to Signs of Life

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Abstract:

This paper offers a counterpoint to the prevailing account of waste in the human sciences. This account identifies waste, firstly, as the anomalous product of arbitrary social categorisations, or “matter out of place,” and, secondly, as a distinctly human way of leaving behind and interpreting traces, or a mirror of culture. Together, these positions reflect a more or less constructivist and anthropocentric approach. Most commonly, waste is placed within a framework that privileges considerations of meaning over materiality and the threat of death over the perpetuity of life processes. For an alternative I turn to bio-semiotics and cross-species scholarship around the question of the animal. Specifically, the paper asks what theories of waste would look like if instead of taking “dirt” as their starting point, they began with trans-species encounters with animal scat. Following bio-semiotics and efforts to deconstruct the animal/human binary, it is suggested that the objectual forms commonly referred to as “waste” are not arbitrarily classified, but purposefully expended, and thus symptomatic of life’s spatio-temporal continuation. Waste matter, therefore, is best construed not as anthropocentric but as semi-biotic: a sign of the form of life to which it once belonged. This alternative perspective has implications for how approaches to industrial forms of mass waste can be reconceived.

Keywords: waste, semiotics, life, pollution, excess, posthuman, embodiment

DRAFT ACCEPTED BY THEORY, CULTURE & SOCIETY

Introduction:

Reality is opaque; but there are certain points—clues, signs—which allow us to decipher it.
[Carlo Ginzburg 1980:27]

Scholarship on waste, filth and other forms of bad matter has in many ways served as a testing ground, a theoretical laboratory, for both social constructivism and attempts to identify and overcome its weaknesses. Seemingly polluting objects and bodies are imbued with a power, a *re-pulsion*, that makes it hard to separate the sensuous thing itself from its image, much like the spectral aura of the commodity as described by Marx (see Taussig 1993: 22). However, just because something provokes my disgust does not mean that I can blame inherent qualities that the thing possesses. This was the ultimate lesson of Mary Douglas’ seminal 1966 book *Purity and Danger*, which became a touchstone for the social constructivist alternative to common sense: though appearance may suggest otherwise, things are judged ‘polluting’ because of how they fit within encompassing systems of social classification. As Douglas (1984) put it, ‘dirt is matter out of place’; for something to be filthy, polluting, dangerous, it must violate some ideal sense of the way things ought to be.¹

With the recent emergence of waste studies across the human sciences, the legacy of Douglas is still apparent. In its most basic sense, ‘waste’ is typically assumed to be something unwanted and discarded, the opposite and symbolic counterpart of a valued treasure. Following Douglas, waste would be like dirt, that is, relational by definition. For something to be ‘waste’ it would have to be defined as such in the active imaginations of human beings, who in doing so perform their social distinction from one another, just as they distinguish wasted from more valued items (see Frow 2003). If one begins with the constructivist paradigm, it makes little sense to speak of ‘waste’ apart from uniquely human powers of symbolic valuation at all. But could there be other ways to imagine such materials? In this paper, I ask what it might mean for conceptions of waste, and critical theory more broadly, if we were to start from a different approach, bio-semiotics, modelled on an alternative substance, animal faeces. This analysis

challenges two central premises of the social constructivist paradigm, arguing, first, that it is meaningful to speak of ‘waste’ as a set of objects in the world that pre-exist symbolic categorisation, and, second, that as a consequence waste is not only a mirror of human culture, but also a sign of and for other-than-human beings.

Over the last decade scholars have regularly appealed to forms of bad matter as antidotes to familiar forms of social constructivism. For one thing, the rise of environmentalism since *Purity and Danger* has shifted the meaning of ‘pollution’ considerably (though not without resistance, see Meigs 1978) and has complicated the classification of impurity as primarily arbitrary and contingent. Accounts of waste usually begin with Douglas, but hasten to point out that those things that have been deemed worthless and rejected cannot be completely social and cultural but, on some level, must possess a significant *material* character as well (Hawkins 2006; Gille 2007; O’Brien 2008; Reno 2009; Gregson et al. 2010). This materiality takes on different forms in these accounts, but at minimum it represents a supplement to forms of classification, some linguistic and/or cognitive anomaly foreclosed by them—in convergence with Douglas’ approach (see for example Leach 1964)—or an embodied sensuousness that exceeds the symbolic altogether.

My analysis has been inspired by these approaches, but the furthest they go toward challenging social constructivism is by shifting the balance and evoking materiality as its double. Characteristic in this regard is Jane Bennett’s *Vibrant Matter*, where encounters with landfills and trash serve as prototypical examples of Thing-Power: ‘the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle’ (2009: 6). But can the thinginess of waste, vibrant though it may be, do without Douglasian classifications? Is not a landfill the product of millions of tiny acts of symbolic rejection, whereby a human agent decided what was relatively disposable? Is not waste management a process that takes advantage of this social relativity, particularly the multifaceted regimes of value by which rejected matter can be

repurposed for personal and corporate profit (see Reno 2009)? Litter and landfills are only available to produce the effects Bennett bears witness to because they have already been categorised and acted upon by humans. To suggest that waste is *also* material after it has been categorically rejected is an important first step, but not entirely satisfactory if its anthropocentric origins remain unaddressed. Emphasizing the distinctive thinginess of material objects, as a corrective to anthropocentric claims of human distinctiveness, presumes that we have a firm grasp on *human* thinginess and vitality, on our animal bodies and their worldly immersion, when investigating these more closely could reveal continuities that offer a counterpoint to the presumption of human/nonhuman divides.

An alternative strategy would isolate forms of waste for which the aesthetics of symbolic rejection are harder to discern, as is the case with faeces. Excrement is caught up in the same systems of valuation and distinction as are other rejectamenta (Reid 1993; Laporte 2000; Collins 2008). As Lea (1999) and Inglis (2002) argue, excretion has been profoundly shaped by social and political forces, which have infused its embodiment with classificatory distinctions between high and low, private and public, sanitary and unsanitary, civilised and animalistic (see also Stallybrass and White 1989). Excrement too can be a source of economic value (for example, as raw material for the creation of fertilizer or biogas) and is perhaps even more productive as a source of humour and insult. As anthropologist Sjaak van der Geest puts it, in a play on the classic Douglasian analysis:

The faeces I carry with me in my body are in the right place (as long as they do not stay there for too long) and do not worry me. They may become dirty if someone starts to draw special attention to their presence and tries to discredit the human body as ‘a sack of shit.’ (2007: 384)

Excrement is seldom discussed in critical theory despite its universality as an aspect of *human* experience, scatological scholars tend to point out, but this experience is shared with others. The significance of this connection is glimpsed only if we halt the inevitable move toward constructivist analysis and meditate uncomfortably on the mere fact of living with a body.

Rather than the amassed waste of entire populations, the collectively rejected and sorted contents of cesspools and sewers, imagine the singular animal body and its specific waste deposit.

Regardless of historical and cultural location, regardless of species, there is a non-arbitrary connection between the insides of the animal body and the matter that it releases. For a time, faeces even resemble the organs from which they spring—not only the shape of the intestinal tract, but also the sealing impressions of a closing sphincter. Considered in this respect, and regardless of what comes next, a human defecates *in principle* just like any other animal, insofar as *they all must do so*—it is a necessary aspect of living with bodies.²

In part, the equation of waste with Douglasian ‘dirt’ has appealed to social theorists because taboo, religion, and classification represent more established intellectual terrain than faeces, sewers, and toilets. It also corresponds well with the dominant focus of Cold War human sciences on meaning and systems theory, influenced by forays into cybernetics, semiotics and other informational inter-disciplines (see Boyer 2010). The ultimate problem with anomalous ‘dirt’, after all, is that it represents noise or gaps in a world overlain with meaningful systematicity. Within anthropology, there have been several criticisms of Douglas, many of which have focused on the difficulty of explaining pollution and taboo purely through arguments about anomaly and the preservation of order (Bulmer 1967; Meigs 1978). Of these, the closest to the theory I would like to present is that of anthropologist Valerio Valeri (2000), who argues against postulating a ‘pollution/taboo’ complex that rests more on meaning than embodiment. Unlike Valeri, however, I do not wish to talk only about the significance humans attribute to bodies, but to broaden this discussion to include the attributions that non-human creatures make, a way of thinking otherwise known as bio-semiotics (see Hoffmeyer 1996; Kohn 2007; Favareau 2010). In this regard I am inspired also by the emergence of multispecies ethnographic approaches, which ask that we take seriously how humans live with nonhumans, which means going beyond how they are domesticated into food, labor, laboratory experiments or household

companions (Kirksey and Helmreich 2010: 552; Siegel 2011). I argue that a bio-semiotic interpretation of waste offers one such approach. Animals not only share the experience of excretion, their excreted substances regularly traffic between bodies.

By evoking ‘the animal’ I am not making a loose appeal to ‘the natural’ or ‘the nonhuman’, but making a precise demarcation between natural kinds. Exploring the shared kingdom of animals, and its fleshy entailments, is burdened with its own anthropocentric presuppositions, which Agamben (2004), Derrida (2008) and others have made recent efforts to deconstruct (see also Wolfe 2003; Haraway 2008; Oliver 2009; Berger and Segarra 2011). They warn that approaching the question of the animal too often resurrects a generic other that mutually constitutes ‘Man’ (and over which ‘He’ has dominion). In this procedure, which Agamben aptly describes as the ‘anthropological machine’, animalization is an all too common temptation, which has the consequence of ascribing to both non-human creatures and some humans the stereotypical characteristics of ‘the Animal’, specifically, irresistible, machine-like compulsions. This animalistic caricature, to which bio-semiotics was precisely developed as an alternative, emerged in constitutive relation to the rise of ‘Man’ in the abstract. Following Agamben’s suggestion (2004: 92), bio-semiotics suspends differences between human and animal, resisting their dissolution into the ‘bare life’ of scientific taxonomies by emphasizing their shared immersion in a world veiled by mystery, opacity, made fleetingly apparent through clues, signs.

For much of this essay, I use the word of animal trackers—‘scat’—rather than the more colloquial ‘shit’ or the neutral ‘faecal matter’, in order to emphasize the status of waste as a bio-semiotic sign in cross-species communication. If a substantive metaphor is needed to express waste as a useful category of analysis, what if we were to use not Douglasian ‘dirt’ but animal scat? Animal scat has much to recommend it. For one thing, unlike the worthless/valuable or dirty/clean binaries, excrement has no clear opposite or symbolic counterpart. Unlike garbage, it

is rejected because it must be; unlike dirt, it must be polluting because a body has already extracted (nearly) all its value as a source of nourishment. On some level scat is a readily definable biological form, a necessary product of animal digestion independent of socially contingent categorisations. While very few creatures recognize dirt, furthermore, very many recognize scat as something distinct from other objects, as any dog owner can attest. Of course, it is mainly humans who have notions about the impurity of excrement. My argument is not that constructivist classification is absent from the signification of this form of waste, but only that such higher order interpretations arrive late to the party. Before scat can be cognized as something more abstract, like an anomaly that threatens some moral-symbolic system, it can be and is perceived as a far more basic sign, one associated with living animals. Could all waste, not just scat, be productively interpreted in this light? This is the guiding question of this article.

Exploring the cross-species lives of non-human animals also offers a different strategy to challenge anthropocentric interpretations of waste. Another outcome of environmentalism has been a tendency to identify waste and pollution as primarily representative of the destruction of nature and as a representation of human separation from and domination of the earth. This is a well-established phallogocentric and anthropocentric reading of human-environmental relations that overemphasizes human dominion while downplaying the entanglement of human histories with non-human forces, landscapes and ecologies (see Plumwood 1994). According to the conventional environmentalist perspective, waste appears as the clearest symptom of the human destruction of the planet. On the one hand, the size of a landfill or bag of refuse is directly proportionate to a use of real resources and therefore represents it iconically, both in terms of the present commodities now cast aside and those absent that will likely be consumed to replace them. On the other hand, the need to dispose of some quantity and type of waste represents a proportionate environmental impact on real places and beings.

This environmentalist reading is part of a broader tendency to interpret waste as reflective of human society and culture. There is a very practical sense in which something cast aside by someone still bears traces of their former relationship. If I look through your garbage can, I will likely learn things about you I wouldn't know otherwise, as so-called 'garbologists' know well (Rathje and Murphy 1991). More broadly, waste is taken as a register of human civilisation; landfills and middens, encoded with our general habits and relationships, wait for someone to decipher them. The discipline of archaeology has historically been almost entirely dependent on the analysis of material remains left behind and their ability to serve as a mirror of culture. As John Knechtel puts it, 'To purge the earth of garbage' as zero waste initiatives would have it, 'would be to destroy our own reflection' (2007: 9).

I want to build on this reading of waste as encoded culture to suggest a more bio-semiotic approach, modelled on animal scat, which acknowledges it as *semi-biotic*, that is, as a sign or remnant of a form of life, whether human or otherwise. This contributes to the critique of anthropocentrism and human narcissism, not by elevating the status of inert matter, but by reasserting the embodied animality that humans share with many other species. According to linguistic convention humans produce stool, while animals produce scat or droppings. My analysis of scat as a cross-species phenomenon is meant to reassert the shared animality of the human body; my bio-semiotic assertion that this animality is communicative and flexible challenges the conflation of 'animality' with brute, animalistic instinct. Most uses of the term 'scat' maintain boundaries between the human and the non-human, marking excretion as animalistic, in relation to which human beings appear exceptional, more-than-animal, precisely because human faeces is not (or ought not to be) *scat-tered* in the open and exposed to public examination. That is, unless it takes the anodyne form of a 'stool sample' temporarily captured and preserved for a medical gaze. As I will discuss in more detail in the conclusion, this conventional distinction between stool/scat speaks to the presumptive ability of humans to cover

their tracks—to put the traces they leave behind under erasure (Derrida 2008)—at the very core of anthropocentric conceits.

A complementary claim of the social constructivist approach, and one encouraged by the relationship between waste and environmental disturbance, is that contaminating things are not merely ‘disorderly’ but also signify material finitude (Gregson et al. 2010) and ultimately death (see Trotter 2003; Scanlan 2005). For the Douglasian approach to taboo, there is an implicit reliance on subjective threat and anxiety in order to provide motive force for classificatory operations (see Kristeva 1982). While an association between waste and death is compelling, it leaves out the extent to which waste more centrally indexes the perpetuation of life, has done so for far longer and with greater significance. When interpreted through animal scat, rather than dirt, both bodily waste and discarded artefacts are revealed to share more than symbolic relevance, they actively resemble each other because of the similar interpretive fate they face when separated from the form of life—the living process—that gave rise to them. The transience of decomposing and deteriorating matter can be seen as loss, but also as the perpetuation of life. Unless they are actively maintained and preserved under the right conditions, moreover, such objectual forms become unbound and gradually devolve into other life processes (see DeSilvey 2006). This may also account for the sense of repulsion that bad matter evokes: ‘What disgusts, startlingly,’ William Ian Miller finds, ‘is the capacity for life’ (1998: 40; see also Kolnai 2003).

This shared indication of and possibility for life marks scat as ‘waste’ on a basic bio-semiotic level. For motile creatures (i.e., most animals), waste is a means of registering that another body has passed by and continues to endure. As a sign of the form of life to which it once belonged, a remnant, waste matter is not at all a symbolic classification, but a sign of life. Borrowing a turn of phrase from Georges Bataille’s (1991) general economy, I suggest that the objectual forms commonly referred to as ‘waste’ are, in fact, critical *expenditures* for the continuation of life in time and space. In the conclusion, I argue that such an analysis also

accounts better for the ways that both humans and non-humans interpret and react toward different forms of bad matter. This reappraisal of waste does more than resist Douglasian analysis; it also reveals how modern forms of distinctly human mass wasting obscure the role of excretion in inter-corporeal and cross-species relating and thus reaffirm human exceptionalism and an anthropocentric constructivism.

A stroll through the wastes of animals and men

In my former neighbourhood in South London, a person on a stroll may encounter a wide variety of wastes, but the most common are:

- 1) pieces of litter than have been cast aside, thrown from cars or perhaps scattered by animals and the elements,
- 2) alleyways that bear the unmistakable stench of frequent public urination,
- 3) bird droppings, usually along sidewalks lined with trees where they regularly perch, and
- 4) dog scat, often in parks on public patches of grass.³

The London city government and its denizens are aware of these wastes and their regular accumulation. They dispatch street cleaners on foot and in machines to remove stray litter every week, they provide public refuse containers for trash and special bins for dog-walkers to use near places where violations are frequent, and they affix ‘pigeon spikes’ along roof edges to discourage birds from landing and defecating in front of businesses, public buildings, and homes.⁴ City-dwellers are accustomed to reading this cross-species landscape and apportioning moral responsibility to the humans behind the wastes:

Animals are somewhat like children. They have no clear identity and they have no bad intentions. If they deposit their excreta in my private territory, it is hardly an intrusion into my life. Animals do not intrude. However, when I suspect the owner of the dog to be behind the dog’s behaviour my discomfort and disgust will grow. The owner is intruding through his dog. The neighbour’s dog’s shit found at my door is metonymically my neighbour’s shit. (Geest 2007:392)

Londoners rarely hold pigeons or dogs morally accountable for their scat, but tend to trace this evidence back to their fellow human cohabitants. Pigeons and dogs may not be members of our moral communities in this way, but they are still active participants in a mutual environment and there are times when this becomes apparent, revealing a ‘threshold that precedes all interpretation’ where animals ‘are perceived in their pure singularity, as distinct beings that participate in the world of the living and that regard us in the same light’ (Baillly 2011: 13). If pigeons begin to defecate over one’s head, for example, real pigeons take precedence over quarrels with imagined city planners, and their conspicuous co-presence as living beings has to be taken into account.

Managing the scat of non-human animals requires that planners and cleaners take the animal’s habits and intentions into account, with pigeon spikes a clear example. According to the Estonian ethologist (and anti-Darwinian vitalist) Jakob von Uexküll, different creatures can be imagined as if they existed in their own worlds: ‘To do so we must blow, in fancy, a soap bubble around each creature to represent its own world, filled with the perceptions which it alone knows’ (1957: 5). These bubbles, he argued, do not conceal the world from creatures—since this suggests that ‘the world’ can be ever be totally perceived—but rather, it reveals different worlds to them, in the same way that distinct perceptual abilities allow most humans to recognize a broader colour spectrum than dogs and deer, whereas the latter are better at detecting and discriminating odours. Uexküll described the use of these representational faculties as constructing perceptual worlds, or *umwelt*, through which different creatures are able to engage with their immediate environment and each other.

It is not possible or necessary to move through my former neighbourhood as a dog or pigeon in order to imagine the difference that doing so would entail. What interests me here is how waste serves as a sign of the creatures with whom we share our worlds and their habits. Uexküll’s ideas became foundational to the emerging interdisciplinary of bio-semiotics, innovated

by the likes of Thomas Sebeok and, more recently, biologists like Marcelo Barbieri and Jesper Hoffmeyer (see Favareau 2010). The core idea of bio-semiotics is that life requires the use of signs, as organisms must engage with the world around them within the perceptual and behavioural limitations of their developing form. Referring to these engagements as ‘signs’ and the interpretation of them as ‘mind,’ is not meant to deny the very different meaning that these terms generally assume for human worlds, but only to highlight the mediation of an organism’s purposeful activity in its environment. Acknowledging that non-human creatures interpret signs does not mean crediting them with human thoughts or motivations, only recognizing the adaptable ‘pensivity’ with which they gaze upon us and the world we all share (Baillly 2011:15).

Waste is not typically approached as a bio-semiotic problem and the material/social binary described above arguably tends to foreclose this possibility. But some approaches to waste, limited as they are in other ways, make clearer its connection to vitality, in the same way that Valeri recognized pollution is bound to corporeality. The general economy of Georges Bataille, while ultimately embracing finitude and dualism in a way that is criticized above, also reveals some bio-semiotic insights through its discussion of the accursed share (*la part maudite*):

I will begin with a basic fact: The living organism, in a situation determined by the play of energy on the surface of the globe, ordinarily receives more energy than is necessary for maintaining life; the excess energy (wealth) can be used for the growth of a system (e.g., an organism); if the system can no longer grow, or if the excess cannot be completely absorbed in its growth, it must necessarily be lost without profit; it must be spent, willingly or not, gloriously or catastrophically. [Bataille 1991:21]

This animal ‘expenditure’ (*depense*) is not merely use or consumption, but a wasting of excess. I am less interested in what Bataille does with this central insight, then with what he leaves out.⁵ What critics of Bataille do not typically mention (see Frow 2003) is that such an expenditure is also a sign to others of that life and its continued existence. It is important to note, moreover, that the relationship between such expenditures and the beings that release them are motivated, rather than arbitrary. They are not mere symbols of life, in other words, but are related by means of resemblance and contiguity, or ‘iconicity’ and ‘indexicality’ (see Peirce 1955).

This becomes clear with a consideration of the forms of expenditure that are peculiar to the umwelts of animals. Kelly Oliver (2009: 208) notes how Heidegger and Merleau-Ponty both read Uexküll's account of umwelt in seemingly contradictory ways, privileging discontinuity and continuity between humans and non-human creatures, respectively. In part, this is because the concept itself suggests both possibilities. Uexküll's 'soap bubbles' confine organisms to their own worlds, but these are only isolating if species-level distinctions are presumed to be the most central. Irrespective of the phyletic, generic and specific taxonomic differences that separate the creatures of the kingdom *animalia*, they do share certain core aspects of their umwelts in common, particularly as they constrain their communion with one another.

Broadly speaking, the animal kingdom is characterized by four general features: sexual reproduction, motility, developmental growth, and the ingestion of other life forms for sustenance. We are not able to hide in our bubbles, in other words, but must identify one another to mate with, raise, eat, avoid and so on. As creatures generally in motion, animals must leave traces behind to find one another and to be found. Scents and calls are familiar terrestrial signals, but they make up only a small fraction of a wide array of traces that animals leave behind and circulate in order to locate one another in what could be called a *macrobiotic spacetime*. What do I mean by this? None of the four general features can be taken as prior or primordial, but the characteristic of movement is particularly interesting because it introduces an element of delay in interaction as well as spontaneity. Movement is not always, or often, goal-directed, but has a force and a direction all its own (Lingis 2003: 167-169). We search for one another but we also run into each other and the traces we leave behind, as a Londoner does whenever they stroll out their front door.

The production of scat by animals is part of their distinctive species being: the successful digestion of other organisms and the translation of the life they've consumed into their continued existence. When compared with the microscopic life from which we commonly evolved, this is

a notable achievement: the ability to incorporate another life form without destabilizing organismal form and identity. Alexandre Kojève offers a Hegelian reading of this process: 'The being that eats...creates and preserves its own reality by the overcoming of a reality other than its own, by the 'transformation' of an alien reality into its own reality, by the 'assimilation', the 'internalization' of a 'foreign', 'external' reality' (1969: 4). This dialectical account does not go far enough, however, as it presumes that organisms already have their own, self-identical reality, rather than living in immanent communion with their environments and one another.

When different organisms encounter animal scat, it is not simply a potential sign of life, but of something that is still living—that has digested and continues to endure—which deposited that waste and continued on, out of sight. Waste is a trace particular to macrobiotic spacetime, an indexical sign for those organisms semiotically equipped to register its appearance, feel, odour and taste. At the most basic level it tells them: 'some life passed through here.' In this regard it is not only a matter of bio-semiosis, of life forms interpreting, but *semi-biotics*, of the lingering significance organisms leave behind, the trace meanings of life. The point isn't that all creatures process this association in some way, but that it is possible for them to do so—it is a sign waiting to be interpreted—and many do. Moreover, this proto-semiotic interpretation provides the foundation for second and third-order cognitions that lead creatures to valorise waste as polluting (a contaminating form of 'matter out of place'), as appealing (the remainder of its quarry or source of sustenance), and so on.

In his delightful essay on historical epistemology, 'Morelli, Freud and Sherlock Holmes: Clues and Scientific Method,' Carlo Ginzburg offers insights into the life of signs across different socio-historical locations. He compares, in particular, the forensic labor of the psychoanalyst, the scientist and the detective with the interpretative practice of the hunter. One could imagine bio-semiotics as an epistemology that is trans-corporeal as well as trans-historical. Any creature looking to find prey or avoid predators must have internalized habits of perception

which had to have been acquired—in their lifetimes or through evolutionary history—through encounters with the material deposits of other figures in their behavioural setting. Crucial to this is that scat is not merely an index but also an icon of the creature. That is, scat is not just a sign of their having been *there*, their previous location and possible proximity, it also suggests their having *been* at all. The scat stands as a sign of their continued existence, because they were able to excrete and because their digesting and excreting allowed them to endure. Following Bataille's phrasing, this expenditure is not a by-product, but a motor, which propels the animal perpetually forward. Waste would function as an index of the movement that serves as a central element in the lives of (most) animals. As such it would serve as an icon of a creature's continuation, intuited from the expenditure they leave behind.⁶

I would thus challenge a foundational premise of the recent book by Michel Serres, *Malfeasance* (2010), which suggests that all creatures pollute in order to lay claim to their environments. The popular guidebook *Mammal Tracks & Sign* devotes an entire section to 'Scat, Urine, and Other Secretions' and a discussion of the communicative ends to which these expenditures are put 'potentially relaying information' not only 'about territorial boundaries or ownership, or to contest the presence of another animal' but also 'about age, health, and the sex of the individual' to facilitate breeding and group interaction (Elbroch 2003: 458). In other words, all creatures pollute that they might live and by polluting all creatures create a 'behavioral environment' (following Hallowell 1955): one in which they can move about and engage with one another. That the environment is behavioural is analogous to Gregory Bateson's description of living creatures as 'organism plus environment': their corporeal presence is predicated on continual cross-species interaction within their surroundings, mediated by a universe of signs to which they respond and contribute (see Hoffmeyer 1996). In this sense, waste can and does serve as a powerful conduit for cross-species, inter-corporeal transfer.

I remember what an impression it left on me when my mother showed me how to pick apart the scat of an owl to identify the fur and bones of mice or other creatures, the semiotic and material precipitate of real and recent trans-species encounters. The necessity of expenditure means that one can reveal the web of ecological relations and anticipate their continuation. Dogs are especially useful exemplars of this phenomenon. There is a reason that domestic canines are prized for wilderness study and management, and that is their impressive capacity for 'scat detection' (see Wasser et al. 2004). They tend to possess this skill for the same reason that wildlife researchers desire wild scat: in order that they might take the waste of other creatures as signs in action. Canines are also known to roll in the waste of other animals; it is thought, to mask their scent when they approach their prey, although perhaps this is a bio-semiotic example of confusing the map for the territory.⁷ Indeed, this manipulation of waste as an icon, in either case, could have led to the domestication of dogs. According to Coppinger and Coppinger (2002), there is reason to suspect that proto-dogs were attracted to human settlements because of their wastes and that it was through scavenging at the periphery of encampments that they became habituated to human presence. They cite Dmitri Belyaev's long term study of dog evolution which demonstrates how successive generations can become comfortable with reduced 'flight distance,' the limit at which a panicked response is induced in the nervous system. Given the skill with which canines seem to interpret wastes iconically, the spatio-temporal proximity of humans to their wastes introduces new bio-semiotic flexibility into cross-species encounters.⁸

What the Coppingers do not point out, in their emphasis on the active involvement of dogs in their own evolution, is how peculiar a waste habit it is for the human animal to remain alongside their expenditures, thereby collapsing the spatio-temporal distancing that these deposits perform throughout much of the behavioural environment. We should not be surprised by the role of wastes in bio-semiotic development, nor should we be too quick to separate it as something wholly different from human waste managements. Whether or not semi-biotic habits

are instinctual, acquired, or both is less consequential than their shared reliance on interpretations of material deposits as clues. If a wolf rolls in waste to resemble their prey, the sympathetic magic of a volt sorcerer is similarly reliant on iconic relations between a victim and their wastes. As Gell argues, ‘We suffer, as patients, from forms of agency mediated via images of ourselves, because, as social persons, we are present, not just in our singular bodies, but in everything in our surroundings which bears witness to our existence, our attributes, and our agency’ (1998:103). I would only wish to extend Gell’s idea of what constitutes a ‘social person,’ in this context. As any good hunter knows, it is not necessary to be human to leave traces behind.

Waste is not only a sign of life. Kojève was not aware of the microbiome of living creatures subsisting in his gut that not only resisted being digested by him but made his very digestion possible. From this perspective, the appearance of corporeal independence is partly an illusion made possible by further cross-species dependencies (Margulis and Sagan 1986; Lingis 2003; Haraway 2008). The interpretation of waste as semi-biotic is only the most basic one possible for a creature, that life has passed on and continues somewhere else, but it is not the only one or even the most fundamental. For example, some animals seek out scat, not as a trace to interpret, but as a source of nutrition in itself, or a good location to lay eggs and nurture their young.⁹ Regardless of how it is interpreted, waste deposits are an invitation for further engagement between organisms (see Hird 2012). The circulation of waste matter goes beyond the animal to participate in ecological relationships with plants and microbes, beginning with those organisms we do not digest, which after defecation continue to break down our faeces in the open air, now joined by others.

We may now define waste objects, most generally, as deposits rejected and released by animals, rather than whatever is symbolically categorised as such. Clearly, it cannot be assumed that humans are the only creatures that perceive and classify waste taken in this way. From the fly compelled to lay eggs in it, the dog to roll in it, or the human to clean it up, a wide variety of

beings are motivated to interpret waste as a significant set of things actually in the world, precisely because they serve as the meaningful deposits and necessary expenditures of living beings. More importantly, these different creatures are drawn to waste because, once it has been left behind, it invites new material and semiotic entanglements.

The evolution of the posterior field

It is worth noting that a blood trail, a footprint, or a pheromone can also be understood as semi-biotic in the much the same way that I have described animal scat. I do not dispute that these also serve as material deposits; my argument is that I think much could be gained by investigating the ways in which waste resembles these objectual forms rather than simply ‘dirt.’ It is not that the dirt metaphor is entirely mistaken, but that it closes off certain pathways of understanding while opening up others. If waste is distinct from other semi-biotic traces, it is because wastes are necessary and conspicuous expenditures. These deposits have to be released and, therefore, provide an available resource for the behavioural environment. In this sense, waste is not only a clue to a creature that has recently passed by, but an opportunity to engage in new interactions. Once these material deposits are released, life processes intercede, breaking down and reassembling them into new configurations. That is, unless steps are taken to arrest this process. This is where it is useful to speak of waste—this general set of necessary expenditures produced and perceived by creatures in their own ways—as resembling something that *only* humans seem to produce. Even these expenditures, however, are not created without plenty of nonhuman help (Hird 2012).

In *Gesture and Speech*, anthropologist André Leroi-Gourhan argues that the evolution of the anterior field in animals occurs around the two poles of developing forelimbs and faces, suggesting that our bilateral symmetry is an antecedent to the integration of gestural and verbal activity in humans (1993: 31-36). What makes the development of anteriority significant for

animal life is the capacity to direct attention and interaction *forward*, toward others: ‘to seek out a face is to put a question to it’ (Lingis 2003: 179). Anteriority not only improves individual survival, in other words, it opens up new opportunities for intra- and infra-species engagement, based on perceptual cues and clues—images, sounds, scents—released and received.¹⁰ If we were to speculate on the evolution of the posterior field, by contrast, we would turn away from face-to-face and limb-to-limb encounters and follow, instead, the traces, the deposits left behind. The consequences would be no less significant for ecological relationships in the behavioural environment, but they would tend to be characterized by spatiotemporal distancing, rather than the immediate co-presence of face-to-face engagements.

I want to argue that the way humans have developed the posterior field can help account for why it is that the semi-biotic character of waste is typically overlooked in scholarship. It can also explain what the value of recognizing this character is for our considerations of human wastes that are not animal scat, which understandably tend to be of greater concern to scholars, activists, and institutions. One reason that waste is not seen as a sign of life in action is its more common association with death and environmental disruption. This is the legacy of what I term *mass waste*. Mass waste is a historical product of the 18th century and European urbanization, which introduced the increasing externalization of waste practices and expertise until systems of collection and disposal gradually emerged as a professional occupation all their own, that of sanitary engineering (see Alexander and Reno 2012: 5-8). Human settlement has, for millennia, involved systems of waste management, including sewers, waste collectors and dumps. Just because waste is amassed, does not mean it is mass waste, however. What defines mass waste is that it no longer refers back—like animal scat—to the body that left it behind. Mixed in with the wastes of other people, discards lose their indexical connection to the being that generated it, they become anonymous, and acquire an abstract, general character. We speak of ‘garbage’ and

‘rubbish’ as mass nouns, as a type of substance, but this is only because there are systems in place to assemble them in this way.

There are many varieties on the continuum between waste as semi-biotic and mass waste and I do not want to overemphasize the discontinuity between them. Mass waste can still be picked through, as in identity theft or sewer epidemiology, in order to re-establish the link between the waster and the waste, to individuate some indexical connection from the mass of common rubbish. Worldwide, however, the progressive ‘modernization’ of mass waste has usually involved maintaining its anonymity.¹¹ Mass waste is created when the wastes of populations stop being deposited and are instead made mobile so that they can amass in new forms elsewhere. Since the end of the nineteenth century, this ‘elsewhere’ has typically been an incinerator or a landfill. Innovative forms of Euro-American mass disposal, these technologies were precisely engineered in order to remove wastes from the influence of other life forms (micro-organisms, insects and vermin) and forms of life (scavengers and scrap dealers). Modern waste management could be thought of as a semi-biotic abduction, or hypothesis, about the possible alternative lives of waste. Flushing waste into rivers, burning it to ash or burying it below ground prevented human discards from proliferating new and unwanted life, including microbial disease. The development of the sanitary landfill, or closed tip, in the early twentieth century was meant not only to protect people from unpleasant odours and sights, but also to cover waste so that flies and other vermin could not access it, precisely to interrupt the unruly semi-biotic participation of waste deposits in behavioural environments.

There do exist forms of amassing waste that still leave open the possibility of depositing potent signs and generating new forms of life, sometimes altogether beyond the animal. Among the Pueblo of Jemez described by Elsie Clews Parsons, for example, local dumping grounds are inhabited by a manifestation of the Supreme Being known as ‘Ash Boy’ (Parsons 1980).¹² As an other-than-human being connected to the hearth and the home, Ash Boy is symbolized by the ash

from fireplaces, which is regularly cast off at village dumps along with the other dust and debris swept out of living spaces. Ash Boy presides over cyclical ceremonies that re-dedicate sacred kiva rooms and also plays an important role in local mythology; not long ago, it is said that children once had ashes from the hearth placed on their foreheads for protection (Ellis 1952: 4; see also Levi-Strauss 1955). Though collapsing the spatiotemporal separation between waste maker and waste deposit, Pueblo dumps continue to proliferate other-than-human beings: ‘ashes and the dust of old things are a part...of the ancestors, Our Old Fathers. Consequently, ash piles stand as Pueblo shrines on the four sides of the village, and prayer offerings are places upon them at intervals’ (Ellis 1966: 806). For the Pueblo, arguably, it is the connection between ash and the reproduction of the family through the hearth that lends dumps and Ash Boy their particular potency (see Carsten 1997). In other words, even cases of actual dirt, of literal dust, can be productively reinterpreted beyond Douglasian constructivism as representing life’s continuation. Once again, waste seems to exist at the intersection of map and territory; because it is a sign of a form of life it becomes identified as a means of preserving it.

I do not want to overemphasize the separation between Pueblo dumps and sanitary landfills, and I don’t need to, because this difference is already marked in the intellectual project of American archaeology. The reason that ‘Ash Boy’ is familiar to archaeologists is that his residence in ash piles has prevented them from digging them up as signs of a past form of life. The semi-biotic character of waste not only helps us interpret Pueblo waste practices, but also the material and semiotic grounds of archaeological knowledge production. It is precisely because Pueblo—following their namesake—live in settlements that they are in spatial proximity to the accumulated waste of previous centuries, undoing the spatiotemporal distancing of deposit and depositor found in other animals. Furthermore, both Pueblo and their archaeological companions see this proximity as an opportunity to establish relationships with the dead through the remains

they’ve left behind, but they imagine these relationships and the obligations they involve in potentially very different ways.¹³

The reason that archaeologists tended not to see digging through these ashes as desecration is not only due to their lack of belief in indigenous spirits like Ash Boy, but also because their impressions of waste had been disenchanted by waste management systems. More to the point, mass waste had effectively re-enchanted them. To the extent that mass waste has been ‘composted’ back (see Douglas 1984: 168-170) into the cosmologies and ritual practices of industrial societies, since the mid-twentieth century, it is in the form of fears about environmental devastation, pollution and death. It is this sense of waste that has dominated discussions of the topic, scholarly or otherwise, for many years. When many speak of ‘waste’ they actually mean the peculiar history of mass waste, which defies the semi-biotic character of material deposits. The problem with this common analogy is that mass waste is not simply one form of waste among others, but is one that intentionally distorts the process of cross-species transfer. The reason that recognition of waste’s semi-biotic significance has been elusive can be accounted for by the predominance of mass waste management systems in the societies that waste scholars tend to occupy. As mass waste has become more and more concentrated and contaminating, it is not the generation of life but especially the spread of pollution, the interruption and cessation of life, which has come to dominate public images of waste. Taking on waste en masse, and thus making it more easily controllable and legible to engineers, states and corporations, has made it more dangerous to human and non-human life. It is in anticipation of this danger that waste management systems continue to spread worldwide in the guise of medically necessary modern sanitation.

Through incineration and conventional landfill, it could be argued that mass waste makes material deposits appear *undead*, lifelike and yet unable to generate new ecological possibilities. One can think of environmental, technical, and regulatory approaches to mass waste as the

zombie model. Mass waste must be contained forever, encased in a landfill, because it is thought threatening to everything it comes into contact with and yet it cannot die, cannot be finally destroyed.¹⁴ This undead, contaminating waste is the obverse of the semi-biotic forms that preceded it historically and evolutionarily. The development of various toxic and nuclear mass wastes have further shaped our assumptions about what counts as waste and what ought to be done with it and thought about it.

My contention is not that waste is harmless, but that the tendency to see mass waste as a sign of the times, a symptom of the excessive cycles of production and consumption, which it is, is only one arena of signification that waste is capable of proliferating and should not provide sole inspiration for definitions of waste at their most general.

In fact, the semi-biotic character of life has not vanished entirely from mass waste systems, nor could it. In recent years there have actually been efforts to rethink waste management precisely in terms of fostering life. Unless biological waste is incinerated, microbes cannot be eliminated from waste management processes. The primary impact of the anaerobic microbes in the midst of landfills, which otherwise remain concealed under the surface, is their exhalation of gas. For many decades, up-to-date landfills have required internal gas collection networks to redirect biogas so that it can be safely flared off. With the recognition that this landfill biogas—which is mostly methane—is a powerful greenhouse gas, there have been attempts to transform landfills into bio-generators capable of supplying ‘renewable’ electricity and protecting the atmosphere. It does not take much to make waste, even mass waste, more life-like. In a sense, landfills and dumps have always been a way of fostering life, a bio-political means of securing people from exposure to their waste by collecting it en masse and containing it. But harnessing mass waste in this way is continually troubled by its undead, corrupt and corrupting status.

The history of mass waste management, this particular branch of the more encompassing evolution of the posterior field, has obscured how it is that all wastes serve as means of exchange between living forms. Mass waste management has done so by making it seem as if risk to humans and environments is their primary meaning. Seeing waste, instead, as a temporary set of things in between forms of life, rather than between disorder and order, would arguably serve to foster a better environmental politics, not only conceptual clarity.

Conclusion

I have argued that it is worth thinking, not simply what waste is for humans, but how a set of things we call ‘waste’ are generally interpreted by multiple species—especially fellow animals—and serve to mediate transactions between beings, typically divided in space and time. My argument has been that, far from an anomalous product of arbitrary social classifications, wastes are signs of a living thing, one that continued to live as evidenced by its having left something behind. Beyond a reassessment of the Douglas theory of pollution, bio-semiotics offers an entry into the problem of the human as animal, and the animal as animated, rather than wholly instinct-driven. Being animal is something distinctly different from the mere fact of being alive, but it is also more general than being human. Suspended along this continuum, animal analysis serves both as an alternative antidote to anthropocentrism and a means of contending with the biological ‘facts of life’ while still challenging reductionist tendencies in the life sciences. Uexküll advocated for an appreciation of *animation*, in part to contend with Darwinian ethologists who were emphasizing the power of instinct to dictate the behaviour of what were thought to be lesser creatures. Bio-semiotics offers a fruitful counterpoint to interpretations that rely on theories of instinctual disease-avoidance to explain disgust (Rozin and Nemeroff 1990; Royzman and Sabini 2001) and aversion to ‘dirt’ (Stevenson, Case and Oaten 2011). As Hoffmeyer (1996) argues, it is important to distinguish between the historical conditions of a species’ genotypic inheritance,

including past selection pressures and fitness of forbearers, on the one hand, and the state of being alive and actively making ones way through the world, on the other.

Animal scat is the perfect starting point for a general theory of waste because it is already implicated in trans-species interaction from the beginning. Bacteria inside and outside of animal bodies breaks down what we digest and gives scat the particular form and transient material trajectory we are accustomed to. Our ability to defecate gives us our identity as multi-celled prokaryotes; it reflects our ability to fully digest the other life forms that we swallow in pieces. This digestion is complete not because we completely break these pieces down, but because we retain our integrity as consumer, something that the thing we've swallowed gradually loses. And yet, it is the *indigestible* bacteria within that streamline this digestion, make it possible. Scat is not mere symbolic categorisation, although it surely is that as well. It is also the actual remnant of an animal's indigestible 'mess mates' within (Haraway 2008) and, if not their agency, certainly the effect of their behaviour on ours (Lingis 2003). A failure to recognize the liveliness of waste, to view it as primarily corrupting and undead, has limited not only the development of social theory, but arguably 'western' medical practice as well. The recent (re)discovery of faecal 'transplants' for humans and farm animals, for example, relies on the continuing liveliness of 'healthy' stool and, particularly, its ability to improve upon the micro-biome of sick animal guts (see Grady 2013).

Seen in this light, the distinction between animal scat and human stool appears less tenable. If the latter often takes the form of sewage, of undead, mass waste, it does not therefore stop being subject to cross-species exchanges. Our mess mates carry on just as well breaking down our food within or our excrement without. The distinction between scat and stool, lively trace and abandoned deposit, is not a trivial one furthermore. This linguistic convention speaks to the anthropocentric interpretation of animal limitation and human exception, for example, through Lacan's claim that the non-human animal is incapable of covering up its tracks, erasing

the traces it leaves behind (see Oliver 2009: 184-189). Derrida's rejoinder is to question whether even the exalted 'Man' can do so (2008: 135-6). Humans may avoid scattering excrement, garbage and other material deposits, amassing it instead in sewers and landfills, but this anthropocentric conceit is difficult to maintain given the restless activity of the micro- and macrobiotic creatures living amid our wastes, hot on our trail from the start. In this sense, the inerasable trace of scat is a good metaphor for all waste: a seamless conduction of material expenditure between life processes, which never ceases but only begets more life. The non-human history of waste management reveals more continuity between scat and mass waste than would normally be supposed. Waste is productively thought of in this way, as a moment of exchange between living beings, the temporary illusion of non-life, which continues to be microscopically lively and readily gives way to more macroscopic arrangements.

If I were to imagine my former South London neighbourhood in this way, I would be forced to recognize, not only my interrelationship with the defecating pigeons and dogs of the area, but with the waste workers who tirelessly maintain our behavioural environment from material breakdown. Instead, we tend to imagine waste as an abstract form of social/material, something static and undead, when in reality is it unavoidably entangled with multiple life forms and forms of life. We need not lament this loss of awareness, as it is part and parcel of the healthy bodies and dwellings we enjoy. But nor can we apprehend waste as a mere theoretical tool or analogy. The management of mass waste was helping to instate divides between society and nature, meaning and matter, and human and nonhuman long before scholars in the human sciences thought it wise to stitch them back together again. We cannot merely approach waste as a new terrain to test out familiar approaches, without first understanding how it has already shaped them, working beneath our notice and behind our backs. The benefit of rediscovering the significance of waste, through our shared animality, is not merely that we have found yet another counterpoint to social constructivism, but that we might see what cross-species relations and

material and semiotic conditions made possible this paradigm shift in the first place, and which continue to shape our attempts to recycle waste or throw it away.

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Bibliographic Note

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Endnotes

¹ In her analysis of the abominations of Leviticus Douglas uses the example of the unclean and inedible pig. The reason for this taboo, she claims, cannot be found in the nature of the creature itself, but can only be understood by looking at the system through which edible creatures are classified, rendering the form of the pig exceptional by comparison. In this way an ideal symbolic order—Rabbinical stricture—mediates how the world is perceived by privileging orderliness and devaluing the anomalous confusion of ‘dirt.’

² Describing the connection between faeces and the body as non-arbitrary does not mean suggesting it is straightforward and immediate. Faeces is a clue to the working insides of the living animal which otherwise would remain opaque. Bio-semiotics following Peirce (1955) considers icons and indexes non-arbitrary. Thus, arguing that excretion is on some level a non-symbolic experience does not mean positing a body that is somehow ‘prior to the sign’, a position that Judith Butler (1993: 30) rightly takes issue with; rather bio-semiotics attempts to ‘think through the indissolubility of materiality and signification’ (1993: 30; see also the ‘material semiotics’ of Haraway 2008).

³ This list is primarily about strolling through London’s public spaces. If one has access to a private garden they might have to contend with urban foxes, who have a habit of defecating on children’s toys—an effect of their urban ‘displacement’ on territory-marking (see Fuller 2010: 23).

⁴ Public urination is a more difficult problem to solve, but in an effort to do so some London councils have installed ‘pop up’ public urinals to discourage the practice.

⁵ I thank an anonymous reviewer for helping me to clarify this point.

⁶ Animals that do not leave the waste they excrete behind through locomotion such as corals, barnacles and mussels tend to inhabit marine environments that carry it away for them. They also share in common a tendency to make their homes from their secretions of calcium carbonate. Rather than move away from the materials they release, they have evolved to settle in them, inhabiting them as shells and reef constructs. One could argue that they have evolved to interpret some of their expenditures as signs for their own use rather than for another. The main reason we tend not to think of the shells of molluscs as ‘waste’ is the same reason we do not think of our own hair skin or nails as waste products until we shed them: they are not quite waste so long as they continue being a part of life processes.

⁷ One might ask the same question about bitches that habitually eat the faeces of their puppies. Are they protecting their young from being identified and tracked by predators? Are they scavenging an easy meal? Or perhaps are they ingesting a lively trace of something they treasure forming an impression of their new pups?

⁸ Perhaps what we call domestication rests upon nothing more than more map/territory conflation; that is, human beings are appealing to dogs because they have become accustomed to representations of them. In this case, it would be more accurate to say that it is humans who are the icons of their waste not the other way around. Maybe for domestic dogs habitually drinking out of the toilet or begging for scraps are such irresistible habits because they spark an ancient reminder of why they like us so much to begin with: we resemble our waste.

⁹ I wish to thank Oana Mateescu for helping me to clarify this point.

¹⁰ Canines once again offer a useful example not only in terms of their propensity for communicating through their posterior limb (their tails) but for studying one another nasally from behind.

¹¹ One of the appeals of recycling, not only ideologically but materially, is that it involves stripping discards further down to their material substrates eliminating a potential link between waste-producer and waste object altogether (see Alexander and Reno 2012).

¹² According to Richard Parmentier (1979) 'Ash Boy' is one version of a culture hero (*Poseyemu*) that is found with different names among many indigenous groups throughout the North American southwest, including Zuni, Tewa and the Keresan villages. He argues that these Pueblo variants do not share the same linear narrative but make up a 'mythological spiral' (1979:609); for example after Spanish colonization the historical figures of Montezuma and Jesus became added to the Poseyemu myths.

¹³ And yet the act of forming relationships with the dead is not always oppositional. In the mid-1950s the Pueblo sought archaeological assistance to use shrine areas as evidence to establish their length of occupation in their successful land claim against the U.S. government (Ellis 1966). In some cases Pueblo assisted with interpretation and oversaw the work to ensure it was done respectfully; in other cases the work was and is still forbidden.

¹⁴ Even when incinerated, mass waste creates more forms of pollution emissions and ash, which have to be treated, regulated and sometimes, in the case of ash, landfilled.

Bibliography

Agamben G (2004) *The Open: Man and Animal*. Palo Alto CA: Stanford University Press.

Alexander C and Reno J (2012) Introduction. In: Alexander C and Reno J (eds) *Economies of Recycling: the Global Transformation of Materials Values and Social Relations*. London and New York: Zed Books.

Bailly J (2011) *The Animal Side*. New York: Fordham University Press.

Bataille G (1991) *The Accursed Share: an Essay in General Economy Vol. 1*. New York: Zone Books.

Bennett J (2010) *Vibrant Matter: Toward a Political Ecology of Things*. Durham and London: Duke University Press.

Berger A and M Segarra (2011) *Demenergies: Thinking (of) Animals After Derrida*. Amsterdam and New York: Rodopi.

Boyer D (2010) Digital Expertise in Online Journalism (and Anthropology). *Anthropological Quarterly* 83(1): 73-95.

Bulmer R (1967) Why is a Cassowary not a Bird? A Problem of Zoological Taxonomy among the Karam of the New Guinea Highlands. *Man* 2(1): 5-25.

Butler J (1993) *Bodies that Matter: on the Discursive Limits of 'Sex'*. New York and London: Routledge.

Carsten J (1997) *The Heat of the Hearth: the Process of Kinship in a Malay Fishing Community*. New York and Oxford: Oxford University Press.

Collins J (2008) 'But What If I Should Need to Defecate in Your Neighborhood Madame?': Empire Redemption and the 'Tradition of the Oppressed' in a Brazilian World Heritage Site. *Cultural Anthropology* 23(2): 279-328.

Coppinger R and Coppinger L (2002) *Dogs: a New Understanding of Canine Origin Behavior and Evolution*. Chicago and London: University of Chicago Press.

Derrida J (2008) *The Animal That Therefore I Am*. New York: Fordham University Press.

DeSilvey C (2006) Observed Decay: Telling Stories with Mutable Things. *Journal of Material Culture* 11(3): 318-338.

Douglas M (1984) *Purity and Danger: an Analysis of Concepts of Pollution and Taboo*. London and New York: Routledge.

Elbroch M (2003) *Mammal Tracks & Sign: a Guide to North American Species*. Mechanicsburg PA: Stackpole Books.

Ellis FH (1952) Jemez Kiva Magic and Its Relation to Features of Prehistoric Kivas. Southwestern. *Journal of Anthropology* 8(2):147-163.

Ellis FH (1966) The Immediate History of Zia Pueblo as Derived from Excavation in Refuse Deposits. *American Antiquity* 31(6): 806-811.

Favareau D (2010) *Essential Readings in Biosemiotics*. New York: Springer.

Fuller M (2010) Art for Animals. *Journal of Visual Art Practice* 9(1): 17-33.

Frow J (2003) Invidious Distinction: Waste Difference and Classy Stuff. In: Hawkins G and Muecke S (eds) *Waste and Culture: the Creation and Destruction of Value*. Boulder CO: Rowman and Littlefield.

Geest S (2007) The Social Life of Faeces: System in the Dirt. In: Ginkel R and Strating A (eds) *Wildness & Sensation: Anthropology of the Sinister and Sensuous Realms*. Apeldoorn and Antwerpen: Het Spinhuis.

Gell A (1998) *Art and Agency*. New York and Oxford: Oxford University Press.

Gille Z (2007) *From the Cult of Waste to the Trash Heap of History: the Politics of Waste in Socialist and Postsocialist Hungary*. Bloomington: Indiana University Press.

Ginzburg C (1980) Morelli Freud and Sherlock Holmes: Clues and Scientific Method. *History Workshop* 9: 5-36.

Grady D (2013) Fecal Treatment Gains Favor for Some Illnesses. NYTimes.com. *The New York Times*. Published January 16th. Internet Document:

<http://www.nytimes.com/2013/01/17/health/disgusting-maybe-but-treatment-works-study-finds.html>

Gregson N, Crang M, Ahamed F, Akhter N and Ferdous R (2010) Following Things of Rubbish Value: End-of-Life Ships 'Chock-chocky' Furniture and the Bangladeshi Middle Class Consumer. *Geoforum* 41(6): 846-854.

Hallowell AI (1955) *Culture and Experience*. Philadelphia: University of Pennsylvania Press.

Haraway DJ (2008) *When Species Meet*. Minneapolis and London: University of Minnesota Press.

Hawkins G (2006) *The Ethics of Waste: How We Relate to Rubbish*. Lanham MD: Rowman and Littlefield.

Hird M (2012) Knowing Waste: Towards and Inhuman Epistemology. *Social Epistemology* 26(3-4): 453-469.

Hoffmeyer J (1996) *Signs of Meaning in the Universe*. Bloomington: U of Indiana Press.

Inglis D (2002) Dirt and Denigration: the Faecal Imagery and Rhetorics of Abuse. *Postcolonial Studies* 5(2): 207-221.

Kirksey SE and Helmreich S (2010) The Emergence of Multispecies Ethnography. *Cultural Anthropology* 25(4): 545-576.

Knechtel J (2007) Introduction. In: Knechtel J (ed) *Trash*. Cambridge Mass. And London: Alphabet City Media and MIT Press.

Kohn E (2007) How Dogs Dream: Amazonian Natures and the Politics of Transspecies Engagement. *American Ethnologist* 34(1): 3-24.

Kojève A (1969) *Introduction to the Reading of Hegel*. Ithaca and London: Cornell University Press.

Kolnai A (2003) *On Disgust*. Peru Illinois: Open Court Publishing.

Kristeva J (1982) *Powers of Horror: An Essay on Abjection*. New York: Columbia University Press.

Laporte D (2000) *The History of Shit*. Cambridge Mass. and London: MIT Press.

Lea R (1999) The Shitful Body: Excretion and Control. *Medische Anthropologie* 11(1): 7-18.

Leach E (1964) Anthropological Aspects of Language: Animal Categories and Verbal Abuse. In: Lenneberg EH (ed) *New Directions in the Study of Language*. Cambridge: MIT Press.

Leroi-Gourhan A (1993) *Gesture and Speech*. Cambridge Mass. and London: MIT Press.

Levi-Strauss C (1955) The Structural Study of Myth. *The Journal of American Folklore* 68(270): 428-444.

Lingis A (2003) Animal Body Inhuman Face. In: Wolfe C (ed) *Zoontologies: the Question of the Animal*. Minneapolis and London: University of Minnesota Press.

Margulis L and Sagan D (1986) *Microcosmos: Four Billion Years of Microbial Evolution*. Berkeley Los Angeles and London: University of California Press.

Meigs AS (1978) A Papuan Perspective on Pollution. *Man* 13(2): 304-318.

Miller WI (1998) *The Anatomy of Disgust*. Cambridge Mass. and London: Harvard University Press.

O'Brien M (2008) *A Crisis of Waste?: Understanding the Rubbish Society*. New York and London: Routledge.

Parmentier R (1979) The Mythological Triangle: Poseyemu Montezuma and Jesus in the Pueblos. In: Sturtevant W (ed) *Handbook of North American Indians Vol. 9: Southwest*. Washington D.C.: Smithsonian Institution.

Parsons EC (1980) *The Pueblo of Jemez*. New York: AMS Press.

Peirce CS (1955) *Philosophical Writings of Peirce*. New York: Dover.

Plumwood V (1994) *Feminism and the Mastery of Nature*. London: Routledge.

Rathje W and Murphy C (1992) *Rubbish! The Archaeology of Garbage*. New York: Harper Collins.

Reid D (1993) *Paris Sewers and Sewermen: Realities and Representations*. Cambridge Mass: Harvard University Press.

Reno J (2009) Your Trash is Someone's Treasure: the Politics of Value at a Michigan Landfill. *Journal of Material Culture* 14(1): 29-46.

Roizman E and Sabini J (2001) Something It Takes to Be an Emotion: The Interesting Case of Disgust. *Journal for the Theory of Social Behaviour* 31(1): 29-59.

Rozin P and Nemeroff CJ (1990) The Laws of Sympathetic Magic: A Psychological Analysis of Similarity and Contagion. In: Stigler J Herdt G and Shweder RA (eds) *Cultural Psychology: Essays on Comparative Human Development*. Cambridge England: Cambridge.

Scanlan J (2005) *On Garbage*. London: Reaktion Books.

Serres M (2010) *Malfeasance: Appropriation through Pollution?* Palo Alto California: Stanford University Press.

Siegel J (2011) "Tout Autre est Tout Autre." In: Berger A and Segarra M (eds) *Demenergies: Thinking (of) Animals After Derrida*. Amsterdam and New York: Rodopi.

Stallybrass P and White A (1986) *The Politics and Poetics of Transgression*. New York: Cornell University Press.

Stevenson RJ, Case TI and MJ Oaten (2011) Disease Avoidance as a Functional Basis for Stigmatization. *Philosophical Transactions of the Royal Society B* 366 (1583): 3433-3452.

Taussig M (1993) *Mimesis and Alterity: A Particular History of the Senses*. London and New York: Routledge.

Trotter I (2003) The New Historicism and the Psychopathology of Everyday Modern Life. In: Cohen W and Johnson R (eds) *Filth: Dirt Disgust and Modern Life*. Minneapolis and London: University of Minnesota Press.

Uexküll J von. (1957) A Stroll Through the Worlds of Animals and Men: a Picture Book of Invisible Worlds. In: Schiller CH and Kuenen DJ (eds) *Instinctive Behavior: the Development of a Modern Concept*. New York: International Universities Press.

Valeri V (2000) *The Forest of Taboos: Morality Hunting and Identity among the Huaulu of the Moluccas*. Madison: University of Wisconsin Press.

Wasser SK, Davenport B, Ramage ER, Hunt KE, Parker M, Clarke C and Stenhouse G (2004) Scent detection dogs in wildlife research and management: Applications to grizzly and black bears in the Yellowhead Ecosystem Alberta Canada. *Canadian Journal of Zoology* 82: 475-492.

Wolfe C (2003) *Zoontologies: the Question of the Animal*. Minneapolis: Minnesota University Press.