waste matter

Potatoes, Thing-Power and Biosociality

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There is an extreme version of environmentalism that declares there should be no such things as waste. In an ideal, ecologically sustainable world nothing is wasted and biological processes of decay are nothing more than a necessary step in the cycle of renewal and regeneration. Compare that to another, much more common, social imaginary of waste: mountains of obsolete computers in landfill, an ocean streaked with sewage, diatribes against first-world affluenza. A world without waste, a world drowning in waste, both these visions are strangely dissatisfying. Not because of the limits of utopian–dystopian oppositions but because both fail to take notice of waste *as matter*. Both enact a perceptual blindness to the materiality of waste.

The problem with not seeing waste as matter is that cultural frames, from moralism to green ideology, reduce it to an effect of human action and manipulation. If waste is 'socially constructed', if it is merely a product of human action and classification then its easy to imagine a future where new ecological practices render it redundant. It's also easy to use waste to reveal the logic or illogic of a culture, to diagnose the social through the textualisation of garbage. But in the demand to show how waste is just an effect of cultural practices—from environmental ethics to consumer capitalism—the active connections between humans and wasted material in which *both* are produced are hard to see. The action seems to flow all one way. Waste is reduced to a product of historically variable human practices. It becomes a slave to the vagaries of desire, and its 'material recalcitrance', to use Jane Bennett's term, is denied.[1]

Yet surely what worries us most about waste *is* its material recalcitrance, its lingering presence, its capacity to suddenly capture our attention and unsettle us with its biological

or thing-power. The smell of the composting toilet, the broken TV on the footpath … in these moments when waste surprises us it is making a claim on us, inviting us to pay attention. What possibilities might surface in this unexpected attentiveness to waste's materiality? What could these encounters with waste as matter mean for how we experience the distinctions between human and non-human or useful and useless or dead and alive? And how might these encounters suggest different ways of living with waste, different material practices? These are the questions that drive this paper and to pursue them the issue of materiality needs more investigation.

For Bennett 'material recalcitrance' refers to the force or vitality of things that resists or exists beyond their imbrication with human subjectivity. This is matter, organic or inorganic, human or non-human, as an agent in its own right, as possessed of its own beingness or thingness, its own life and status. To think about waste in terms of materiality is to enter into an alternate 'onto-story' of the world around us in which living creatures do not monopolise motility and actancy, but participate in wider configurations of matter and energy—in networks of animate things.[2] In this post-Newtonian view of the physical world, where endless matter-flows produce life, and difference-in-life, things—the non-human, the inorganic, the artificial—have an ontological capacity. They are not reducible to objects. Things resist human control and understanding, and can affect, speak to and alter us.

At the same time, things are not simply external to humans. Their effects operate from within already-there relations as 'the us and the it slipslide into each other'.[3] As much as things reveal qualities of humanness, humans share aspects of non-humanness: thinghood and personhood constantly overlap. For Bennett, the power of things lies in this interactivity of diverse matter-forms. A 'material body', she writes, 'always resides within some assemblage or other, and its thing-power is a function of that grouping'.[4] Coming into relation with other materialities, the thing—the broken armchair, for example, or the used and thrown-out tyre—sits within a network of natureculture, superseding its limitation to cultural sign or environmental interloper.

Like Bennett, Paul Rabinow is also interested in rescuing things from cultural and natural determinism. He too wants to scramble up modernity's boundaries and rethink how we understand the biological, as well as the inorganic, body. Moreover, Rabinow locates ontology beyond human life, beyond nature: in his view, matter *itself* is capable of generation, of doing and making, and in the vein of Bennett's thing-power, Rabinow asserts the status of the artificial. No longer, he argues, can we privilege natural or organic matter over the unnatural or inorganic. Both 'sides' are caught up and implicated in the other, and each form of being is an active node in the shifting 'constellations' that make up our world. Nature is constituted by the interventions of culture, while culture is also biology—a state of affairs that Rabinow terms 'biosociality'.[5]

In this paper we want to examine the material recalcitrance of waste using Bennett's argument about thing-power and Rabinow's biosociality. Our aim is to think about waste from a materialist perspective, not as evidence of 'material culture'—though it quite obviously is—but in terms of a denser recognition of the power and agency of *waste as matter*. In exploring the web of connections between humans and wasted things our interest is in how new actions and ethics around waste might emerge. We explore two distinct examples of wasted matter to offer this alternate 'onto-story' of things and our relations with them: the refuse of potato agribusiness documented in Agnès Varda's film *The Gleaners and I* (2001) and outbreaks of potato blight—the virus that plagued nineteenth-century Ireland—and that is still a problem for the industry today. These are two different stories of potatoes as waste matter: How do potatoes as rejected commodities and potatoes stricken with viral decay challenge our understandings of materiality and waste? What kinds of assemblages do these potatoes create and how do these complex networks reveal the animate force of wasted matter that cannot be reduced to an effect of cultural frames?

— Blighted potatoes

The Great Irish Famine (1845–1849) is surely the most famous instance of 'wasted' potatoes. During these particularly severe years of crop failure in Ireland, potatoes turned to mush overnight in their fields and huge numbers of people died of starvation or were displaced. Ironically, the scale of the potato famine can be attributed, in part, to the contemporary revolution in industrial and agricultural practices that enabled greater efficiencies in and larger scales of food production. The modernisation of Ireland, along with other western countries, brought with it a compression of time and space that, for workers, meant an increased need to cope with greater workloads in reduced circumstances. 'People needed a way to cope with everyday problems', potato historian Larry Zuckerman writes, 'and the potato provided one. It stretched the household budget, the food supply, and that most precious commodity, time.'[6]

The widespread reliance on the potato during this period made sense both economically and culturally. Within the context of social change, this vegetable, on the threshold of the modern food industries, stood for the ideal of an industrialised, efficient and enlightened future.[7] Potato blight therefore resided in the shadows of this ideal: it was the state away from which enlightenment strived, a pre-modern mess of ruin, wastage and social degradation. When famine struck Ireland in the 1840s, germ theory had yet to take hold in the medical imaginary. Instead, infection and disease were linked to moral, social and biological degeneracy or weakness in a host organism. The association of perversity with the mutable and unpredictable is evident here: while those at the bottom of the social ladder could be aligned

with degeneracy in the dominant cultural logic of the time, the relative 'caprice' of the disease—'despoiling one corner of a field while sparing another, or destroying all' apparently at will—seemed even more evidence of the need to overcome nature's innate irrationality with the logic and industry of culture.[8]

Yet for others, the scourge of potato blight expressed the degraded nature of the potato itself. As Zuckerman explains, anxieties about the social change heralded by the take-up of the potato as a food staple among Irish workers caused many to name unwelcome social and economic transformation as the morally compromising force that the vegetable embodied.[9] For these people, the blight graphically illustrated the 'fall' of the human condition in the modern world, and—much like the environmental campaigns of today that juxtapose an untouched 'wilderness' with a rubbished urban landscape—spoke, like a mirror to the soul, of the bad side of capitalist culture.[10] Waste stood for what the human condition could sink to, and we can locate in the interdictions attached to waste in our society at present, a related desire to redeem ourselves and our world: 'don't litter', 'reduce, reuse, recycle', 'save the earth'.

Waste is, without doubt, an ultimate other in this paradigm, eliciting a kind of despair, and a mourning for purity and order in a fouled-up world. It is also an example of what Rabinow refers to as 'socio-biology' at work where the biological, or material, is made to stand for, or speak of, the social condition.[11] Socio-biology, Rabinow argues, reads biology as a 'social project', rather than a force of material agency in itself.[12] It limits the meanings of non-human nature to human culture, and offers, as we have historically seen in accounts of potato blight, nature as justification for social and political intent. The virus as loss and human death, the virus as evidence of society's moral failings, the virus as indicative of human vulnerability; this same litany of metaphors is still familiar in the discourse that surrounds today's leading viral 'threats'. Avian influenza, or 'bird flu'; Ebola; the biological weapons of 'bio-terror' and the increased 'viral-traffic' of a globalised world—these are the latest heralds of the potential of biological waste.[13] As virus writer Heather Schell comments,

> Our current fascination with viruses springs from our worries about the future. Ultimately, the metaphor of the virus represents our possible fates—the disintegration of self or of nation; Armageddon; the triumph of multiculturalism and the global community; the ecosystems' anger at and vengeance for our meddling … or the escape of the unknown into our society, where everything familiar will be destroyed in its path.[14]

From a viral perspective, the human body becomes 'oceanic', rather than atomistic, and indistinguishable at a molecular level from other animals. 'We perceive ourselves as predators, not prey', writes Schell. However, 'viruses do not respect our categories'.[15] This

fear of dissolution, so aptly conveyed in the biological image of the foreign microbe penetrating the body's boundaries, and messing up, even obliterating, its ordered physical systems, is one that, for the most part, our modern obsession with technologies of waste removal and disappearance—from the sewer to the insinkerator, and the whole ethos of disposability—cannot assuage.

Yet our fight against waste continues unabated. Today, while the potato blight is no longer the spectre it once was, it continues to be a significant economic problem for most potato growing regions in the world.[16] Genetic engineering promises to intervene in the serial wastage of blight-stricken potatoes: plant pathologists in the USA recently identified a genome present in a wild Mexican potato that successfully blocks the fungal pathogen that causes potato blight.[17] Enabling capital-friendly commodities tailored to market demands, GM foods promise to streamline productivity even more than systems of agribusiness currently enable: potentially, no genetically modified potatoes would ever be biologically, and thus economically, wasted.

— Biosociality and molecular agency

In opposition to socio-biology and its inability to comprehend the force of biological matter, Rabinow argues that 'biosociality' is the hallmark of our times: it is the new face of modernity. Biosociality—as a discursive term—conveys the material, as well as conceptual, organisation of the social in terms of the biological. It is where the very frames of culture produce biological matter in certain ways*, and* where matter itself impacts on the cultural and the human, as an organising, agential force. The biosocial references the mutual interaction and inter-influence of human life and in/organic, non-human matter *ontologically*. Human beings, Rabinow argues, are now continually 'worked on', both culturally (think of the emphasis in our society on self-help therapies) *and* biologically, in conjunction with 'nature [that is] modelled on culture'.[18] As Rabinow says, 'Nature will be known and remade through technique and will finally become artificial, just as culture becomes natural'.[19]

Rabinow cites DNA, and our society's increasing ability to map and modify genetic structures, as evidence of biosocial process: biological and scientific in nature and execution, and a catalyst of fundamental change in the social. In the future, Rabinow predicts (and the beginnings of this are already evident) our genetic 'sequence maps' will form the basis of our social selves, our social relations and our feelings of belonging, as new groupings, practices and identities emerge out of these knowledges. He writes:

> There will be, for example, neurofibromatosis groups who will meet to share their experiences, lobby for their disease, educate their children … and so on … There will be groups formed around the chromosome 17, locus 16,256, site 654,376 allele variant with a guanine

> substitution. These groups will have medical specialists, laboratories, narratives, traditions and a heavy panoply of pastoral keepers to help them experience, share, intervene in and 'understand' their fate.[20]

Our new genetic insights, he concludes, 'have already begun to modify labour practices and life processes'.[21]

This exemplifies the 'becoming' inherent in biosociality—an ontological motility belonging to all material forms, whether human or non-human. In the case of DNA-in-culture that Rabinow puts forward, genetic information enters into the process of being 'us', culturally, biologically, ontologically. His discussion of the Human Genome Project's ambition to produce a 'map' of our DNA, and the possibilities for genetic modifications stemming from this knowledge, is couched in an awareness of modernity's hand in the biosocial: the desire to map so as to alter, and the ambitions driving much commercial GM work, are essentially empirical and economic. As with the development of the blight-resistant potato, the motivations for the new 'redefinition and eventual operationalisation of nature' appear embedded in the pursuit of greater efficiency and functionality.[22] And yet, while the GM commodity is ideally a rationalist form, its actual affectiveness—or agency as a thing—remains active. As this paper will explain, the potatoes that Varda encounters on the scrapheap of agribusiness are able to transcend their life as useless commodity to become presences of sensuous and affective matter. Even as we manipulate and alter non-human biological matter, it, in return, is shaping us.

For Rabinow, DNA molecules themselves articulate this cohabitation of order/structure and endless mutability. He borrows from Deleuze's notion of '*fini-illimité*' to express the 'infinite-finite' nature of human life. DNA is constituted from four bases alone—signified as G, A, T and C. Out of these bases, 'an infinity of human beings can and has arisen'.[23] Despite the quantified measure of a limited foundational base, the possibilities inherent in DNA resist a complete and final mapping of the human subject and its organic world. Ontological processes are open-ended within the physical forms of matter, and depend fundamentally on combination and context: matter and environment. Thus, the key factor in biosociality is relationality. It captures the ecological entwining that is at the heart of beingness, or thingness.

Like the assemblages of matter that, for Bennett, we are always caught up within, Rabinow's biosocial productions refuse atomism. They disable the possibility of certain material presences—such as waste—being excluded from ecological belonging *and* impact. Humans and non-humans, beings and things—all these entities become in proximity to each other, profoundly informed by the processes of encounter and temporal engagement in and with milieux, that, like the ontological, run on *ad infinitum*. The argument of socio-biology that, for example, 'genetic manipulation makes genes into agents of social control—a familiar

opinion today—conceptually extracts DNA from a field of matter-forms that produce human and non-human life.[24] It contains it, reifies it, and denies the molecular agency of the matter that is altered, and consequently its ecological actancy. As Donna Haraway writes, 'a gene is a knot in a field of relatedness': 'these molecules—the DNA molecules—are never working in isolation. They are always working in interaction with other cell structures … [other] cellular histories'.[25]

It is this relatedness, and the material entanglements that generate, rather than close off, ontological and biological processes, that the virus so strongly articulates. Infection itself is a sign of relation.[26] In the case of blight, where spores develop on the leaves of the potato plants and pass rapidly through the crop—being washed into the soil or blown on the wind—the potato-matter 'must have an "intimacy"' with the virus 'in order to get sick … There is no infection if they don't recognise each other … Disease is a relationship'.[27] As one matter-form (a 'micro-alien', as Bennett puts it) entering into an other, the virus enacts the crossing of material difference, a splicing of two biological forms into one new one: the infected organism.[28] While rationalist discourse would perceive this encounter in terms of linear process—the body/matter pierced, infection, decay, death/loss—the 'onto-story' that this paper pursues recognises the bringing into being (sometimes amidst decay and death) that molecular crossings generate.[29]

Outside its social frames, the blight-ridden potato is a new matter-form in process. It is a 'metamorphing' cluster of molecules, not potato, not virus, but something else, something that 'carries with it the trace of dangerous but also exciting and exhilarating migrations', 'enact[ing] the very possibility of change'.[30] A biosocial view of the virus leads us to a world of 'multispecied residents' and 'morphing transits'—'primate toward other primate, terrestrial toward solar, silicon towards carbon, living toward dead'.[31] These are the combinations of nature and culture, natural and artificial, that biological life and technoscientific culture generate in tandem. Looking at our human relationship with potato blight, we can track biosocial becomings. The widespread reshaping of the social, cultural and political in Ireland as a consequence of the disastrous famine, and flowing out from this, the immediate impact and continuing effects of the global Irish diaspora that the blight produced, is now answered in our genetic modifications of potato-matter, with its changed relations to viral infection and its 'natural' counterpart. As the potato becomes artificial, its ontological agency does not disappear but is merely transformed.

— Gleaning potatoes

In moving now to a story about dumped potatoes and those who live off them, waste matter is constituted not by biological disaster but by commodity excess.[32] In Varda's film *The Gleaners and I* potatoes are rejected not because they are diseased but because they do not

fit the requirements of the market. Their recalcitrant materiality—too big, too small, too misshapen—renders them unsuitable for sale and so they are dumped by the sides of fields. Piles and piles of potatoes vulnerable to rapid decay: What forces might make us notice this waste and imagine new uses for it? The hunger and marginality of scavengers and gleaners *or* the vitality of matter? Both, according to Varda—and this is the great power of her film.

In *The Gleaners and I* Varda creates an extraordinary visual essay on wasted and used things and their material and ethical force. The film is more than just a story of those living on the margins of excess and affluence; it's also a story of things and their capacity for constant reclassification. Varda's achievement is to open up the question of materiality and person–thing relations in such a way that we are able to see the complexities of a different and radical ethics of waste at work. She does this *not* through moral lesson but through a cinematic technique that celebrates the camera's capacity to glean and the filmmaker's capacity to play with images and stories, to digress, to reflect. Varda calls this '*cinecriture*', a kind of 'filmic writing'.[33] The effect is a series of speculations on the materiality of waste that is moving and unsettling rather than dogmatic and hectoring. Watching this film we are not being instructed to reform our practices or pity those who live off waste. Rather, we are invited to experience a kind of intimacy and enchantment with the sensuousness and vitality of rubbish as things and to witness moments of conversion where new use values are found for waste.

The pertinence of *The Gleaners and I* for thinking about a waste as matter lies in the way this film documents how people become responsive to waste and open to its possibilities. Through interviews and conversations Varda gives us remarkable access to the various ethico-political justifications people have for gleaning. By inviting people to talk about how they glean, where they do it and why, we are able to see the different kinds of recognition people have for waste; what makes them notice it and what makes them imagine new relations with it. This is not just about the discovery of new uses for discarded things: it is also about how the creation of use values can be infused with ethical impulses. Gleaning becomes a way of translating a moral unease about excess or an ethic of self-sufficiency and survival into a specific set of material practices and habits. It also becomes a way of staying alive. Desperate need is the most compelling motivation for gleaning and Varda explores it in depth. Consider the potato sequence.

In this sequence we see a diversity of human framings of the potato: as commercial crop, as dumped mortifying matter, as gleanable food source, as toy, as beautiful sensuous thing; all these potatoes, all these different relationships with them. Initially, Varda explores the economic framing of the potato as crop, as something to be sold or gleaned. The emphasis is on how diverse human actions manipulate and subordinate the potato to various systems of exchange. For the farmer the potato is a source of profit; for the gleaner it's a free source of food or something to barter with. Various talking heads tell a story about commodity

cultures and the dynamics of different regimes of value. The effect isn't ethnographic—Varda avoids exoticising gleaners with an insistent focus on contexts and relations. The film shows how objects mediate social relations, how human interests shape different forms of appropriation: making money, surviving on social security. We could think of this as a kind of cinematic biography of the potato, an account of their career as material exchangeable objects —and an account of the different status they confer on people.

But then there is a moment when this logic is disrupted. When Varda suddenly notices the thingness of the potato, when she is struck by its material self-evidence. She's filming a man sorting through a big pile of dumped potatoes. As he discusses their remarkable shapes he encounters a heart-shaped one. Varda is surprised and delighted. She reaches out for it struck by its phenomenology; the potato has captured her. She attempts an awkward close up, holding the potato in one hand, her digicam in the other. She then starts scrabbling through the pile looking for more. Cut to a table in Varda's apartment covered in heart-shaped potatoes.

What is going on in this shift from a cultural biography of potatoes as commodities to a startling cinematic rendering of potatoes as an agential, material presence? One minute we're hearing people talk about what they *do* with potatoes, the next we're gazing at a pile of potatoes on a table feeling like we could reach into the screen and pick them up. The way the camera explores them in closeup, moving sensuously over their surface, tracing the blotches on their skin is extraordinarily tactile, we see the materiality of the potato come into play—we don't just see the potatoes, we *feel* their dirt and bumps, they seem alive and vital and provocative.

Is this an effect of the representational techniques of cinema, the camera capturing the world, or has the material force of the thing captured the camera? But in *The Gleaners* the issue isn't so much about cinematic techniques and referentiality, it is about witnessing objects becoming things and the ethical implications of this. The power of the heart-shaped potato lies in the way Varda captures her pleasure in being surprised by the vitality of matter, her pleasure in suddenly being claimed by the recalcitrance of waste. Her chance encounter with a potato produces a response that is suffused with delight in the self-evidence, or the 'suchness', of the phenomenon. Suddenly the potato isn't waste, it isn't a discarded object on the edge of decay, it isn't a testament to the excesses of agribusiness; it is a sensuous, wondrous thing. It's what's left over after all those frames of recognition drop away.

This is surely a case of what Bill Brown describes as 'objects asserting themselves as things'.[34] According to Brown, we glimpse thingness in irregularities of exchange, in moments when objects stop working for us, or when we are not quite sure how to identify: all situations that could easily describe waste. These experiences involve an encounter with the anterior physicality of the world, with the sensuous presence that exceeds the materialisation and utilisation of objects. And in these chance interruptions, these occasions of contingency, as Brown calls them, different relations surface: 'the story of objects asserting themselves as things,

then, is the story of a changed relation to the human subject and thus the story of how the thing really names less an object than a particular subject-object relation'.[35]

This approach resonates with Bennett's account of 'thing-power'. Like Bennett, Brown shifts the focus from material culture's anthropological inflections to phenomenology and philosophy. Brown is less concerned with the social life of objects than with how things become 'recognizable, representable and exchangeable to begin with', with the *mutual constitution* of human subject and inanimate object.[36] This is where the ethical force of the thing lies, in its ability to provoke and incite, to pose questions to us, and to enter into the processual realisation of our subjectivity. We are, in a sense, made up of things. What the concepts of thing-power and biosociality illuminate, however, is that this is not the natural garnering thinghood *because of* the cultural, or vice versa. Rather, the cultural and the natural are intimately related. Bruno Latour points to our cultural predisposition to see the scientific and the technological in terms of object rather than thing, and that strips the industrial product—the mass produced potato, or the modified gene—of its own internal dynamics: a dynamics produced by crossings and 'gatherings' of natureculture.[37]

It is precisely this sense of human/potato imbrication, and the ethical questions that this prompts, that Varda captures in the heart-shaped potato scene. In this scene Varda digresses from the role of gleaner of facts and she takes a detour from the journalistic documentation of waste practices. The heart-shaped potato draws her and the audience into another relation. As she searches for more potatoes she pushes the camera closer and closer until we see the close-up pan over the potatoes on the table. It's impossible not to become caught up in the affect of this scene. The links between the visual and the tactile are striking. We are looking at and touching the potatoes; we are perceiving their *texture*. And it's through this imbrication of touch and vision that we experience Varda's sensuous enchantment with the thing. Texture makes trouble for any notion of a disembodied spectator, it foregrounds the ways in which looking and feeling are interconnected. As Eve Sedgwick says in *Touching Feeling*, a 'particular intimacy seems to subsist between textures and emotions', touching and feeling go together, 'touching' doesn't just mean cutaneous contact, it means being affected, being altered by feelings.[38]

Of course it's not just the phenomenological resonances of this scene that re-order our relations with waste, it is also the question of affect. When we encounter waste as things, the affective energy that can accompany this, the sense of wonder or horror, can be the impulse for new relations: a motivation for a different ethics, a sudden inspiration for a new use. In Varda's case the heart-shaped potato triggers a metonymic play from the shape of the heart to charity to those working with the poor and marginalised. The film shifts registers back into documentary mode and we watch a man discussing how he gleans potatoes to serve in a soup kitchen for the hungry. He talks quietly about being unemployed and wanting to

do something useful with his time and about the outrage of good food being dumped while people starve. It's a lovely evocation of a moral framework and motivation that is underlaid with the earlier scene of the beautiful heart-shaped potatoes.

To confront the reuse of dumped potatoes as an ethical imperative reverberates with all the associations of them—from harbinger of disaster to mass-produced crop—as remarkable physical things. That humble vegetable has got all sorts of holds on us, it can propel us towards acts of generosity and care, entrance us with its beauty and feel. By exploring the multiplicity of ways in which we are mixed up with potatoes: as commodity, as gift, as things, Varda offers us another way of understanding waste. Waste makes claims on us. Reducing waste is not simply a matter of the moral reform of the human; it is also about acknowledging that waste has a kind of agency, that it shares in some of the agency we ascribe only to ourselves.[39]

'What would happen', Latour wonders, 'if we tried to talk about the object of science and technology … as if it had the rich and complicated qualities of the *thing*?'[40] What does it mean to recognise our lives as material processes that are cultural as much as natural?[41] And what are the possibilities for our dealings with waste, that other side of order and productivity, if we recognise our own thinghood? For the concepts of thing-power and biosociality disturb usual understandings of waste, they force us to acknowledge its material recalcitrance. Too often this recalcitrance is framed as a problem of bad human actions or failed elimination technologies. Both environmentalism and engineering demand that waste's materiality be mastered and eradicated. But what if we let that materiality work on us, what if we acknowledged that waste captures us in a multiplicity of different networks? Being open to the thing-power of waste and the ways in which its biological processes cross over into new biosocial becomings can lead, as Bennett says, to a 'greater awareness of the dense web of connections with each other and with human bodies and, finally, a more cautious, intelligent approach to our interventions in that ecology'.[42]

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