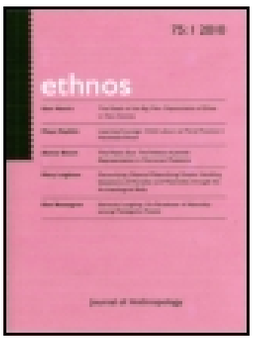

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Waste and Its Disguises: Technologies of (Un)Knowing

Catherine Alexander[a] and Patrick O'Hare[b]

[a]Durham University, UK; [b]University of St Andrews, UK

ABSTRACT
The introduction to this special issue starts with a brief thematisation of the key theoretical interventions in the anthropology of waste in order to situate our own contribution. We follow this by discussing, and adding to the recent anthropology and sociology of ignorance and not knowing, before turning to the intersections between waste and ignorance, thinking through how we and other scholars have theorised ways of deflecting attention away from wastes, whether they are lands, material or human bodies. We broadly categorise these technologies of deflection and unknowing into 'spatial', 'temporal', 'epistemological', 'calculative' and 'rhetorical'. Specific techniques within these categories serve to eclipse other ways of knowing (i.e. the sensory, affective aspects of waste (e)valuation) and often depoliticise decisions concerning wastes, places, materials, people and their livelihoods.

KEYWORDS Waste; epistemology; ignorance; unknowing; denial

Introduction

This special issue sits at the juncture of two recent matters of concern within and beyond anthropology, and indeed well beyond academia. The first are epistemological questions that interrogate not only how we know what we know, but also how other ways of knowing and representing knowledge are discounted, ignored, and deflected. The second is how we, as scholars, individuals, environmental activists, and policy makers, think about and act towards wastes. In both cases, we are interested in the consequences of not knowing wastes, whether by deliberate choice or simply because one way of understanding and evaluating matter, process, and event eclipses others. Waste, as our title suggests, is quintessentially indeterminate, often holding multiple, apparently incommensurate values simultaneously (e.g. potential resource and unwanted by-product) each one of which may be foregrounded, depending on context, thus displacing other readings (Alexander & Sanchez 2019). The theme is timely, for as global

CONTACT Catherine Alexander catherine.alexander@durham.ac.uk

anxiety escalates about the rising tides of wastes (Eriksen & Schober 2017) – what Gabrielle Hecht terms 'the anthropocene as the apotheosis of waste' (2018: 1) – now, more than ever we need to train our attention on the many ways in which wastes are simultaneously disappeared from view. The problem, we suggest, is even greater and more complex than currently supposed.

In this special issue, we therefore focus on the multiple ways in which attention is redirected from places, land, people, technologies, times, material trajectories, actions, and matter that may be seen as waste or wasteful. We interrogate ethnographically the precise technologies – temporal or spatial displacement, epistemological and psychological modes of denial, calculative techniques and rhetorical strategies – by which wastes are known and unknown, represented and disappeared, and the courses of action that are thereby curtailed or opened up. We necessarily include the bodies and labour that work with, or are affected by, wastes and their effects. The consequences of such representations, or how things become known and unknown, affect people's lives profoundly and can provoke the displacement, movement, or containment of things as well as the concealment of actions that waste territories, bodies, and objects. In other instances, we see the invocation of something as wasteful as a rhetorical move that opens a space for political or economic interventions to address such 'problems'. We need to be alert in such cases as to whether or not the initial declaration of waste is simply a refusal to acknowledge the value of lives, materials, land and processes. As Hecht notes 'even when ignorance is not deliberate, it emerges from social relations. It has power effects' (2018: 112).

Alongside approaches within Science and Technology Studies (STS), discussed further below, there have been numerous anthropological engagements with the themes of ignorance and not-knowing (e.g. Gershon & Sarhardi Raj 2000; Hobart 2002; Mair *et al.* 2012; Dilley & Kirsch 2015; Kalir & van Schendel 2017; Bovensiepen & Pelkmans 2020). Waste is a particularly fertile subject through which to examine such debates for two reasons. First, its unruliness, liveliness and messy nature makes it hard to contain physically as well as categorically. Indeed, there are lively debates, with which this special issue is in dialogue, that point first to the essential indeterminacy of some forms of waste and pollution (Wynne 1996; Hird 2012; Gille 2013; Alexander & Sanchez 2019; Alexander & Reno 2020; Reno 2019; Millar 2018) and the related consequences for intervention. What, in other words, is the stuff that is to be known or unknown? Second, the understanding of waste as something excessive that cannot be absorbed through micro-level household intervention is typically associated with urban density and therefore has long been the subject of government intervention (see Laporte 1979) and, since the mid-twentieth century, technocratic expertise (Alexander & Reno 2012). The stage is set therefore for this most intimate of matters (Hawkins 2006) to be endlessly reframed as a matter of state policy, national interests, or science and thus for embodied, affective ways of knowing to be displaced by technocratic 'solutions' and / or rhetorical invocations of greater public goods.

We therefore engage critically with both the growing interest in forms of ignorance, not-knowing and unknowing and the politics and economics of wastes and their representation. We address some familiar themes in new contexts, such as the discrediting

of certain kinds of embodied, lay, traditional knowledge in favour of what purports to be objective scientific calculation and evidence (Butt 2020; Sillitoe 1998; Furniss 2017). But we are also in conversation with other debates such as the depoliticisation of environmental and other policies (e.g. Ferguson 1990; Agrawal 2005) and the emphasis placed by certain key actors on ideas of the public good (Bear & Mathur 2015). The effects of shifting ascriptions of public and private responsibility are felt in the most intimate domestic spheres as well as grander arenas of national ideologies; material and rhetorical practices of wasting constitute an important bridge between these scales.

The remainder of this introduction is divided into three sections. First, we sketch out how anthropologists have ethnographically and analytically approached the study of wastes highlighting how this special issue advances current debates and themes significantly. Second, we provide a brief overview of studies of cultivated or unintended ignorance. Third, we trace where and how these two areas intersect and how this special issue extends and details the precise techniques through which different kinds of wastes are made to disappear from view.

Anthropologies of Wastes

Interest in waste across anthropology and the social sciences and humanities more broadly has escalated over the last few years, even giving birth to the interdisciplinary subfield of 'discard studies'. Joshua Reno's (2015) review article on waste and waste management took stock of anthropological contributions at that time but scholarship has continued to grow and further diversify since. In this section, we identify three analytic approaches to waste, rubbish, and pollution that we suggest have characterised waste scholarship since Mary Douglas's (2002 [1966]) seminal *Purity and Danger*. The first is precisely that associated with Douglas: a symbolic-structuralist approach, where waste emerges through the interaction between the sacred and profane, which are structurally bound to one another, and are thus social and relational rather than objective qualities or categorical divisions of literal phenomena in the world. Michael Thompson's (2017 [1979]) *Rubbish Theory*, which is more focused on the material and shifting values of rubbish than ritual pollution, marks the beginning of an economic-materialist approach to understanding the circulation of things between the realms of commodity and rubbish, although, demonstrating his debt to Douglas, he acknowledges waste as socially constructed in the last instance. Often framed against Douglas's symbolic and constructionist approach, an increasing number of scholars have focused on the materiality of waste within broader political and economic structures that shape how and where it appears. A final approach to waste has been to focus on the subjects that waste and various forms of waste-work engender, an orientation that can be described as more-than-human or inter-species, given the level of agency accorded to waste matter and non-human animals.

Each of these three approaches – symbolic-structuralist, economic-materialist, and more-than-human-interspecies – captures a part of but not the whole picture: each focuses on some aspect of human-waste relations while neglecting others. In other words, just as the technologies of unknowing that we sketch out below can increase

both knowledge and ignorance about waste, so too do analytical perspectives within anthropology represent waste in ways that highlight certain characteristics or social relations at the expense of others. Rather than proposing a single epistemology of waste, a new theory that would rival these approaches, or a macro-theory that would encompass them all, we instead seek to highlight the epistemological consequences of these different representations, as well as advancing waste scholarship by focusing directly on the relationship between waste, knowledge, and ignorance.

Symbolic – Structuralist Approaches

As William Cohen and Ryan Johnson (2005: xi) suggest, the starting point for any theory of pollution is often Douglas' classification of dirt as 'matter out of place'. Whether as a perfunctory reference, a departure point for theoretical musings or an object for critique, those who take for their object of enquiry matters of pollution, waste, filth and its many subjects, inevitably engage with her ideas. For Douglas, dirt is that which offends order in a culturally-specific system of classification, yet for all that the most familiar quotations from her work typically involve western contexts, she is primarily concerned with classificatory systems of the pure/impure, holy/secular, polluted/sacred in studies of religion and the bible (e.g. the prohibitions of Leviticus), or in what Douglas called 'primitive magic' and societies. As Martin O'Brien notes however, as much as Douglas is almost ritually invoked in waste scholarship, her focus on the symbolism of ritual pollution fits awkwardly with discussions of the billions of tons of municipal solid waste that arrive daily at the world's landfills (2008: 128).

Although Douglas's legacy has stretched beyond the discipline and endured in time, few anthropologists continue to use her framework as the primary vehicle for understanding the relation between waste, culture, and society.[1] Laurence Douny has creatively adapted Douglas in her study of domestic waste in Mali, suggesting that for the Dogon people, 'categories of waste enact a conceptual ordering of daily life that allows them to set up and maintain their socio-cultural and symbolic boundaries' (2007: 313). Through the naming of rubbish, she argues, they 'take control over the fuzzy reality of matter' (Ibid). Here we have what seems to be a classic symbolic approach, where order is imposed on a formless world through the cultural imposition of different categories and classifications. Yet Douny is careful to note that classification is 'versatile', 'a daily practice', in constant flux and redefinition: 'rubbish categories, even though solid, endow a certain flexibility' (ibid). We return to the Dogon in the following section, as they also represent an example of where ethnography itself has been critiqued as a technology of unknowing within anthropology.

Despite its many insights, Douglas's approach was not to last as the hegemonic heuristic framework in the anthropology of waste. This is down to its binary nature, the fact that she did not focus on waste per se, and the way her theory considered only one side of her primitive/ civilised binary – her later volume on consumer society had very little on waste. Neither did her training and work on the Lele as part of a school of Africanist anthropology that had a structural focus on societal order and disorder (e.g. Max Gluckman, Edward Evans-Pritchard, and Victor Turner) necessarily migrate

easily to other regional and general debates. To theorise ever greater flows of waste across the planet, approaches that attended to politics, economics, materiality and the labour of wasting and recovery would be necessary.

Economic – Materialist Approaches

Against the fixed, binary categories of a symbolic interpretative framework, Thompson (2017 [1979]) brings in a third term to complicate those of waste and value: rubbish. Where Douglas's examples of socio-cultural systems of classification are largely drawn from 'primitive' societies, Thompson centres on bourgeois, urban, industrialised Britain, with examples such as the changing value of furniture and antiques over time, while also drawing comparisons with more classic areas of anthropological enquiry such as Melanesian pig exchange. He follows Douglas in asserting that objects do not have an intrinsic 'rubbish' state but modifies her approach by following objects through processes of devaluation and re-valuation. The vintage car, for example, begins life as a new product, undergoes a process of devaluation, perhaps even being consigned to the category of scrap, only to re-emerge years later as a 'classic'. Such analysis was a precursor of the 'social life of things' famously sketched out by Arjun Appadurai (1986) and Igor Kopytoff (1986). Thompson's contribution therefore was to provide a way of theorising waste that worked for industrialised societies and highlight how matter and material goods can move through quite different categories and value ascriptions. Further, while structuralist understandings of pollution posited an underlying ordering schema of which members of society were not necessarily aware, Thompson is concerned with conscious, deliberate acts that constitute materials as waste.

Arguably, Thompson's desire to understand material flows and the creation and destruction of value in British society paved the way for more recent social science studies of the globalised flows of discards and how they connect with domestic waste practices, while William Rathje and Cullen Murphy (2002 [1992]) performed an analogous role for archaeologists of the contemporary. Much of this scholarship focuses on the political economy of government policies and the governmentality of waste, how these are affected by contemporary knowledge about waste and its effects, and, in turn, affect how different wastes are (mis)recognised, produced, and managed. The most ambitious attempt to theorise differing state approaches to waste is perhaps Zsuzsa Gille's (2007) concept of 'waste regimes', where the affordances of one kind of material waste or 'waste stream' are used to understand, represent and direct all waste material operations, sometimes to damaging, indeed wasteful effect. One of her examples is the Hungarian state's emphasis in the 1950s on collecting scrap metal. While metal can be easily stored, extending this method to other wastes such as toxic chemicals, ignoring their particular qualities, meant that barrels rapidly corroded and leaked. Gille thus argues that rather than viewing the category of waste purely as a social construction, we also need to account for the role of specific materialities and to consider state and citizen responses. Here, the idea of unique 'cultural' approaches

to waste has been replaced by a focus on states and political-economic hegemonies, without losing sight of the micro-practices that these encourage or confront.

Although historical works (e.g. Strasser 1999) have shown that domestic practices of material recovery and re-use have a long history, only recently has attention turned to the global industry of recycling different materials and how this may link domestic practices to transnational flows of stuff. Thus Catherine Alexander and Joshua Reno's (2012) *Economies of Recycling* collection explored recycling by mobilising both economic anthropology and material culture approaches to upturn conventional understandings of household and global material economies. Contributors analysed the profoundly unequal global flows of waste materials in terms of where they are produced and recycled, often in hazardous conditions: textiles, ships, electronics, uranium, medical discards. They also highlighted how various forms of waste labour and waste processing have been cast as redemptive, drawing on a Protestant-inflected language of salvation. Alexander and Reno have since turned to exploring how, although valuable energy can be recovered from wastes (2014), such processes are often framed by their proponents in such a way as to occlude the wastes that remain, the multiple pre- and post-treatments that are often required to prepare feedstock and obtain usable energy and, in some cases, polluting side effects. Moreover, contracts with the waste-to-energy industry are often predicated on throughput of 'feedstock' (wastes) and energy output: there is often thus little or no incentive to reduce wastes in the first place (2014, 2020; see also Alexander 2016). What appears then is a partial, in all senses, framing of waste-as-resource and the efficacy of energy-to-waste technologies. The effect can be that detractors and proponents are not talking about exactly the same thing. Waste-as-commoditised-resource is thus an awkward 'good', just as it is rarely simply a 'bad'. Such ambivalence is further highlighted by Colin Hoag *et al.*'s analysis of how waste at a Danish landfill is packaged and shipped around the world in a recycling circuit that often overlaps, in reverse, the circulation of goods (2018).

Materiality and economic anthropology also come together in anthropological studies of waste linked to infrastructure, where waste services are viewed as a form of infrastructural provision. Echoing themes drawn from broader infrastructural studies (Larkin 2013), waste infrastructure scholarship emphasises its materiality (Harvey 2017; Fredericks 2018; Miraftab 2004); its temporality; the relation between the flow, interruption and visibility of infrastructure (Dalakoglou & Kallianos 2014); and the potential of waste infrastructure to stimulate new politics and publics (Chalfin 2014; Stamatopoulou-Robbins 2020). Whilst valuable, this turn to infrastructure potentially draws attention away from other ways in which people imagine their engagement with waste: not as helping to provide a secular municipal infrastructure, for example, but fulfilling a religious command to ensure purity (Fredericks 2018).

Alongside the anthropology of infrastructure we find work more directly focused on rubble, urban planning, and rural-urban development, such as Gastón Gordillo's (2014) influential ethnography that analyses remainders of the built environment in rural northern Argentina. Erik Harms' (2016) *Luxury and Rubble*, which centres on two housing developments in Saigón, is more concerned with the conversion of wastelands than with waste material per se. Yet a bridge to this Special Issue can be found in Harms'

exploration of the consequences of the dominant Vietnamese narrative of civilising a southern wasteland, and how this enables existing productive uses of land to be ignored, and urban development championed. Gordillo and Harms thus appear as mirror images of each other; the former focusing on the way that infrastructures are wasted in order to make room for emergent projects of accumulation, the latter on the possibilities for construction once territory has been written off as a wasteland. Harms thus also points to the technique of value creation that Peña Valderrama (2020) and O'Hare (2020) explore here, where a figure of waste is invoked that occludes other ways of being or knowing and opens up a space for economic and political intervention. For both Gordillo and Harms, it is not symbols, but the materiality of rubble, bricks, building plans, and maps that tell us something about societies and the hegemonic utopias that transfigure and disfigure landscapes at distinct historical moments.

According to O'Brien, the point of what he calls Douglas' 'rubbish idealism' is to 'eject the qualities of dirt and its alleged dangers from the study of pollution' (2002 [1966]: 133). Nothing could be further from the position of a new generation of anthropologists of waste who have trained their eyes on waste's materiality, with all its odours and hazards as well as its creative potentials. Again, different emphases reveal and eclipse different elements. Thus, a cultural materialist (Harris 1968) approach might see an ultimate logic behind what we waste; a Marxist approach would dwell on the relations of production of waste and value, but materialist analyses of waste have tended to be more nuanced, highlighting how waste's materiality influences, but does not determine, both how and why stuff appears as waste in the first place and then how and why it may be extracted from conditions of waste and revalued. At the far end of a spectrum highlighting the agency of waste itself are positions enunciated from a more-than-human or inter-species perspective; these are explored in the following section, alongside analyses of the types of subjects that emerge from various kinds of waste work.

More-Than-Human-Interspecies Approaches

The fundamental question in symbolic-structuralist approaches to waste is *why* different things are considered waste in different cultures, to which the answer is culturally-specific classificatory systems. Economic-materialists shift the question to *how* the dynamics of waste flows link domestic and global industrial scales and answer it by examining waste flows in a globalised schema of reproduced inequalities. Cultural perspectives are brought into conversation with questions of power, religion, materiality, and economics. The third thematic concern within social science waste studies is the relationship between humans, other animals, and processes of wasting. For scholars such as Gay Hawkins (2006), the creation of subjectivities through engagements with waste is at once a profoundly ethical process and echoes Actor Network Theory in signalling that waste itself has agency in that it both acts, and is acted upon.

Alongside the domestic recycler about whose embodied gestures Hawkins writes, the subjects most commonly explored in relation to waste are the waste-picker and the refuse worker. Thus, Waqas Butt and Patrick O'Hare's contributions to this issue are

in critical dialogue with earlier ethnographies of informal waste labour, e.g. Rosalind Fredericks (2012, 2018) on Dakar; Kathleen Millar (2008, 2018) on Rio de Janeiro, and Risa Whitson (2011) on Buenos Aires. Millar's work on Rio's Gramacho landfill, the largest in South America until its closure in 2012, is a particularly sensitive portrayal of waste-pickers in their wider social world, far from the kind of abject, desperate figures so common in media accounts. This is ethnography written from the perspective of those who make a living recovering waste as opposed to burying it, and thus differs from Reno's (2016) ethnography of an industrial Michigan landfill. Both, nonetheless, aim to redeem the dignity and value of work amidst unending flows of waste. Minh Nguyen's (2019) ethnography of Vietnamese informal waste workers follows a similar tack in restoring humanity and complexity to lives and work, but rather than being centred on the fixed location of waste pickers, she tracks the complex networks and connections between city and village, across the city and between formal and informal labour.

Just as waste is often placed within a binary framework, either in the sacred/ polluted dichotomy of the structuralist approach, or the waste-value division that continues to characterise much enquiry in more economic-materialist approaches, labour in the developing world is also often categorised into the formal and the informal. As in the case of waste and value, positive and negative characterisations tend to accrue to one or the other pole of this binary, with formal labour championed and informal work considered demeaning, exploitative, and unprotected. Millar thus asks why her waste-picking interlocutors return not only to informal work, but also to waste, often despite the existence of formal sector alternatives. The kind of subject that emerges from waste-picking, Millar argues, is one who not only becomes accustomed to initially shocking sights and smells, but who also becomes unaccustomed to working for a boss with constraints on their time. Millar's work, in common with many other studies of waste-picking, also reveals the interdependence of formal and informal work, and local and global waste recovery processes, something often elided in more technocratic representations of efficient and effective waste management.

Britt Halvorson, meanwhile, emphasises human agency and subjectivity (2018) in discussing how medical discards from American hospitals are transformed into charitable gifts through a ritualised Christian framework. 'Medical aid organisations', she argues 'can … be conceived as "conversionary sites" at the crossroads of different ways of valuing medical discards, concurrently understood as institutional waste products, charitable donations, sacred gifts, potential commodities, relational tokens, and aid forms' (101). This is essentially a creative and imaginative way of re-spinning the symbolic value/waste approach, where value is recovered from waste by a combination of recontextualization and reconceptualisation by ethical subjects.

Thomas Hylland Eriksen and Elisabeth Schober's (2017) collection on 'waste and the superfluous' sits between a focus on agency and subjectivity, the economics of wasting, and the material affordances (toxic, valuable, malleable, etc.) that underlie both. As the title suggests, its articles range from enquiries into waste and its management (Knowles 2017; Furniss 2017) to analyses of populations considered superfluous, such as migrants in Hungary (Thorleifsson 2017). Knowles's focus is not on how cultures make waste,

but on how the materiality of waste – in her case, plasticity – is agentive in making social relations, economic activities, and senses of place. Furniss's article, meanwhile, follows Hawkins and Muecke (2003) in exploring the 'variable forms of subjectivity' (2017: 301) that respond to waste in a different setting.

In other approaches, agency and sometimes subjectivity are also accorded to waste materials and the non-human animals that co-produce them. Nicky Gregson *et al.* (2010), for example, recognise the economically-performative nature of asbestos, as its undetected presence slows down ship-breaking work in the EU and complicates contracts. Myra J. Hird (2012) meanwhile, focuses on how materials at landfills can never be constrained or fully captured by forms of human knowledge, especially those seeking to render waste determinate. In advocating an 'inhuman epistemology' of waste that draws on feminist science studies, she emphasises how the inhuman and nonhuman life forms in waste (e.g. leachate and bacteria) and their time-frames complicate human technocratic attempts to measure, know, and control waste.

Reno (2014) has also shown how some waste can be considered a 'sign of life' rather than 'matter out of place'. Scat (animal faeces) resist both a symbolic interpretative framework and being seen as a distinctly human problem. Encountered by human and non-human animals, whether they are hunting or mapping out patterns of animal behaviour, scat is an indication of life, rather than life-threatening contamination. This theorisation of waste (alongside Reno 2019) dislodges the human subject from its primary position, relegating it to just another animal involved in cross-species communication. Not only scat, but waste more broadly can be thought about bio-semiotically, as the outcome of interactions between the many species that both create, and are created by it.

Take, for example, the case of Marabou storks studied by Jacob Doherty (2019) and their role in the management of Kampala's waste. The birds have given up seasonal patterns of migration to settle permanently in the city and consume approximately 7 metric tons of organic waste per day in the city, around 3% of the municipal waste stream. As such, Doherty argues that the storks are 'lively participants in the city's waste stream, coworkers in urban infrastructure' and 'not just symbolic figures of thought or objects of biopolitical environmental interventions' (ibid: 324). Like them, waste-pickers assist the municipal government in the reduction of waste landfilled in the city but both are disparaged as a nuisance, operating around what Doherty terms 'para-sites' in a 'patchy anthropocene': 'spaces of heterogeneity that exceed the best-laid plans of municipal waste managers' (ibid: 321). The case links to our focus here, as it is only by a misrepresentation and wilful ignorance of the positive role of scavengers that municipal waste managers can depict them as inherently problematic.

Hoag *et al.*, meanwhile, focus on the 'multispecies marginal gains' that can be gleaned from a former waste site in Denmark known as AFLD Fasterhold. What they describe is a food chain or ecology altered by heavy mining and the nitrate rich soil of a former landfill that attracts pines, thistles, wolves, deer, and hunters, each of which makes 'marginal gains' from anthropogenic change. Here, knowledge of different forms of waste/resource is distributed, limited and multi-species: deer appear to know that settling in the grounds of the dump-turned-recycling facility

conveys a measure of safety from hunters, while the knowledge base of municipal engineers about the production of methane is mostly restricted to that necessary to ensure its capture. Such forms of unknowing are crucial, the authors argue, to what they call 'undomestication': 'the process whereby particular elements of human domestication are appropriated or undone by non-human species in such a way as to creative novel and relatively autonomous relations of human/ non-human interdependency' (88).

The appearance of interdisciplinary discard studies highlights that many others, from academics and practitioners to non-humans, have been articulating, knowing, and representing waste long before anthropologists arrived on the scene. What we offer in this Special Issue is a distinct anthropological contribution that will provide theorists, within and beyond anthropology, with a new conceptual framework by specifically drawing attention to forms of both knowing and unknowing that, in some cases, divert attention away from waste and its consequences and, in others, emphasise waste in order to create opportunities for dispossession and intervention. We take this specific approach because, we argue, it gives us a sharper way of assessing and analysing the challenge that escalating wastes pose, and moves us beyond the familiar dichotomy between waste and value.

Indeed, this special issue does not principally focus on the classic waste-value register that characterised and often continues to characterise many anthropological approaches to waste. Nor does it adopt the post-human perspective commonplace in the wider sub-field of discard studies that often questions human control of waste. As Gille (2013) has argued in her debate with Hird (2012), the fact that we cannot fully know waste and its effects can very often be used against the communities that make claims about contamination, and thus there are cases when, as academics, it is responsible to highlight relative certainty before doubt. We are not trying to arrive at a definitive characterisation of waste and its effects, but rather to explore the ways that humans make waste-claims that are often primarily discursive, but go on to have drastic material impacts on the human and non-human world. In line with Millar (2018), we are also aware that academics play a dangerous game when we echo reactionary commentators by referring to people as surplus or waste (cf. Baumann 2003), even if we simultaneously voice a critique of injustice. As Alexander and Sanchez observe, 'to call these wasted lives is merely to recapitulate analytically the indistinction that modernity has forced upon them' (2019: 16).

What we advocate here then is not a return to symbolic analyses of waste or a retreat from its materiality, but an anthropology of waste that keeps its hands dirty and which is also able to step back and focus on the performativity of waste discourse and the places where waste both is and is not present depending on different epistemological regimes. Such a gear shift in the study and theorisation of waste is necessary, we argue, because we cannot understand the nature of contemporary waste politics without recognising the myriad ways in which the creation, management and effects of waste are often made to appear as something else entirely. By the same token, certain conditions can be negatively classified as waste in order to legitimise not only the creation of economic value, but also the alteration of semantic fields, so that what it means to live, work, and waste well is fundamentally transformed. We

suggest there can never be a single epistemology of waste, thereby acknowledging the irreducible plurality of discards *and* their studies, whilst also emphasising the importance of understanding the consequences of different epistemological standpoints through close ethnographic attention.

Knowing, Not-Knowing, Unknowing and Ignorance

Studies of ignorance have multiplied recently, although there is also a long tradition in anthropology of engaging with some of these debates through a different lexicon. Here, we sketch out the main directions in the anthropology of ignorance and the broader field of ignorance studies. This provides the groundwork for our final section on how knowledge of wastes is routinely denied, deflected or unmade.

It has been frequently noted that as knowledge appears to gather pace, so too does ignorance (Hobart 2002; Vitebsky 2002). This is a wry comment not so much on the increasing volume or certainty of knowledge but on the concomitant denigration of other claims to know, and other ways of knowing (ibid). Often this refers to a particular kind of knowledge that privileges a technocratic understanding of progress and order, a perspective tethered to the imperial global north but paraded as simple, apolitical, objective truth, as though numerically-based facts and objectivity were not socially produced (Poovey 1998; Daston & Galison 2007).

Within anthropology, there are three distinct engagements with ignorance or not-knowing. The first is arguably as old as the professional discipline itself, and for many is at its heart: the demonstration that peoples, actions and beliefs commonly disparaged as irrational or inferior have as complex and sophisticated epistemologies as any social group; Millar's ethnography described above is precisely this kind of rebuttal. The related move is often to reveal the lack of abstract objectivity in the kind of economistic logic that is premised on perfect knowledge. Anthropologists have long run with the idea of limited knowledge and the logics it engenders (e.g. Evans-Pritchard 1937), more recently highlighting the social relations, ritual, power inequalities and other factors that complicate the idea of objective decision-making in financial markets (Zaloom 2006; Ho 2009; Tett 2009), theoretically the exemplar of calculative logic. But these two moves have a longer history in many different contexts. Thus, early urban anthropologists (Perlman 1976; Suttles 1968) countered accusations of disorderly criminality in slums by revealing complex social order. Murray Last similarly observes in the context of hierarchies of medical knowledge that traditional, unsystematised ways of knowing are typically devalued (1981). We might also place James Scott's (1998) *Seeing Like a State* in this tradition where *techne*, abstract and therefore universalising knowledge, can be damaging in its application if it is not linked to emplaced *metis* – practical, embodied knowledge (see Butt 2020).[2]

The second kind of engagement follows the form of this double encounter. Ilana Gershon and Dhooleka Sarhadi Raj first turned our attention to thinking about how ignorance might be productive, necessary, and desirable (2000). Following this lead, Jonathan Mair *et al.*'s edited collection (2012) focuses on ignorance as an ethnographic object: something to be prized to keep harmful, inhibiting or impossible knowledge

away. Cultivated ignorance in these essays is socially important. The return move, so to speak, appears in Roy Dilley and Thomas Kirsch's edited volume (2015) where equal emphasis is given to the wilful ignorance of individuals, biases in supposedly value-neutral scientific knowledge and finally, colonial regimes that systematically chose to ignore and exclude certain categories of people. The all-seeing eye of panoptic power appears here as the strategically unseeing eye, a mode of purposeful not-knowing. Such intentional exclusion is updated in Barak Kalir and Willem van Schendel's (2017) discussion of the deliberate non-recording of certain people, activities and events by state bureaucracies such that certain categories of people such as refugees and asylum seekers are intentionally omitted from the record, exempting the state from exercising statutory obligations. The effects of non-recognition can be to place such people into a condition of indeterminacy (Alexander & Sanchez 2019). As their title suggests, Judith Bovensiepen and Mathijs Pelkmans' collection (2020) on wilful blindness follows this same line of examining calculated non-knowing, usually on the part of corporate or political powers. We too place our take on non-recognition, unknowing, or not-knowing in this broad genealogy of how and why alternative epistemologies may be disparaged or obviated but we also consider how dominant representations and ways of approaching something may be selective in their point of view and partial in what they reveal and, by the same token, occlude.

The third tradition, places less emphasis on the content of knowledge than the context and performative effect of revelation: to whom, how and why knowledge is revealed or kept hidden. As Fredrik Barth writes of the Baktaman's ritual transmission of secret knowledge, 'the precision of the message can be relatively low but the importance of its illocutionary force is great' (2002: 5). The importance of such revelatory knowledge, very different from either the *techne* or *metis* knowledge forms we are familiar with, is ritually transformative but operates so as to make distinctions between knowing and not-knowing, or ignorance, redundant or at best irrelevant.

The question of knowledge revealed to or kept hidden from anthropologists was also a key part of the 'Dogon debate', in which Walter Van de Beek (1991) critiqued the earlier work of Marcel Griaule on Dogon cosmogony, suggesting that the origin myths set out in Griaule's influential work were not recognised by the Dogon with whom Van Beek later conducted research, and most likely were influenced by colonial power dynamics and Griaule's own interests. Anthropologists and their passions, in this case Griaule's attempt to discover an African cosmology as complex and rich as that of the Greek classics, can thus be seen themselves as contributing to a disciplinary technology of unknowing that shapes understandings of other cultures. If Van Beek is to be believed, the French intelligentsia ended up knowing more about Dogon cosmogony than the Dogon themselves. But could it also be that specialised knowledge was simply withheld from Van Beek? In her critical response, Mary Douglas challenges him as to whether 'he was careful to reach into the appropriate specialised areas of knowledge' since, 'gnostic inner circles of knowledge are protected' in other parts of African and might also be within the Dogon (ibid 161).

There have of course been other social science engagements with unknowing. Kari Marie Norgaard (2006, 2011), for example, has written on how denial or collective avoidance of either past or future events arises as a socially-organised phenomenon. Her interest is climate change, but her broader point might equally well be applied to political or environmental atrocities that are or can be known in the form of abstract 'knowledge' but are unimaginable at an emotional level and impossible to integrate with social norms. Eviatar Zerubavel (2007) extends this to other known but socially unsayable phenomena ranging from what might be called questions of politeness (see Goody 1976) to larger-scale conspiracies of silence (see also Katz 1979), or collective amnesia such as the cataclysmic 1918–19 global Spanish flu pandemic (Johnson & Mueller 2002), until the 2020 Coronavirus pandemic brought it back into view.

Daniel Denicola's philosophical approach is slightly different (2017). In the context of assertions of ignorance as a moral and ideological position, where people assert themselves as 'the common man' and refuse expert knowledge, he discusses wilful ignorance as a contemporary phenomenon alongside the ethics of claiming the right not to know. It was not until 2008 that Robert Proctor and Londa Schiebinger's term 'agnotology' gained traction (Proctor & Schiebinger 2008). Their take, at the intersection of history and STS, centres on the deliberate production of facts and figures, purporting to be objective science, that are intended to deceive. The paradigmatic example here is the 'science' sponsored and promulgated by the tobacco companies (e.g. Proctor 2012) that concealed and manipulated data indicating the link between smoking and cancer.

STS has given rise to a specific sub-field of not knowing within science. For example, Stefan Böschen *et al.* (2006) describe specific practices of non-knowledge that differ significantly between scientific disciplines. They argue that scientific and technical innovations (increase of knowledge) necessarily also increase ignorance about their possible side effects or consequences once applied in the world beyond the laboratory (ibid 294): knowing and not-knowing in such instances are thus co-produced.[3] One might consider here the looming threat of nanowastes generated as a result of nanotechnological innovation. They further distinguish between non-knowledge and ignorance, the former indicating 'the general absence of knowledge, regardless of its further contextual implications' (ibid: 295; see also Croissant 2018), the latter 'the theoretical availability of the knowledge in question' (Böschen *et al.* 2006). Non-knowledge is then divided into three dimensions: the degree to which practitioners are aware of non-knowledge, the temporal extent of non-knowledge (i.e. how far does duration add further elements) and to what extent it is consciously rejected or refused by the scientific community. Whether or not one chooses to deploy a recognised lack of knowledge about something has also been discussed by Matthias Gross (2010: 68), Joanne Gaudet (2013) and Klaus Japp (2000). Peter Unger's (1975) extreme position, that nothing can ever be known, has attracted few followers.

Waste in its broader sense stands at the forefront of debates around knowing, unknowing, and responsibility. Whenever an oil spill occurs, a river is polluted, or a landfill is built, similar issues are raised: up to what point can we know that it is safe or could we have known that it was dangerous? What are the limits of instrumentalised

scientific knowledge often mobilised by private business, and what room is there for community claims, voices, and dissent? What we might draw from the literature on ignorance is that privileged ways of knowing may determine material as being waste or not waste, an isolated phenomenon or a part of everyday material transactions and embodied knowledge. Whether matter is deemed to belong to the realm of the external expert – environmental engineer, chemical engineer, local politician, central government – or to the household, affects how it is conceptualised (waste stream, tons, energy feedstock, calories, carbon), how it can be mobilised, what knowledge claims can be made about it, and indeed who has the right or indeed the interest in knowing what. In the final section we bring our contributions into conversation with other work on disappearing wastes in order to suggest a preliminary taxonomy of techniques of unknowing wastes.

Disappearing Waste: Technologies of Unknowing

Wastes present a curious tension in terms of their management. On the one hand, modern management techniques, particularly in the global north, are premised on technical solutions based on quantification and containment. On the other, wastes, especially pollution, are notoriously amorphous, mobile and not tractable to simple enumeration. A further challenge is that whilst, on the one hand, some types of waste such as plastics are relatively easy to discern at different levels, from the household to the notorious Pacific Gyres, waste is also regularly disappeared from view, via a range of mechanisms that may be obvious or subtle. These include traditional, spatial techniques such as dumping 'out of sight',[4] and new aesthetic innovations of disappearing waste in plain sight, by recategorising it as energy feedstock and transforming its treatment facilities into beautified works of urban architecture or even leisure celebrating 'green energy' (Alexander 2016). In this final section, we suggest an initial taxonomy of the techniques by which wastes are conjured in and out of view, dividing these into those that are principally temporal, spatial, epistemological, calculative, and rhetorical. But first we briefly introduce the topos of each article, before moving on to the techniques of assuming or unknowing wastes explored in these articles.

Our first three contributions remind us that despite waste management's focus on households, we need to look elsewhere for the sectors that create the most toxic and the largest quantities of wastes. Alexander (2020) and Reno's (2020) articles both centre on the range of wastes generated by the military-industrial complex in the course of activities that, amongst other modes of unknowing, are routinely cast as public goods qua national defence. These articles juxtapose the US with Soviet and post-Soviet Kazakhstan, underscoring Cold War military isomorphism in this as in so many other areas. Sara Peña Valderrama's (2020) contribution is concerned with multiple exclusionary imaginaries and practices woven through Madagascar's forests; for some a potential carbon sink, for others a livelihood through slash and burn agriculture; complex temporal politics by turns invoke and obscure wastes in order to create value, for some. This act of opening up a space for legitimate intervention by labelling lives, materials, lands – even political regimes – as waste appears

again in O'Hare's (2020) article set in post-neoliberal Argentina. Here, the emphasis on the trope of 'recovery' both presupposes something or someone that is 'waste' and in need of salvage, and that the act is both possible and indeed desired by those being forcibly recuperated. Waste picking links O'Hare's (2020) article to Butt's (2020) which is set in Lahore and examines incompatible ways of assessing, evaluating and thus valuing municipal wastes: sensory apprehension of different material qualities vis-a-vis the indifference of calculative measurement.

Temporal Displacements

Perhaps the simplest way of making waste disappear is to locate it in the past or future. Containment strategies are sometimes postponements, waiting games for the arrival of appropriate technologies to deal with them. Most such attempts tend to leak into the present (Reno 2019; Gille 2007; O'Hare 2020). Peña Valderrama takes a different tack in discussing how the ways in which Madagascan forests are imagined as 'pure' or 'wasted' affects how and by whom they are used in the present (2016, 2020). She discusses the temporal dialectic between imagined futures of value-generating forests that are predicated on imagining a wasteful present of fallows that needs to be eradicated. As she shows, this requires a double act of unknowing. First the productive labour of the farmers is misrecognised as wasteful and then that 'waste' is transformed to value as carbon credits, but in a quite different kind of value regime, benefiting a very different group of people. In O'Hare's (2020) case, wastefulness is rhetorically banished into a neoliberal past, allowing not only tropes of recovery and productivity in the present and future, but political and economic interventions grounded on those temporal imaginings. Where Kazakhstan has inherited a vast swathe of contaminated land, one strategy is again to locate it in the past, thus separating it from brighter economic futures (Alexander 2020).

In this category we include industrial strategies of planned obsolescence, where a calculated waste future is effectively built into the design of a product. Despite long-held criticism of this technique (Packard 1960), the strategy for maximising continued consumption shows no signs of slowing down in the digital era. Relatedly, Reno's (2020) article also highlights the phenomena of over-designing or over-specifying, whereby so much time is spent testing and refining military hardware that when it is finally released parts of it may already be obsolete, such as hardware that is built to operate with software that has been developed much faster. Obsolescence and its concomitant creation of material waste can thus be built in at the design stage, and occur in an estimated consumer future, or can be a consequence of slow and methodical design, where redundancy is not deliberately planned as such but is an inevitable outcome.

Spatalities

We need to distinguish between (at least) four kinds of spatiality in the context of disappearing wastes, all of which are regularly invoked and frequently merged. The first is geographical in the sense that one place may declare itself free of waste and gain political

credit for cleaning up by the simple expedient of shipping it elsewhere, Naples is the paradigmatic case here (D'Alisa *et al.* 2010). That 'elsewhere' is often, though not always, a poorer region where contamination from waste processing and storage may settle (Garcier 2012). Inversely, taking industry and jobs from A to B, as in processes of globalisation and deindustrialisation, wastes infrastructure, labour, and expertise at A, wastes that are often masked in discourses of efficiency and restructuring. A second kind of spatiality might most simply be called 'levels' which is where political and economic borders are imagined hierarchically: from local to national to global. The trick here is to hold these different levels in tension, seeing them as simultaneous and interacting – not as alternatives. The third, scale, while not technically a spatial concern, is often misleadingly treated as such. 'Scale' may align with level but is more productively seen as a perspective or a category (Helmreich 2009), where one view or category typically displaces others. It is such forms of scalar slippage that interest us here and which play out in Peña Valderrama's article as carbon is variously imagined as, for example, an abstract global quantum or embedded in trees.

As a further example, the popular image of the closed loop or circular economy, suggests that wastes can be simply eradicated, as all matter and energy are infinitely recoverable and smoothly transformable into resource inputs for another part of an endless production cycle. Such images smooth over uneven geographies of extraction, consumption and waste processing (see Alexander 2016). Arguably, the emphasis on such perfect closed-loop sustainability is also profoundly unethical. Even suggesting that such a thing is possible removes any impulse to reduce consumption or waste generation since both are neatly recast as potential 'resource'. Arguments for a circular economy or closed loop waste processing are premised on flattening out scales, and framing the images such that leaks, disconnections, and uneven geographies are outside the frame. Perhaps a recognition that there will always be wastes that we will never know how to transmute into something harmless or positive is the first step to a collective responsibility towards resource extraction and consumption. Acknowledgement of ignorance can thus be recast as an ethical stance.

The fourth spatial technology of unknowing we discuss is separation, as exemplified in Noélie Vialles' (1994) brilliant excavation of how the routine slaughter of animals for human consumption is made palatable socially and morally, as well as gastronomically. She describes a series of avoidance techniques that first place abattoirs out of sight at urban edges and then introduce discrete steps within the process of killing and butchering (Vialles 1994). The effect is not only to separate the consumer from the bloody violence that precedes a fine steak but also to disconnect elements of the labour process for those involved in it. Town planning, architecture, cultural rituals, separation of assembly-line style interventions are choreographed to make mass killing not only possible but routine. Her approach is instructive in highlighting how taboo or sensitive labour is incorporated into industrialised societies. While it may be stretching a point to see abattoirs as a site of wasting, they certainly fulfil the same kind of role as waste management sites which are typically placed out of sight on the edges of conurbations.

These insights into how the separation or fragmentation of processes operates are echoed at a global scale in Josh Lepawsky's study of how e-waste is both produced

and represented across the world (2018). He shows that the prevalent emphasis on separation when thinking about recycling overshadows the reconnection, reassembly, and what he calls the reworlding of waste. Separation can mean that the object under scrutiny changes form between one process and the next. Connections are lost as is a scalar perspective, such as that provided by Lepawsky, which allows a single complex process to be described.

One more significant mode of separation appears here: knowledge of politically-sensitive Soviet scientific programmes was partitioned so that, other than the most senior directors, each participant knew only their most immediate task (Alexander 2020). This kind of deliberate technique of unknowing draws on both spatial separation and epistemological modes of disabling knowledge. Elsewhere, incomplete or inadequately-integrated knowledge can easily result in design failures with concomitant wastes of money, material and effort as John Law anatomises in his account of a British aircraft design project that was unable to reconcile the complex heterogeneity of such objects (2002).

Epistemological Modes: Secrecy and Denial

The deliberate withholding of knowledge about toxic and others wastes and pollution is all too familiar within the military-industrial complex, as magnificently dissected in Ellen Spears' account of the long-term suppression of information about toxic pollutants from the military and Monsanto in Alabama (2014). Secrecy, in such cases, is regularly justified as a means of ensuring public safety, and thus aligned with the national interest and public good. Both Reno's (2020) and Alexander's (2020) contributions are concerned with military wastes which are hidden because of, or weighed up against, an assumed greater good. In a Cold War context, Alexander (2020) details the multiple ways used to deflect knowledge away from nuclear installations in the US and the Soviet Union. This speaks to studies of scientific knowledge that have been censored for being too controversial or politically sensitive (Kempner *et al.* 2011). Such instances bring together everyday taboos that are skirted around to allow social interactions and political regimes of secrecy. In Reno's (2020) article engineers find ways of narrating their actions and the possible consequences of what they are doing to other people and themselves. At certain points (as indicated by the 'Dogon debate' above) it can become hard to distinguish between mandated secrecy, a habitus of silence and what some authors have framed rather as psychological dissociation.

Physical and organisational separation is echoed in such dissociation and other techniques that instantiate distance from waste and contamination. In her analysis of nuclear workers at France's La Hague nuclear complex, Françoise Zonabend takes a psychosocial approach to answering the question of how people can work not just in potentially dangerous conditions, but where contamination is invisible (1993). Anticipating Norgaard and Zerubavel's work above, Zonabend portrays a collective denial, a refusal to speak about or acknowledge the likelihood of harm, alongside coded speech acts that allow the expression of anxiety. This apparent dissociation from harm is somewhat undermined by apotropaic rituals during the working day, which suggest a profound fear and awareness of harm. Similarly, in a North American setting, Hugh

Gusterson shows how nuclear workers both highly and low skilled, rationalise the work of developing weapons through moral-political discourses of Christian nationhood as well as the dark humour and ritualised secrecy that characterises sensitive work (1996). His concern is complemented by Reno's (2020) approach that explores how the inevitable and vast wastes that are routinely generated by the American defence industry are folded into mundane operational work and are displaced in the engineers' own discourse by the technical, abstract challenge of their work.

Calculative Measurement: Boundaries, Units, Scale

The act of measurement, as a way of making something known, is heavily freighted morally, economically, technically, politically and socially. It carries the weight of an objective technique that both presupposes *and* produces an object. The multiple choices that are made in both these acts tend to be disappeared into numerical representations.[5] As Mary Poovey describes (1998), it is only relatively recently that we have come to accept numbers so readily as abstract facts, outside social conditions of production. Further, such apparent objectivity carries weight in one moral schema because it appears to be outside social relations and therefore non-partisan, which presents a series of problematic assumptions. However, uncritical take-up of dubious, uncontextualized numerical data and analyses can exacerbate or even create huge social problems (Farlow 2008; Rottenburg *et al* 2015). In the case of wastes, figures for the global production and movement of wastes are invariably incomplete and of variable accuracy (Alexander & Reno 2012). We thus need to consider both whether objectivity is possible then whether it is the only way of seeing.

First, however, there has to be a thing to which the techniques of measurement can be applied, although wastes and pollution are notoriously wayward, prone to seeping through soil, tracking along aquifers, or dispersing through air. Once the waste object of knowledge is evoked, the second step of defining through measurement involves bounding it, which implies an act of framing or separation. Immediately, the politics of identifying what is to be measured become apparent, since framing means exclusion as much as inclusion. As Spears describes (2014), part of the battle by local residents against Monsanto's polluting activities was over the territorial and riverine extent for which the company could be held responsible. As Alexander (2020) describes, a geometrical abstraction of geographical extent also serves to delimit liability (see also Alexander 2004 on defining property objects). Thus, the very object that is wasted or contaminated can become an essentially contested terrain. Just as, in some cases, knowing and unknowing are simultaneously co-produced, so selecting units of measurement and assessment serves to make something known (from one perspective) and unknown in the same act.

Perhaps the most striking example of how framing a process or object can radically alter how it is perceived are debates over whether nuclear fission energy is the most sustainable, greenest form of energy we can hope for or a high-risk, environmentally-damaging option. Proponents of the former typically emphasise that nuclear-generated energy is low-carbon and that used fuel can be re-enriched creating a virtuous fuel cycle.

Critics extend the frame to include sunk energy costs in colossal constructions, contaminating wastes of uranium tailings, and the export of depleted fuel for re-enrichment to places where wastes are created and settle in uneven geographies of pollution sinks (Garcier 2012; Samuli *et al.* 2017).

Geometric definitions of bounded objects can intersect with scale and the unit of measurement by which the object of waste is to be assessed. Thus carbon sink programmes, such as that described by Peña Valderrama (2020), which focus on carbon as a global quantum, disentangle carbon from its physical manifestations (e.g. trees) and local social relations, thereby erasing uneven geographies and the sociality in which carbon molecules are necessarily embedded. Similarly, in her article on the efflorescence of waste-to-energy plants in Britain, Alexander describes what happens when matter is qualified as so many calories or so much weight rather than waste matter collected in one location (2016). This serves simultaneously to 'disappear' waste and to make it essential: a feedstock for 'green energy' plants. A focus on the scale of the household and individual consumer also obfuscates the much larger quantities of waste that are produced by industrial, mining, construction, and other sectors.

Finally, privileging forms of measurement and calculation eclipses other ways of knowing wastes such as those described by Butt (2020) and O'Hare (2020) and which may serve to unlock different kinds of value and material trajectories. One privileges quantity, the other quality. The irony here is that by presupposing the object to be quantified is waste, or wasteful, the calculative exercise is merely confirmatory of that character. A more open acknowledgement of different kinds of material characteristics and different methods of evaluation that attend to qualities, might help sidestep certain wasting processes.

Rhetorical Invocation

Finally, and often linked to the above technologies, we find rhetorical invocations and circumlocutions as a technology of unknowing wastes. A key example is how waste is increasingly renamed as a 'sustainable resource'. This is often justified using a combination of measuring and temporal tropes, such as when wastes are measured according to calorific value, as opposed to their public health implications, their potential for re-use, the energy actually expended in their production and so on. Temporally, such a move is also often coupled with the assertion that we have arrived in a techno-future whereby technological advance has rendered previous waste-claims unsustainable or passé. Granted, the transformation of waste into resource is more than a discursive ploy: new technologies of capture and transformation can re-introduce previously discarded substances into the productive economy (from methane, to Tetra-Pak). Yet when generalised to all waste, such celebratory rhetoric, as well as often disguising private interests in the name of the public good, does nothing to stop the production and consumption of often absurd quantities of materials, and can lead to technological lock-in, whereby increasing amounts of surplus materials need to be produced as feedstock for waste-to-energy plants or to satisfy contracts predicated on processing a given

amount of waste, as discussed above. To the displacement of waste by an emphasis on 'resource', we can add a similar supplanting of waste creation by the powerful summoning of national or even planetary public goods, whereby wastes either vanish or become a necessary evil for a greater good: national sacrifice zones are one such example. One of the effects of this, and indeed the other technologies of (un)knowing that we have discussed here is the depoliticisation of waste, where it is situated in the realms of technical management, or beyond the limits of reasoned debate.

Alongside renaming 'waste' as 'resource' can be placed the related though contrasting move of renaming activities and territories as waste in order to legitimate a political or economic intervention aimed at eradicating or unknowing them (see Gidwani and Reddy 2011; Goldstein 2013; O'Hare 2020; Peña Valderrama 2020). The performative effect of this is not so much to disappear or hide waste, but to conceal behind the denigrating label of waste what are often a rich array of ecological, social and productive relations and activities prized according to different registers of value. To be 'rubbished', we might add, is to be placed in a position from which claims to truth are not taken seriously. Again, the rhetorical invocation of waste in such situations often dovetails with techniques of measurement that are unable to capture or register pre-existing forms of value.

Taken together the articles in this special issue are therefore attentive not only to the multiple ways in which wastes are made to appear and disappear, but to the material, social and economic consequences of these different strategies and what our own disciplinary approaches to wastes may occlude as well as reveal. Anatomising some of the many ways in which people, land, matter and events are made to appear as other than they are can remediate both analytically and ethnographically such occlusion, beyond a rhetoric of redemption.

Notes

1. Although many continue to note that 'waste' can be a relative category, informed by context; an observation directly informed by Douglas.
2. See also Ariane Berthoin Antal's aim, from a theory of art background, to make ignorance productive through engaging multiple senses with epistemological projects (2013).
3. Perhaps the nicest meta-example of this sense that knowledge and ignorance are co-produced is the 19th-century Scottish philosopher's James Ferrier's idealist metaphysics (1854), in the course of which he coined two terms: 'epistemology' and 'agniology'. The latter, despite being the most original part of his discussion (Keefe 2007: 298), failed to survive and is now itself pretty much unknown. For Ferrier, the inability to know the thing-in-itself pointed to an idealist philosophy; thus the inescapable limit to knowledge underscored what could be known and how.
4. This can range from the notorious illegally-buried toxic waste, to landfills and incinerators typically located on urban edges or nearer poorer areas to shipping wastes out for other places to deal with.
5. The tensions between abstract, disembedded numerical facts and the social relations of which they are part are apparent in two key words. Thus 'calculative' carries two apparently divergent meanings: cunning planning to determine a particular outcome, weighing up options and a disinterested, rational intervention. 'Accountable' similarly carries a double sense of something that can be counted and placed in a balance sheet – and moral liability.

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