Entanglement and Response

Locating Human Responsibility in Karen Barad's Agential Realism

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A Thesis Submitted to the Faculty of Graduate Studies of

The University of Manitoba

in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

Department of English, Film and Theatre

University of Manitoba

Winnipeg

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Abstract

The role of "the human" remains a contentious issue in the field of critical posthumanism. While there is broad agreement that the liberal humanist conception of "the human" must, as Rosi Braidotti suggests, be "decentered", the effect of this decentering on the ontological status of the beings previously understood as "humans" remains unclear. With this problem in mind, this thesis will extend Karen Barad's notion of agential realism to present a conception of "the human" that does not rely on liberal humanist universalism. I argue that "the human" is best understood as a pattern of becoming that emerges through an ongoing process of entanglement and response with its environment. In this way, this work will provide a basis for further critical posthumanist discussion of literary representations of "the human" within its community of human and nonhuman others.

Acknowledgements

The completion of this thesis was made possible through the guidance and support of my advisor, Dr. Diana Brydon. I am also indebted to the members of U of M's Posthumanities Research Group, with whom I've enjoyed many hours of vibrant discourse on the issues that inform the basic arguments of this thesis. I also acknowledge the financial support of Research Manitoba and the University of Manitoba Graduate Fellowship. Thank you.

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Introduction

First, a story:

It is the Messian Miocene. Somewhere in the middle of the Pacific Ocean a shield volcano erupts, producing an island that at its apex is about half a kilometre above sea level. Over the next seven million years, the sides of the volcanic formation will be sculpted by the ocean's currents into a narrow slice of igneous rock somewhat resembling the fin of a shark, forming what marine geologists will eventually term a "sea stack." In 1788 C.E., the stack is encountered by a British Royal Navy officer named Henry Lidgbird Ball, and is subsequently given the name "Ball's Pyramid."

Twenty miles to the north and 130 years later, an Australian steamship called the SS Makambo runs aground on the northern shore of Lord Howe Island, a crescent-shaped volcanic remnant that had become known for its wide array of endemic flora and fauna. The incident introduced to the island an invasive mischief of black rats who had been stowed away on the steamship, and who rapidly flourished in their new island environment. This new species, alongside the Tasmanian masked owls that had been deliberately introduced by the human population of the island in a misguided effort to contain the rats, produced a localized environmental catastrophe, wiping out several endemic species of birds, as well as the giant stick insect *dryococelus australis*, colloquially known to the locals as the "tree lobster." The SS Makambo would later be sold to the Japanese and then torpedoed and sunk by a British submarine just off Phuket, Thailand, during the second world war.

In 2001, a team of Australian zoologists scale Ball's Pyramid and, to their surprise, find a colony of tree lobsters that had managed to evade the black rat invasion and had sustained themselves for several generations under the shelter of a single melaleuca bush. The zoologists captured four specimens, or one sixth of the remaining population, and began breeding them in captivity with the intention of reintroducing them to Lord Howe Island once the rat population, which has now been thriving on the island for eighty years, has been eradicated. The narrative of these zoological exploits was described in a 2012 article by Robert Krulwich for NPR, somewhat misleadingly entitled "Six-Legged Giant Finds Secret Hideaway, Hides For 80 Years", in which he observes, "[r]esidents [of the island] would, no doubt, be happy to go rat-free, but not every Lord Howe islander wants to make the neighbourhood safe for gigantic, hard-shell crawling insects."

At first glance, it is probably unclear what this story is meant to convey. One might wonder at the degree to which this constitutes a story at all. But, as the following discussion will serve to demonstrate, at its core this is a story about entanglement and response that extends beyond the simplistic and ideologically-suspect dynamic of "man vs. nature" that has become a mainstay of Western storytelling. This is not a story about humans heroically asserting themselves against an untamed natural force, or masterfully employing their unique capacity for reason and innovation to bring order to the chaos of nature. Instead, this is a story that begins with the entanglement of tectonic plates. The response is explosive: a volcanic island is carved down by the ocean, a steam ship collides with an oceanic shelf, black rats commandeer a remote island, a family of insects miraculously escapes to find shelter on a geological anomaly, and a journalist baits his audience with an intentionally ambiguous headline. Each new episode has every previ-

ous event entangled directly into its enactment, and can thus be boiled down to a fundamental rhythm: entanglement and response, or the ongoing process through which seemingly discrete aspects of the world collide and intermingle to produce the conditions for further collision and intermingling.

In fact, what I would like to posit is that this basic pattern of entanglement and response might be best understood as the *protagonist* of this story. This seemingly diffuse set of events can be understood cohesively by way of this singular and dynamic process through which discrete beings such as tectonic plates, black rats, and human beings become entangled with and respond to one another. Indeed, this is the basic argument behind theoretical physicist Karen Barad's notion of agential realism, which, as she describes, conceives of the world as "a dynamic process of intra-activity." As she goes on to explain, "[t]he ongoing flow of agency through which part of the world makes itself differentially intelligible to another part of the world and through which causal structures are stabilized and destabilized does not take place in space and time but happens in the making of spacetime itself" (140). In an agential realist account, discrete entities emerge and *intra*-act[1] as features of a singular and dynamic process of agential enactment, which itself constitutes the whole of time and space.

This formulation, while providing a robust foundation for understanding the world beyond the anthropocentric assumptions of liberal humanism, raises several issues of its own, the most pressing of which serves as the impetus for the present writing. Namely: how does one meaningfully discuss the ethical entanglements of the diverse set of beings loosely connoted by

[1] The exact mechanics of this term, which I have borrowed from Barad, will be made clear in the second chapter. For now, it can be roughly understood to connote the inherent relationality between seemingly discrete entities.

the term "human" within the context of the posthuman turn? How does our conception of "the human" and human responsibility change if we are to take seriously the implications of Barad's agential realism, which describes a world wherein there are no fixed discrete beings but only an ongoing process of *intra*-active becoming? In the context of the story above, how do we understand the misguided efforts of the locals to contain one invasive species by introducing another? And to whom or what are our zoologists responding when they attempt to revive what they thought to be an extinct species? The end result of this work will be to clarify what exactly we mean when we talk about the beings that populate our posthuman landscape, and how critical posthumanism can discuss the ethical engagements of said beings within their community of human and nonhuman others, without reverting to the well-worn but problematic system of Euro- and anthropocentric values constructed and advocated by liberal humanism.

To better establish the framework within which this question ought to be understood, the first chapter of this work situates the present writing in relation to the ongoing discourse of critical posthumanism. It focuses on the work of posthuman theorists such as Rosi Braidotti, Cary Wolfe, and N. Katherine Hayles in order to provide an outline of the basic project of critical posthumanism, which, stated broadly, seeks to displace liberal humanism's restrictive notion of "the human" from his assumed position of centrality in Western cultural and political practice. Importantly, this chapter will work to demonstrate why the posthuman turn is not to be understood as a wholesale disavowal of humanism. Instead, critical posthumanism advocates for critical engagement with humanism in an effort to sort out what can or should be saved, and what is best left behind. In this way, we can more explicitly define which conception of "the human" we are working to critique. Throughout this thesis, our definition of the human has less to do with

the biological category of *Homo Sapiens* and more to do with a fluid set of culturally-determined values. As Braidotti points out, "the allegedly abstract ideal of Man as a symbol of classical Humanity is very much the male of the species: it is a he. Moreover, he is white, European, handsome and able-bodied; of his sexuality nothing can be guessed…What this ideal model may have in common with the statistical average of most members of the species and the civilization he is supposed to represent is a very good question indeed" (24). The set of beings who would otherwise fit into the broader category of *H. Sapiens* but are outside of the shifting normative ideal of "the human" (for reasons of race, sexual orientation, gender, etc.) are effectively rendered non-human others in relation to those now affirmed of their humanness not only on the grounds of broad biological categorization but also the specific values of their culture. Working with this understanding, we will seek to demonstrate how "the human" of liberal humanism is not a fixed type of being, but rather a mechanism of power and exclusion within which those counted as "human" are encouraged to see their humanness expressed in the exclusionary qualities of their class, sex, or race. In short, the conception of "the human" that posthumanism aims to critique locates humanity not in biology but rather in a shifting set of culturally-defined and often performative qualities that serve to signal who is (and perhaps more significantly, who is *not*) afforded ethical consideration.

With these definitions in mind, the second chapter establishes how one might begin to address the set of beings traditionally constellated around the term "human" in the context of the posthuman turn. As outlined above, posthuman discourse understands "the human" not as a fixed type of being in the world, but rather as a set of values and practices through which certain bodies come to matter more than others. Thus, we are faced with a problem: how does one even be-

gin to *address* the set of beings previously described as "human" once humanness is revealed to be not an innate property of a particular kind of being, but rather a performative categorical imposition? With these concerns in mind, this chapter outlines how Barad's agential realism offers an effective analytical tool for addressing "human" beings and their practices in a posthuman context, such that "the human" can be retained without reverting to anthropocentrism. In brief, this chapter will consider how Barad refigures humans as emergent phenomena iteratively constituted through the specific arrangement of an apparatus. As Barad puts it, "apparatuses produce differences that matter— they are boundary-making practices that are formative of matter and meaning, productive of, and part of, the phenomena produced" (146). Thus, "the human" (i.e., the performative process through which certain bodies emerge as more valuable than others) is itself best understood as a kind of apparatus, and the discrete objects it produces (i.e., the set of beings we generally think of as "humans") are assigned matter and meaning as a result of the specific material arrangements of the apparatus itself. Thus, to address "human" beings and their practices, then, is more fundamentally to address the apparatus through which their being (i.e., their ontic and semantic "mattering") is iteratively articulated.

Armed with this novel conception of "the human", the third chapter develops more fully how Barad's agential realism can be employed in a discussion of ethics, by way of the dual sense of emergent "mattering" that she describes in her work. Again, we must remain cognizant of why ethics is such a slippery issue for Barad's agential realist approach. Without fixed or ontologically-primary objects in the world (human or otherwise), there are no discrete actors to whom ethical principles can be affixed. Instead, we are forced to locate ethics somewhere within the ontologically-primary phenomena through which the world iteratively emerges. Barad's

agential realism forces "human" beings to acknowledge their inherent responsibility toward the world as a whole not as a potential principle of ethical engagement, but rather as an inherent and irrevocable feature of being-in-the-world. Thus, the human, alongside all other emergent beings of the world, is not afforded the luxury of choosing whether or not to engage. Rather, our (i.e., humans) existence as such inherently entails our entanglement as part of the world, which itself is understood as a single dynamic agent. Thus, a posthuman ethics is best understood not as a set of moral principles to guide fixed and bounded human actors, but rather an ongoing process of rearticulating and refining what it is to be in the world. As Barad posits, "[e]thics is…not about right response to a radically exterior/ized other, but about responsibility and accountability for the lively relationalities of becoming of which we are a part" (393). In Barad's agential realist ontology, ethics is figured not as a set of values or principles prescribed to a fixed set of beings in the world, but rather as an awareness of and sensitivity to the intra-active responsiveness that emerges *with* the temporary and contingent beings who populate our singular and dynamic universe. By examining the relationship between "matter" and "mattering" that Barad describes, the present writing will provide a concise account of how one can coherently discuss human responsibility in the posthuman turn.

Chapter One: Locating the "Human" of Barad's Posthumanism

One of the major hurdles to understanding the broader implications of Barad's agential realism is that she self-consciously frames her argument around the theoretical work of a small group of physicists in the early twentieth century. As a result, *Meeting The Universe Halfway* finds itself at risk of being unfairly pigeonholed as a highly technical work of science studies. Sari Irni opens a review of the book by flatly stating that Barad's "core audience" must consist of "social science students of quantum physics" (52). And while quantum physics does feature heavily in how Barad justifies her argument, as we will see, the motivating force behind her writing (and the bulk of its theoretical value) is much more aligned with the critical posthumanist tradition exemplified by theorists such as Rosi Braidotti, Cary Wolfe, and N. Katherine Hayles. As Barad explains, her agential realist ontology is "about taking issue with human exceptionalism while being accountable for the role we play in the differential constitution and differential positioning of the human among other creatures" (136).

With that in mind, the project of this first chapter will be to provide the necessary context for understanding the larger critical import of Barad's agential realism in relation to the problem of human exceptionalism. To do this, we will first outline the nature of the problem that critical posthumanism aims to resolve, by examining the emergence of a self-proclaimed universal notion of "the human" as developed by liberal humanist thinkers in the nineteenth century, with an emphasis on why this universal notion, despite its virtues, lends itself to a problematically anthro- and Eurocentric mode of conduct in an age of increasingly interconnected global relationality. With this notion of "the human" in mind, we will then go on to clarify the nature of "the

posthuman turn" against some common misconceptions. Finally, I will offer a slight terminological clarification of my own, in an effort to more clearly delineate why Barad's agential realism has implications not only for science studies, but also for the overall ontological status of "the human", as it is represented and discussed in critical literary studies.

Tracking the Emergence of a Universal Conception of The Human

To establish the project of the critical posthuman turn within which Barad's agential realism is best understood, it would be beneficial to first articulate the specific features of the "humanism" of which we are now ostensibly "post-." This turns out to be a slippery distinction to make. As Tony Davies summarizes, humanism is "one of those words, like 'realism' or 'socialism', whose range of possible uses runs from the pedantically exact to the cosmically vague. Like them, too, it carries, even in the most naturally descriptive contexts, powerful connotations, positive or negative, of ideological allegiance, its very imprecision making it all the more serviceable as a shibboleth of approval or deprecation" (3). Thus, we are going to need to be as precise as possible in locating and refining the particular conception of humanism with which Barad's agential realism is engaging, while also keeping in mind that, because of the complex historical baggage that the term has accrued, we are not afforded the luxury of simply stating a definitive definition of what humanism ultimately means (nor is it within the scope of the present work to attempt to do so). With this in mind, the project of this opening section will be to outline the basic character of the humanism with which critical posthumanism is engaging, with an emphasis on the socio-historical context for its particular conception of universalism (and its implied assumptions of objective critical distance) that serves as one of the central hurdles for

Barad's notion of agential realism. The end result of this first section will be a clearly delineated conception of the "humanist subject" that Barad's agential realism is working to engage.

We can start by outlining a few general characteristics of humanism as defined by critical posthuman theorists. This conception of humanism is fairly closely tethered to the modern discourse of liberalism: N. Katherine Hayles explicitly ties her conception of posthuman cybernetics to "the deconstruction of the liberal humanist subject" (2), while Rosi Braidotti similarly seeks to engage the model of the human characterized by "[f]aith in the unique, self-regulating and intrinsically moral powers of human reason…which was essentially predicated on eighteen- and nineteenth-century renditions of classical Antiquity and Italian Renaissance ideals" (13). It is this version of humanism that is defended by theorists such as Edmund Husserl, who gestures toward "the completely new shaping of European humanity which began with the Renaissance" (7) in which "man" is understood as "a free, self-determining being in his behaviour toward the human and extrahuman surrounding world and free in regard to his capacities for rationally shaping himself and his surrounding world" (6). What is important to note, here, is that while Husserl does qualify this conception of humanity as distinctly "European," he simultaneously affirms this European subject's agentive freedom for "shaping himself and his surrounding world." The implicit suggestion is that "European humanity", armed with the abstract notion of scientific rationalism, becomes the self-appointed and self-regulating central actor for the entire global system.

This, of course, has implications for how this "European humanity" sees itself in relation to the rest of the world. As Rosi Braidotti points out, "[t]his Eurocentric paradigm implies the dialectics of self and other, and the binary logic of identity and otherness as respectively the mo-

tor for and the cultural logic of universal Humanism…Subjectivity is equated with consciousness, universal rationality, and self-regulating ethical behaviour, whereas Otherness is defined as its negative and specular counterpart" (15). Husserl's modern Eurocentric humanism not only affirms "the human" as the central actor entitled to shaping the world as he sees fit, but moreover provides a justification for seeing a single historically- and geographically-specific cultural style as inherently *more human* than others.[2]

What is significant to note, as well, is just how distinctly modern this particular mode of humanist thought actually is, despite its own assertions to the contrary. In his overview of several nineteenth-century theorists of liberal humanism, Tony Davies identifies a common theme in "a new and distinctly modern notion of human individuality, a notion projected back into the writings of the fifteenth- and sixteenth-century *umanisti*, but demonstrably shaped by and inseparable from nineteenth-century concerns" (18). As Davies points out, concerns such as industrialization, the nation-state, increased political agency of the working class, and a distinctly modern brand of colonialism "necessitated an idea that could at once rationalize an explosive and unpredictable modernity (as the triumphant achievement of heroic human endeavour), and justify or palliate its all-too-visible brutalities and inequalities" (19). As western European nations begin to exploit their relative military and economic power over the rest of the world, liberal humanism

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[2] The inherent problems of this exclusionary conception of who counts as "human" have been vigorously criticized by a wide range of theoretical traditions: feminism, disability studies, post-colonialism, queer theory, and many others offer strong criticisms of liberal humanism from their own unique vantages. While it is outside the scope of the present writing to adequately address the full range of these critiques, the next section of this chapter will delineate some of the major features of their arguments, as relevant to Barad's own position.

(and its vision of a universal human nature of which modern Europeans just so happened to be the most refined iteration) served as an attractive justification.

Consider, for example, Rudyard Kipling's poem "The White Man's Burden", which captures how the British Empire wished to see itself at the height of its power: the modern liberal subject is described waiting in "heavy harness" to "serve [his] captive's need", and is warned to not "call too loud on Freedom/ To cloak [his] weariness," only to be rewarded, after "thankless years," with "dear-bought wisdom." Overt racism aside, the poem serves as an instructive document of the mental contortions required to justify the inherent violence (physical and otherwise) of colonialism. By figuring the position of colonizer as a kind of "burden", Kipling implicitly affirms the modern liberal subject (or simply, "The White Man") as the inheritor of a tradition of self-sacrifice and rational action who is forced to "[h]ave done with childish days" in order to distinguish himself from the "silent, sullen peoples" (i.e., non-white others) over whom he has claimed dominion. The key point, here, is that much of liberal humanism's rapid propagation in the nineteenth century derived from its usefulness as an ideological justification for the violence concurrently being committed by western Europe against the rest of the world. By seeing themselves as "burdened" by their inherited role as the stewards of a universal and self-regulated humanity, western European nations could obfuscate the violence committed in the name of colonial expansion.

Thus, we can come to understand why modern liberal humanism repeatedly asserts itself to be a direct ideological offspring of the Renaissance, which, as alluded to above, is retroactively identified as the point of origin for a self-contained notion of "the individual" and all of its accompanying "burdens." For example, in his *Civilization of The Renaissance in Italy,* nineteenth-

century historian Jacob Burckhardt identifies the Renaissance as the definitive end of the Middle Ages, during which, "[m]an was conscious of himself only as member of a race, people, party, family or corporation—only through some general category" (70). It was only after the Renaissance, in Burckhardt's account, that "man became a spiritual individual, and recognized himself as such" (70). What is crucial to note, for our purposes, is Burckhardt's distinctly nineteenth-century preoccupation with the binaric divisions that his version of the Renaissance draws between types of humans. He is not simply describing an unordered set of cultural or historical differences but rather hierarchically ordering these differences against each other: those endowed with a sense of themselves as individuals are defined as *more human* than those still trapped behind the veil of "faith, illusion, [and] childish prepossession, through which the world and history were seen in strange hues" (70). Again, this impulse to see temporal or cultural difference as implicitly defining some groups as *more* human than others can be seen to reflect a distinctly modern anxiety surrounding the subjugation of one cultural group by another.

Significantly, as Larry Siedentop demonstrates in his history of western liberalism, the ideological shift between the Middle Ages and the Renaissance is not as dramatic as theorists such as Burckhardt suggest. Siedentop writes, "as an historiographical concept the Renaissance has been grossly inflated. It has been used to create a gap between early modern Europe and the preceding centuries— to introduce a gap which is misleading" (337). This is not to argue, as Siedentop himself is quick to point out, that the Renaissance did not figure at all into the development of the modern sense of liberal humanist individualism. The point is simply to argue that the Renaissance did not signal the emergence of a fundamentally *new* kind of human, and claims to the contrary by nineteenth-century liberal humanists are best understood as attempts to create

a "gap" through which they could impose the notion of a "modern" man who is *more* human than his historical predecessors and cultural contemporaries (Burckhardt instructively calls them "complete men" (71)). Thus, modern liberal humanism confronts us with a model of the human that is not only predicated on a self-justified entitlement to free action in the world, but also, paradoxically, on the freedom to provide a self-justifying account of its own inception and heritage. Thus, as Braidotti suggests, "[e]qual only to itself, Europe as universal consciousness transcends its specificity, or, rather, posits the power of transcendence as its distinctive characteristic and humanistic universalism as its particularity" (15). Liberal humanism, based on its own definition of itself, comes to extend beyond its sociopolitical context and becomes, for itself, objectively and universally human.

Thus, one of the defining characteristics of the liberal humanist subject with which we are engaging is that, in a fundamental sense, it is unable to recognize itself as anything other than a universal. The liberal humanist subject not only figures himself as a universal expression of humanness, but, more fundamentally, is able to believe that such a universal notion of "humanness" could even exist. As Tony Davies suggests, "it requires a conscious effort, every time someone appeals to 'human nature' or 'the human condition', to recall how recent such notions are, and how specific to a particular history and point of view" (25). This lack of self-recognition provides the basis for Bruno Latour's famous assertion that "we have never been modern" (47). Like Davies and Braidotti, Latour sees modernity as the imposition of a new mode for humans to see themselves in the world, which is self-consciously portrayed as a break from any previous mode of being: "When the word 'modern,' 'modernization,' or 'modernity' appears, we are defining, by contrast, an archaic and stable past. Furthermore, the word is always being thrown

into the middle of a fight, in a quarrel where there are winners and losers, Ancients and Moderns" (10). The problem, for Latour, is that by accepting their position as inheritors of a "universal humanity," modern humans are unable to engage in the kind of straight-forward anthropological or ethnographical inquiry that we deem ourselves capable of carrying out on other "pre-modern" cultures: "No anthropologist studies us that way, and it is impossible to do with our own culture…what can be done elsewhere, with others. Why? Because we are modern. Our fabric is no longer seamless. Analytic continuity has become impossible" (7). Because the modern human subject sees himself as the freely-acting embodiment of a universal ideal of "humanness," it would be inconceivable to him that his conduct could be reduced to a set of ethnographic principles.

Instead, the modern subject is forced to first erect a partition "between a natural world that has always been there, a society with predictable and stable interests and stakes, and a discourse that is independent of both reference and society" (11). Then, once this partition is in place, the modern human can employ his unique capacity for reason ostensibly unobstructed by the "strange hues" (Burckhardt 70) of pre-modern life to construct absolute and "objective" scientific models which explain the mechanisms behind these two domains (i.e., 'nature" and "culture") through a network of "specialists," each of whom is confined to their own domains of inquiry (i.e., politics, science, economics, etc.). Thus, in Latour's view, modernity is actually two distinct sets of practices: one set for separating modern human practice (i.e. "culture") from the "natural" world (a process which he terms "purification"), and another for producing specialist domains (within the broad category of "culture") where the modern human's unique capacity for reason produces "objective" models of how the world (or at least, their particular domain's con-

ception of the world) ostensibly functions (which he terms "translation"). The end result of these twin processes is a kind of self-verifying knowledge, whose veracity is primarily a function of the modern liberal subject's faith in himself as a rational observer, unobstructed by the natural drives and superstitious biases of the pre-modern other.

As Latour explains, it is a kind of paradox: "[Moderns] can mobilize Nature at the heart of social relationships, even as they leave Nature infinitely remote from human beings; they are free to make and unmake their society, even as they render its laws ineluctable, necessary and absolute" (37). The key point to be grasped here is that because modern liberal humanism figures the modern human as a fundamentally new kind of being (in opposition to nature and the "pre-modern" cultures who are predictably structured by myths and superstition), it is able to endorse the paradoxical but ideologically seductive notion that the modern human is both an absolutely free actor (because he is free of the myths and superstitions of pre-modernity) *and* able to reduce his world to a set of objective principles (again, because he is free of the myths and superstitions of pre-modernity). This paradox provides a kind of warped justification for modern European exceptionalism. As Margaret Wiener explains, "[c]laims that natives were deluded in their understanding of reality (and thus inherently inferior to modern Europeans) authorized colonial rule. Europeans' access to nature through science set them apart from other people, who merely had beliefs— that is, projections of culture" (142). Thus, the modern human comes to define himself through his unique capacity for objective knowledge about the world (in both its "natural" and "cultural" domains). Unlike pre-modern humans, whose knowledge of the world is coloured by myth, modern humanity defines itself through its unique capacity to produce domains of specialized discourse through which objective truths can be discerned. The "modern world" emerges

through the dual processes of purification, through which "the facts" are extricated from the natural world and put into their appropriate domains of inquiry, and translation, through which those domains are networked to produce a worldview that is paradoxically both constantly being rearticulated through the continual refinement and inquiry of modern domains of specialization *and* understood as objectively, universally, always-already true.

For this reason, it cannot be a surprise when our modern liberal human comes to see himself as a uniquely isolated kind of being, who is capable of objective calculation precisely because he is removed from the chaotic entanglements of nature. As Barad observes, for the liberal humanist subject, "Man is an individual apart from all the rest. And it is this very distinction that bestows on him the inheritance of distance, a place from which to reflect— on the world, his fellow man, and himself. A distinct individual, the unity of all measure, finitude made flesh, his separateness is the key" (134). Believing himself to be armed with a unique capacity for pursuing objective truths about the world, the modern human inevitably comes to hold the world at a critical distance. The world of nature and pre-modern cultures becomes another curious object of critical scrutiny, rationally divided into a set of specialized domains of inquiry and explained away, leaving the modern man isolated at the centre of a universe he has examined and rearticulated to himself through his own "objectively true" models. And this self-imposed sense of isolation is crucial. As Barad points out, this notion of separation, wherein our modern liberal human sees himself as somehow outside of nature, becomes the major stumbling block for realistic responsiveness to the entanglements of the world.

Thus, as will be discussed in the next section, examining the nature of this isolation and putting the "modern" liberal humanist subject back into the world becomes one of the central

projects for a wide range of theorists, and will eventually come to serve as a kind of basis for "the posthuman turn." It should be clear at this point why reintroducing "the human" back into the world is a significant project. As Latour describes, "if we have never been modern…the tortuous relations we have maintained with other nature-cultures would also be transformed. Relativism, domination, imperialism, false consciousness, syncretism…would be explained differently, thereby modifying comparative anthropology" (11-12). If the liberal humanist subject were to recognize the precarity of the paradoxical ideological justifications by which he declares himself "modern" and therefore outside of nature, he would be forced to reinterpret his relationship to "the other" in much more equitable terms. He would be forced to acknowledge not only that his own cultural attitudes and values are not universal but tethered to a specific sociohistorical context, and, even more fundamentally, acknowledge that there may be *no* universal and transcendent notion of the "human" who enjoys a privileged and isolated position outside of the ongoing entanglements of the natural world.

Clarifying The (Critical) Posthuman Turn

We now have a clear sense of the kind of "human" that Barad's critical posthumanism is looking to engage. Primarily, he is the product of nineteenth-century liberalism: a figure who views himself as the centre of a universe which he is uniquely able to explain to himself, entirely free to act in a world that he declares to be static and governed by determined (or at least "determinable") laws of nature. "He" is also a modern ideological innovation that served, amongst other things, as a justification for European exceptionalism and colonialism, and whose history is coextensive with violence against other cultures in the name of "liberation." As Foucault ob-

serves in *The Order Of Things*, given this troubling history, "[i]t is comforting, however, and a source of profound relief to think that man is only a recent invention, a figure not yet two centuries old, a new wrinkle in our knowledge, and that he will disappear again as soon as that knowledge has discovered a new form" (xxiii). This section will consider the ways in which the mode of critical posthumanism practiced by theorists such as Karen Barad signals this "new form" of thinking about the human, broadly constellated around the term "the posthuman turn," in which "Man" (or the liberal humanist subject outlined in the previous section) is revealed to be not a universal category of being but rather a categorical construct of a particular sociopolitical context which serves primarily as a mechanism for mediating power dynamics.

First, let us give a preliminary definition of what is entailed by "the posthuman turn." At its most basic, this term is meant to identify an increasing critical distrust of the Euro- and anthropocentric assumptions that inform the narrow and normative conception of "the human" celebrated by liberal humanism, as outlined in the previous section. This unease is perhaps best captured by Rosi Braidotti, who, in her book *The Posthuman*, writes "Humanism's restrictive notion of what counts as the human is one of the keys to understand how we got to a post-human turn at all…Complicitous with genocides and crimes on the one hand, supportive of enormous hopes and aspirations to freedom on the other, Humanism somehow defeats linear criticism" (16). Thus, to best understand our arrival at the posthuman turn, we can first examine several of the major critical movements that lead to its development. Crucially, what follows is not intended as a comprehensive overview of all critics of the liberal humanist notion of a "Universal Man", but rather, is an overview intended to give a sense of from where the posthuman turn emerges. It will also serve to demonstrate that, while "the human" has been criticized from many angles, one uni-

fying theme of these critical approaches is that each is writing from an explicit position of exteriority to the "ideal" or "universal" notion of who counts as "human." In this way, we can come to understand why the critique of the "universal" notion of man, and its implications for the ongoing and shifting definition of what it is to be "a human," has always been understood as a kind of crisis of identity in the ontological sense, wherein both sides (both those included within the current definition of "the human" and those who were excluded) are in tension precisely because they are attempting to define what kind of beings they fundamentally are, both to each other and, perhaps more significantly, to themselves.

For example, we can consider W.E.B. Du Bois' 1898 paper on "The Study of The Negro Problems" in which he observes, "though we ordinarily speak of the Negro problem as through it were on unchanged question, students must recognize the obvious facts that this problem, like others, has had a long historical development…moreover, that it is not one problem, but rather a plexus of social problems, some new, some old, some simple, some complex" (3). What is significant here, for our purposes, is Du Bois' rejection of "the Negro" as an ontologically given category upon which a singular "problem" can be affixed. Instead, he describes a process of "historical development" through which "the Negro" emerges as a categorical construct: not ontologically fixed, but rather the product of a larger system of interactions (which he explicitly ties to slavery and systematic racial exploitation) with its own history that can be examined and interrogated. As Alexander Weheliye points out, "Du Bois devised a set of methodological and philosophical protocols that excavated the sedimented synchronic and diachronic relationality of the Negro-now transformed into a stated object of knowledge— so as to replace the Negro as a putatively given object of nature" (20). By figuring "the Negro" as an "object of knowledge," Du Bois un-

dermines the universalist conception of beings advocated by liberal humanism: consider, for example, the contrast between Du Bois' emphasis on "historical development" and Kipling's "White Man's Burden" discussed above, wherein colonial exploitation is self-consciously figured as a kind of innate property of being a white male, such that colonial violence is simply understood to be a fixed and universal feature of being white and male (i.e., it is literally the *burden* of being a white male). Du Bois, conversely, rearticulates the "Negro problem" not simply as the innate "burden" of being black, but rather, an emergent set of issues that can be mapped to specific sociohistorical arrangements.

We can observe a similar line of thinking in the writing of Virginia Woolf, who, in pursuing her own "unsolved problems" (4) of women and fiction, articulates a clear conception of the ostensibly "universal" figure of man being propped up not by any transcendental notion of his uniquely complete "humanness", but rather, as a function of an unequal distribution of economic privilege: as Woolf observes in *A Room of One's Own*, "if only Mrs. Seaton and her mother and her mother before her had learnt the great art of making money and left their money, like their fathers and their grandfathers before them, to found fellowships and lectureships and prizes and scholarships appropriated to the use of their own sex" (19). For Woolf, the unevenness of the power dynamic between genders is not the result of innate difference between the fundamental constitution of "men" and "women" (indeed, she goes as far as to suggest that such a division is merely an immature function of "the private-school stage of human existence" (95)). Instead, she figures the dynamic as an *emergent* feature of social conditions that can be traced through history (in this case, economic privilege). Thus, for Woolf, gender is understood, as Ellen Rosenman suggests, to "not operate in a vacuum but in relationship to an external world that makes certain

possibilities available…while precluding others" (635). Again, what is significant for our purposes is how this can be understood as a direct challenge to the notion that there is some ontologically given notion of "humanness" that one set of beings (i.e., men) are somehow closer to fulfilling than others (i.e., women).

This criticism of a "universal" notion of humanness continues to figure largely for later feminist critics of the restrictive normativity of the liberal humanist subject. For example, as Luce Irigaray argues in her *Ethics of Sexual Difference*, "[a] revolution in thought and ethics is needed if the work of sexual difference is to take place." She goes on to posit that, "[e]verything, beginning with the way in which the subject has always been written in the masculine form, as man, even when it claimed to be universal or neutral" (6) must be challenged and rectified. The key point, here, is that where liberal humanism wants to attribute certain fixed properties to certain kinds of beings (based on metrics of racial or sexual difference), beings excluded from full "human" status are well-positioned to observe the socio-historical contexts through which those differences emerge. Thus, rather than attributing the relative degree of privilege maintained by the normative "fully human" liberal humanist subject as simply a property of that subject (i.e., certain subjects are privileged as "fully human" by virtue of "universally" recognized qualities of "whiteness" or "maleness"), critics such as Du Bois and Woolf point to the ways in which this privilege *emerges* through a specific socio-historical context, and thus is best understood not as an innate property of individual subjects but rather an emergent feature of that context. The critical difference, here, is that where liberal humanism sees its notion of "universal humanness" as self-justifying and fully contained within the subject himself (as described in the previous section), early critics of liberal humanism understand the normative metrics through which "human-

ness" was measured as *emergent* features of a larger socio-historical context. It is here that we begin to see the undermining of liberal humanism's notion of a "universal humanness" not as a fixed ontological category, but increasingly as a shifting set of values through which power is mediated.

It is within this context that I would like to approach the notion of "the posthuman turn" that theorists such as Barad exemplify: it is not a turn away from *humans,* or the actual beings traditionally connoted (with varying degrees of inclusivity) by the term "human", but, more fundamentally, it is a turn toward a more critical engagement with the notion of "the human" as an ontologically given category of being. As the above writing serves to demonstrate, the term "human" has never comprehensively accounted for the whole diverse set of beings toward whom it ostensibly gestures: instead, it has largely functioned as a mechanism for justifying an uneven distribution of power on metrics such as race and gender. By framing "the posthuman turn" in this way, I hope to distinguish the critical posthumanism practiced by Barad, following the work of Braidotti, Wolfe, and Hayles, from certain common misconceptions and mischaracterizations presented in commentary on the subject. For example, in his introduction to a recent collection on *The Nonhuman Turn*, Richard Grusin writes "[u]nlike the posthuman turn…the nonhuman turn does not make a claim about teleology or progress in which we begin with the human and see a transformation from the human to the posthuman, after or beyond the human" (ix). The view Grusin is characterizing here is emphatically not *critical* posthumanism, but rather what is more commonly known as *trans*humanism (or what Cary Wolfe somewhat jokingly refers to as "'bad' posthumanism" (xvii)) wherein the human subject, aided by advances in biotechnology, comes to fulfil or even exceed the vitruvian ideal celebrated by nineteenth-century liberal hu-

manists, thus affirming the centrality of the human figure. This is the thread of "posthuman" thought pursued by philosopher Nick Bostrom, who points to technological innovations such as "superintelligence, molecular nanotechnology or uploading" as providing a means by which "the human condition could clearly be radically transformed" (10). While it falls outside of the scope of the present writing to offer a more substantial criticism of transhumanism as a discipline, the key point to be established here is that *trans*humanism is not only distinct from critical posthumanism, but, in a fundamental sense, is nearly the exact *opposite* of critical posthumanism. As Wolfe describes, due to its uncritical embrace of the human subject and human reason, "transhumanism should be seen as an *intensification* of humanism" (xv), whereas critical posthumanism aims to evaluate the liberal humanist assumptions through which the human subject emerges.

Grusin[3] exemplifies a related misconception about the project of posthumanism as he goes on to suggest that "the very idea of the posthuman entails a historical development from the human to something after the human, even as it invokes the imbrication of the human and nonhuman in making up the posthuman turn" (ix). While Grusin does not go on to cite textual examples, he does point to the work of Cary Wolfe, Rosi Braidotti, and N. Katherine Hayles as "the most complex treatment of the posthuman" (xxvii), which is a surprising move in itself, as all

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[3] I should point out, here, that while I disagree with Grusin's gloss of posthumanism and the posthuman turn, his own description of "the nonhuman turn" is, at least in certain respects, aligned with Barad's notion of agential realism, in that she too is concerned with "decentering the human in favo[u]r of a turn toward and concern for the nonhuman" (Grusin vii). The reason I have chosen to use the term "posthuman" as opposed to "nonhuman" throughout the text, aside from the fact that Barad herself identifies as a posthumanist, is that the term "posthumanism" more explicitly establishes its ongoing relationship to *humanism:* the problem with Grusin's nonhuman turn, in my view, is that it obscures the role that humanism and the restrictive categorical construct of "the human" play as central motives for any kind of turn in the first place. Indeed, Grusin's nonhuman turn ends up figuring as a general term for any critical enterprise that engages with "nonhuman matters" (vii), claiming work as diverse as William James' *Principles of Psychology* and Latour's Actor-Network Theory. Not only does this emphasis on "nonhumans" implicitly reaffirm "the human" as an ontologically given starting point against which nonhumans are defined (a binary which Grusin claims to revoke), it also claims ownership over such a diverse set of work (with such a diverse set of motivations) that it seems debatable whether it resembles a "turn" at all.

three theorists firmly state that their own conception of posthumanism is concerned not with describing the actual transformation of "the human" or humanity into some new era, but rather how thinking approaches the category of "the human." As Hayles describes, "the posthuman does not really mean the end of humanity. It signals instead the end of a certain conception of the human, a conception that may have applied, at best, to that fraction of humanity who had the wealth, power, and leisure to conceptualize themselves as autonomous beings" (286). Similarly, Wolfe makes it clear that "we are not just talking about a thematics of the decentering of the human in relation to either evolutionary, ecological, or technological coordinates…rather, I will insist that we are also talking about how thinking confronts that thematics, what thought has to become in the face of those challenges" (xvi). While Hayles and Wolfe both go on to pursue their aims through divergent methodologies (Hayles pursues the notion of a cybernetically-assembled posthuman subject, where Wolfe aims to deconstruct the transcendental conception of a universal "humanness" to reinscribe the posthuman subject as a fully embodied natural object), the underlying project is fundamentally the same: in both cases, the categorical construct of "the human" is not taken to be the starting point, but rather, the primary focus of a critical deconstruction. Barad, whose agential realism emphasizes both the assemblage[4] through which the subject emerges, as well as the importance of embodiment to that emergence, can be seen as an extension of both of these projects. The point to be grasped is that critical posthumanism, as it is being figured here, is not concerned with the actual bodies of "humans" and their transition toward some new "humanity", but rather, more fundamentally, uprooting the notion that "the human" exists as an ontologically given category. This is the critical turn described, in different

[4] Though, for reasons that will become clear in Chapter Two, Barad will also have some reservations about using the term "assemblage," at least in the technical sense that Deleuze and Guattari advocate.

ways, by Hayles, Braidotti, and Wolfe, and it is within this tradition that Barad's own work must be understood, as she herself explicitly states that her conception of the posthuman "marks a refusal to take the distinction between 'human' and 'nonhuman' for granted" (32).

Thus, when we talk about "the posthuman turn," what we are primarily gesturing toward is not some new technologically-mediated era of "the human," but rather, a fundamental transition in how "the human" is understood in the context of critical inquiry: not as an ontologically-given point of departure, but rather as an ideological construct with its own observable socio-historical trajectory that has been falsely imposed as an ontologically-given universal by nineteenth-century theorists of liberal humanism. Important as well is to note that this turn away from an overdetermined notion of "the human" is not solely a project undertaken by critical theory. Indeed, a similar decentering of "the human" has been observed in recent trends in the advanced capitalist economy of the neoliberal era. Melinda Cooper demonstrates how advancements in biotechnology have produced a decidedly posthuman notion of "life as surplus", wherein "a whole series of legislative and regulatory measures [have been] designed to relocate economic production at the genetic, microbial, and cellular level, so that life becomes, literally, annexed within capitalist processes of accumulation" (19). Similarly, Achille Mbembe's conception of "necropolitics" demonstrates how the modern nation-state comes to supersede the notion of individual freedom previously understood as a fixed property of "the human," such that "sovereignty means the capacity to define who matters and who does not, who is *disposable* and who is not" (27). In both cases, the notion of a unified and universal "human" is subsumed by a larger network of globalized structures of power within late capitalism, such that, as Braidotti points out, "[c]ontemporary embodied subjects have to be accounted for in terms of their surplus value

as bio-genetic containers on the one hand, and as visual commodities circulating in a global media circuit of cash flow on the other" (119). Life itself, once understood simply as an innately valuable property of the human subject, is increasingly becoming a disembodied and negotiable commodity.

This provides a context for the current writing, as the posthuman landscape of the early twenty-first century so far remains a largely indeterminate space wherein the posthuman subject, armed with the proper critical tools, is afforded a brief transitional moment for self-definition on her own terms before being reinscribed within the neoliberal ethos of advanced capitalism. What is crucial, as a point of departure for understanding the relevance of Barad's agential realism, is a clear recognition of what "the posthuman turn" means: it is not the transhumanist promise of a new and improved humanity, but rather, a critical juncture at which the notion of "the human", as a categorical construct, can be examined and reevaluated.

Negotiating the Tension between Beings and "Humans"

With this dynamic in mind, we can now turn to consider what exactly the term *human* is meant to connote in the context of Barad's critical posthumanism, in an effort to more clearly articulate why using the term *human* has suddenly become a contentious issue. After all, most people already have a basic intuitive sense of what a human is: debates about humanism aside, we generally think of "the human" as a specific genus of hominid that western culture has comfortably described as *Homo Sapiens* since the eighteenth century. One might even expect for this categorical definition to provide sound biological grounds for a universal sense of humanity. As anthropologist Chris Stringer succinctly describes, "all living humans are members of the extant

species *H. Sapiens* and, by definition, all must equally be modern humans" (35). In practice, though, this biological basis for sameness is at odds with liberal humanism's notion of "the human" outlined above, wherein the Eurocentric expectation of normative appearance and behaviour or cultural practice, through which some *H. Sapiens* are problematically understood as more "human" than others, is superimposed over the much broader biological definition, such that the two become conflated. Indeed, by refining the notion of "the human" beyond the broad binomial category of *H. Sapiens,* liberal humanism effectively works to recontexualize the values of a specific cultural style in a specific historical moment as the *ideal* values for humans generally. In this way, those who would obviously otherwise fit into the broader category of *H. Sapiens* but are outside of the shifting normative ideal of "the human" (for reasons of race, sexual orientation, gender, etc.) are effectively rendered as non-human others in relation to those now affirmed of their humanness not only on the grounds of a broad biological categorization but also the specific values of their culture. As the previous section serves to outline, it is precisely this dynamic that critical posthumanism and the posthuman turn are interrogating, but, as our discussion of Grusin's misconceptions hopefully made clear, the nature of this project is a slippery thing to pin down, in part because the term "human" seems to ambiguously connote both the more inclusive biological category *Homo Sapiens*, as well as the notion of an exclusionary "universal humanness" advocated by liberal humanism. Thus, critical posthumanist slogans such as "decentering the human" (i.e., the project of re-evaluating the validity of the liberal humanist subject as an ontologically-given starting point) are too easily misconstrued as an effort to replace "humans" (i.e., the actual set of beings generally, though incompletely, inscribed within the aforementioned liberal humanist subject). With that in mind, what follows will aim to more

clearly delineate the difference between the two senses in which the term "human" is traditionally understood in an effort to drive a wedge between the two usages.

To accomplish this, I would first like to more directly posit an idea that much of the above writing has been working to suggest. "The human," as it is figured by liberal humanism, rather than signifying an ontologically fixed set of beings (i.e., synonymous with a term like *Homo Sapiens*), in fact functions as a mechanism of power for determining, by way of a shifting set of socially-determined values, who is (and who is not) afforded ethical consideration. As Braidotti succinctly describes, "[t]he human of [liberal] Humanism...spells out a systematized standard of recognizability— of Sameness— by which all others can be assessed, regulated and allotted to a designated social location" (26). Crucially, we must be sure to recognize by whom "the human" is systematized. As the above writing outlines, it is not simply the case that "the human" emerges as a normative convention on the basis of a broad survey of cultural groups on a global scale, after which some kind of general consensus is agreed upon by all concerned parties. In practice, the "normative" notion of the human is constructed by only a thin slice of the overall set of beings it ostensibly represents, thus asserting the values of a specific culture at a specific historical moment as, somehow, a *universal* signifier of some fixed category of being, which then justifies those that best exemplify those specific values as "more human" than others. Thus, as Tony Davies argues, "[a]ll humanisms, until now, have been imperial. They speak of the human in the accents and the interests of a class, a sex, a 'race'. Their embrace suffocates those whom it does not ignore" (131). Significant to note, for our purposes, is the binary that Davies identifies between those who are suffocated and those who are ignored, as it instructively highlights why such a rigid and normative notion of "the human" is problematic not only for those

ignored (i.e., those who are figured as not quite human) but also those whom it more directly describes (i.e., those beings privileged with, and thus suffocated by, their inclusion within a universal notion of "the human"). Aside from the more obvious violence that liberal humanism serves to justify against those whom it figures as somehow "less than human", it also inflicts a much subtler form of violence against those whom it figures *as* human. By imposing a normative and exclusionary category of a universal subject who is uniquely available for ethical consideration, humanism limits the capacity of the subjects it produces for exercising a broader and more inclusive form of empathy for other vulnerable beings in the world (i.e., those deemed to be "other" or "less than" human).

Consider the division that humanism imposes between "nature" and "culture", as theorized by Latour and echoed in the work of Braidotti and Barad, described above. What is crucial to remember is that a fundamental component of the modern "human" subject Latour describes is that he is alone and isolated against nature. Thus, his engagement with nature (i.e., what he understands to be the static background of "others" against which he is free to act) is mediated by the culturally contingent norms through which he, as a universally "human" subject, emerges. As Barad summarizes, "his separateness is key" (134). The imposition of this separation, aside from providing a justification for the (often violent) "free and self-determining" action of the liberal humanist subject, also fundamentally refigures the relationship between "the human" and the rest of the world as something that is largely mediated by social norms. As Judith Butler describes, "[t]hese normative conditions for the production of the subject produce an historically contingent ontology, such that our very capacity to discern and name the 'being' of the subject is dependent upon norms that facilitate that recognition" (*Frames* 4). Put simply, by imposing a universal no-

tion of "the human", and then linking that notion of the human to a set of cultural values (which would include values attributed to markers of race, gender, sexual orientation, etc.), humanism produces subjects whose responsiveness to the world is limited to (or at least, mediated by) cultural norms. The imposition of "the human" as a fixed ontological category sets the scope and limits of responsiveness to the world for those beings who are inscribed within it, such that "humanness" comes to be reflected not in any direct connection to being in the world, but rather, in a set of normative (western) cultural practices and values.

A compelling exposition of how this cultural mediation exacerbates the tension between "the human" (i.e., the categorical imposition for mediating power) and "humans" (i.e. the actual set of beings iteratively inscribed within that category) is provided by Butler in her work on the importance of grieving and recognition of precarity in the aftermath of the 11 September terrorist attacks in New York. Butler sharply criticizes the Bush administration's hasty decision for "resolute action to take the place of grief" (29), which she views as a direct imposition of the liberal humanist impulse to see the world as structured around itself at the expense of a more complete engagement and reckoning with the actual experience of vulnerability that such an event would catalyze: "When grieving is something to be feared, our fears can give rise to the impulse to resolve it quickly, to banish it in the name of an action invested with the power to restore the loss or return the world to a former order, or to reinvigorate a fantasy that the world formerly was orderly" (29-30). To maintain the dubious notion that the "human" subject exists as a uniquely self-determining actor in a world that he is free to order for himself, any challenge to this order must be forcefully rejected before a more nuanced examination of the experience can be undertaken. The impulse to reorder the world around ourselves forecloses on an opportunity to see beyond

the rigid and simplistic binary of "us modern liberal humans" against "those pre-modern, not-quite-human others." It forecloses on an opportunity to consider, as Butler goes on to do, "[c]ould the experience of a dislocation of First World safety not condition the insight into the radically inequitable ways that corporeal vulnerability is distributed globally?" (30). The suffocating imposition of a culturally-contingent definition of "the human" inhibits the unmediated experience of embodiment in the world, along with all of the vulnerability and precarity that such embodiment implicitly entails. As Butler goes on to suggest, this inability to experience the vulnerability of being in the world constitutes a huge loss: "To foreclose on that vulnerability, to banish it, to make ourselves secure at the expense of every other human consideration is to eradicate one of the most important resources from which we must take our bearings and find our way" (30).

What is significant to note here, for our purposes, is how Butler frames this as a tension between the mourning U.S. public's emergent status as "humans" and their more fundamental status as "beings", wherein their desire to participate in the former mediates their ability for a more complete engagement in the latter. As "modern" western subjects, our belief that there is some ontologically fixed category of "the human" that we fulfil (to varying degrees of "completeness") by virtue of our performance of certain cultural values is in tension with our more fundamental status as *beings*, vulnerably embodied in, and thus a part of, the world. And where our status as beings is an irrevocable condition of embodiment (a condition which Butler insists is "laid bare from the start and with which we cannot argue" (31)), our status as "human" is, conversely, performative. She writes, "[i]f I understand myself on the model of the human, and if the kinds of public grieving that are available to me make clear the norms by which the "human"

is constituted for me, then it would seem that I am as much constituted by those I do grieve for as by those whose deaths I disavow, whose nameless and faceless deaths form the melancholic background for my social world, if not my First Worldism" (46). For Butler, one's status as "human" is not an innate property of an individual body, but rather a performative role that iteratively reconfigures which practices are "available" and which bodies are "grievable" in a relationally-constructed "social world." If we are to take seriously critical posthumanism's proposed objective of "decentering the human", Butler's proposition of Humanness-as-constitutive-performance provides a valuable starting point, as it productively allows us to bracket what, exactly, we are supposedly decentering: not a set of beings as such but rather the performative practices through which beings emerge as "human."

Thus, when we talk about "the human" in the context of critical posthumanism, we are primarily gesturing toward the whole descriptive problem outlined above. We are not discussing a fixed set of beings themselves, but rather a power structure through which beings are iteratively produced*:* both the "normative" beings privileged with inclusion within the rigid notion of "the human" advocated by liberal humanism, *as well as* the beings relegated to the exterior position of "otherness" that such an exclusionary definition inevitably produces (i.e., those beings who are either "not-quite-human" or "nonhuman"). In the context of critical posthumanism, "the human" does not, strictly speaking, refer to a kind of being as such, but rather an exclusionary mechanism through which certain kinds of beings are produced. In this sense, *you* are not a human. Instead, *you* are a being who either is or is not included within a privileged set of beings referred to as human. "Humanness" is a property not of individual beings, but rather an emergent

property of a relational network of power dynamics, which collectively arbitrates the value of certain bodies.

Thus, we are faced with a problem: if we are not, fundamentally, "human" (or, more correctly, if the "human" is excavated, in the posthuman turn, as a performative role that can be applied *to* beings, but not a fundamental feature *of* those beings), then what, ultimately, are the beings that previously could comfortably describe themselves as "human"? As outlined above, there have been many efforts to demonstrate the ostensible precarity of the ideological edifice through which the "human" emerges, but as Barad points out, none have successfully escaped the "humanist orbits" of western culture. As she describes, "theorists such as Michel Foucault and Judith Butler blast the tenets of humanism and representationalism in an attempt to harness the force of this explosion to garner sufficient momentum against the threshold escape velocity… But ultimately the power of these vigorous interventions is insufficient to fully extricate these theories from the seductive nucleus that binds them" (135). We find ourselves at a juncture at which, although we can recognize (in at least fleeting glimpses) that the term "human" is not sufficient to fully describe our experience of being, the notion of a "universal human" has become so central to how we see ourselves in the world that we cannot coherently look past it.

Thus, what is needed is some terminological innovation that can avoid conflating the emergent category of "the human" (i.e., the culturally-contingent mechanism of power that serves as the focus of our critical posthumanist inquiry) with the set of beings that the term (incompletely) serves to connote. And this need is well understood. Donna Haraway, for instance, in order to enact her claim that "we have never been human" (165), negotiates the tension between the categorical imposition of "the human" and actual embodiment by describing all bodies, including her

own, as *figures*, which, for her, "are not representations or didactic illustrations, but rather material–semiotic nodes or knots in which diverse bodies and meanings coshape one another" (4). In this way, the "human" is conceived as an entangled site wherein biological and socio-historical trajectories congeal as a dynamic and iteratively-sustained being in the world. Cary Wolfe qualifies our status as "humans" by insisting that "we ourselves are human *animals*" (xxv), thus emphasizing the primacy of our embodiment as a kind of animal against which the metrics of the "human" can be applied. Similarly, Barad will often employ scare quotes when referring to *"humans"* (i.e., "the 'human' and its others" [136]) to connote both the inadequacy of the term as well as its persistence in structuring how the set of beings it (incompletely) describes see themselves in the world.

In each of these cases, we can observe an effort to qualify the distance between the categorical construct of "the human" from the actual embodiment of the beings the term ostensibly describes. Thus, as a kind of shorthand for this basic dynamic, throughout what follows the set of beings constituted by the normative impositions of humanism will simply be addressed as *"human" beings*, which, as should hopefully be clear by now, should be understood not as a term which denotes "a kind of being that is also a human" but rather "a being upon whom the metrics of 'humanness' (as stipulated by liberal humanism) have been, or at least could be, applied." In this way, I hope to drive a wedge between the idea of *"the human"* and the condition of *being*, while at the same time remaining cognizant of the role that liberal humanism (and its restrictive notion of a "universal humanity") continues to play in the constitution of the the modern subject.

I will point out as well that I am not at all suggesting that the term *"human" being* is going to completely resolve the tension described above. My aim is simply to make explicit why

the term *human* is so contentious: it is both too exclusionary to uncritically embrace and too deeply embedded in our critical heritage to completely drop. In this sense, I hope for this provisional terminological clarification to accomplish for the set of beings unevenly structured around the term "human" something like what Derrida meant to imply through his notion of the *animot,* a neologistic portmanteau combining the French words for "animal" and "word." For Derrida, the term *animot* was meant to subtly draw attention to the categorical imposition of the term "animal" which, as he points out, is "a word that men have given themselves the right to give" (400), and, much like the term "human", has gradually come to be taken as an ontological starting point, thus sharply overstating the dynamism of the set of beings the term is intended to connote. As Derrida summarizes, "[b]eyond the edge of the *so-called human*, beyond it but by no means on a single opposing side, rather than 'The Animal' or 'Animal Life,' there is already a heterogeneous multiplicity of clinging, or more precisely...a multiplicity of organizations of relations between living and dead, relations of organization or lack of organizations among realms that are more and more difficult to dissociate by means of the figures of the organic and inorganic, of life and/or death" (399). It is my contention that the term *human* serves to flatten a similar multiplicity of beings and relations. The appended punctuation of the term *"human" being* is intended to be just jarring enough to remind us of this.

Finally, this slight terminological clarification is not meant to signify the emergence of some new kind of being. I am not looking to usher self-assured *human beings* into a less certain, punctuationally-convoluted future as *"human" beings,* but rather, precisely the opposite. By addressing the set of beings constellated around the exclusionary liberal humanist notion of a universal humanity as "human" beings, I hope to call attention to the role that "the human" plays not

as an ontologically given category of being, but rather, as an emergent, ideologically-driven construct that mediates access to or engagement with the experience of being. In this way, we can begin to reconcile the "human" being with her role in relation to the rest of nature, as an emergent entity within a singular, dynamic universe.

Chapter Two: Addressing "The Human" in The Posthuman Turn

In the last chapter, we outlined a conception of "the human" as a categorical imposition of nineteenth-century liberal humanism which has been *mistaken* for an ontologically-given and objective starting point for inquiry. We then clarified how critical posthumanism aims to rectify this mistake by way of "decentering the human", which is emphatically *not* an effort to replace some ontologically-fixed being called "the human" with some new kind of being (as critics such as Richard Grusin mistakenly posit) but rather the exact opposite: by "decentering the human", critical posthumanism aims to interrogate the imposition of "the human" as an ontologically-given, universally-recognizable *category* of being, and in so doing posit alternative modes for being in the world. Thus, we are faced with a kind of paradox: namely, how does one even *address* the set of beings previously described as "human" once humanness is revealed to be not an innate property of a particular kind of being, but rather a performative categorical imposition? Once we start directing our discussion toward the actual practices of a specific set of beings in an effort to effect some kind of practical change within the domain traditionally referred to as "humanity", are we not implicitly compromising our commitment to "decenter the human"? In short, can critical posthumanism coherently retain "the human" as an object of inquiry without slipping back into the normative conception of "the human" advocated by liberal humanism, or must "the human" be rejected outright? With these questions in mind, the project of this chapter will be to develop a conception of "human" beings that can be coherently addressed without reverting to the anthropocentric assumptions that we have been working to avoid. To do this, we will be engaging more directly with Barad's agential realist account of matter, as well as the quantum mechanical theory upon which it is based, with an emphasis on how our conception of discrete beings in

the world (including, but not limited to, those we are terming "human" beings) must change in the posthuman turn.

Evoking The Shadow of Humanism

To better understand the nature of the problem at hand, the project of this first section will be to examine why, even after locating "the human" as an ideological construct (rather than an ontologically-given entity in the world), posthuman theorists are still at risk of slipping into a kind of residual humanism when discussing the practical implications of their theoretical work. To do this, we will examine the critical trend toward "phenomenon-oriented ontology," as exemplified by theorists such as Jane Bennett, and examine how, despite explicit aims to the contrary, these ontological models often fall victim to a kind of residual humanism. The goal of this chapter will be to provide the context necessary for understanding Barad's turn to quantum mechanics as a move to resolve this contradiction by making phenomena not only central to her conception of matter, but also ontologically primary.

As the last chapter hopefully made clear, when discussing "the human" in the context of critical posthumanism, we are not looking to address an actual set of beings in the world, but rather an ideologically-constructed mechanism for mediating power dynamics, which iteratively describes a set of beings that I would like to provisionally term *"human" beings.* While bifurcating *"the human"* from *being* productively clarifies the overall aim of the (critical) posthuman turn as an interrogation of the ideological assumptions of humanism (as opposed to, for example, *trans*humanism's anticipation of futuristic, technologically-mediated "human" beings), it poses its own set of problems. For example, critical posthumanist scholarship is still writing directed at (and done largely for the benefit of) "human" beings. Qualificatory punctuation aside, it must be

acknowledged that some basic impulse toward preserving the wellbeing of "human" beings serves as a primary motivator for much critical posthumanist scholarship. This concern is summarized concisely by philosopher Ian Bogost, who writes, "posthuman approaches still preserve humanity as a primary actor. Either our future survival motivates environmental concern, or natural creatures like kudzu and grizzly bears are meant to be elevated *up* to the same status as humanity […] Posthumanism, we might conclude, is not posthuman enough" (7-8). This is a serious accusation, and one that we must address before moving forward. To put Bogost's point in the context of the present writing, even if we can correctly understand "humanity" as a categorical imposition of nineteenth-century humanism, we still must acknowledge (and somehow account for) the role it (i.e., humanism) plays in structuring our (i.e., "human" beings) understanding of and engagement with the world, and somehow reconcile that acknowledgement with the larger project of "decentering the human." This is to say, posthuman critics must find some way to actively perform the bifurcation of *"human"* and *being* around which our theoretical work is structured.

As it turns out, this is easier said than done. Consider, for example, Rosi Braidotti's somewhat jarring appeal to humanism in describing her vision of the posthuman university. She imagines a "globalized, technologically mediated, ethnically and linguistically diverse society that is still in tune with the basic principles of social justice, the respect for diversity, the principles of hospitality and conviviality. I am aware [of] but do not mind the residual Humanism of such aspirations, which I take at best as a productive contradiction" (183). Productive or not, such a contradiction somewhat deflates the anti-humanism that Braidotti elsewhere openly advocates, and serves to illustrate how complicated it can be for one to convincingly address a set of

beings constituted (at least in part) by the same ideological structure from which one is actively distancing oneself. And indeed, while I would agree that recognizing this *as* a contradiction is in itself productive, insofar as it further drives a wedge between *"the human"* and the posthuman subject, it is less clear, *prima facie*, what this contradiction ultimately serves to produce. As sociologist Marcus Morgan points out, "whilst [Braidotti's] attention to the paradoxes of posthumanism […] is commendable, too often the reader is left with a sense that the theoretical project she is proposing is condemned to the futile efforts of a shadow attempting to flee its object" (204). While Morgan might be somewhat overstating the case, his analogy is fairly instructive: as Braidotti herself readily points out, the ideological assumptions of liberal humanism loom large over the construction of a posthuman subject, to a degree that one might suspect for any effort to fully *escape* its influence to indeed be futile. But, to cautiously extend Morgan's metaphor, if posthumanism *is* the shadow of humanism, it is emphatically *not* the case that posthumanism needs to "flee its object," or somehow outrun its relationship to humanism. Nor would this be the point. As discussed in the previous chapter, Braidotti (alongside Wolfe, Hayles, and Barad) defines her critical posthumanism in its relation to humanism: "Humanism's restrictive notion of what counts as the human is one of the keys to understand how we got to a post-human turn at all" (16). Indeed, the goal of posthumanism, like the shadow of an object, is to provide the depth of field necessary to fully account for the contours of the object to which it is tethered (i.e., humanism). With this in mind, the project for critical posthuman theorists is not to flee from or otherwise abandon humanism, but rather to engage with it from a critical distance, such that we can productively employ its virtues (which, as Braidotti points out, include "the basic principles of social justice, the respect for diversity, the principles of hospitality and conviviality" (183)),

while at the same time remaining responsive to (and thus resisting an uncritical embrace of) the Euro- and anthropocentric assumptions that humanism too frequently entails.

Thus, a key position to be grasped here at the outset of the second chapter (and one which is best understood as a kind of corollary to the definition of the posthuman turn outlined in the first chapter) is this: taking *"human" beings* as the focus of posthuman inquiry does not fundamentally contradict its project of "decentering the human." It is, in fact, a necessary condition for its enactment. In order to displace "the human" as the ontologically-given universal figure around which the rest of the world is somehow structured, posthumanism must fully account, through rigorous critical inquiry, for what, exactly, *"human" beings* are. If we are not, ultimately, the set of free-acting, self-determining and objectively-rational beings imagined by nineteenth-century liberal humanists, but rather a self-reflecting subset of nature with a certain set of capacities and limits,[5] then to be concerned for the well-being of "humanity" is not ultimately a bad thing, as long as the pursuit of that well-being is understood to be coextensive with the well-being of the dynamic set of beings alongside which "we" iteratively constitute the world.

What is needed, then, is a better set of analytical tools with which to describe "human" beings in a posthuman context, in a way that can meaningfully prescribe active practices for responsive engagement with the world without falling into the Euro- or anthropocentric assumptions of liberal humanism, wherein "human" beings are valued or ordered hierarchically above their "nonhuman" counterparts. And this need is well understood: many theorists working within

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[5]This is a point that will be returned to in some detail later in this chapter, but it is worth noting that this basic sentiment extends far beyond critical posthumanism, and has similarly vast implications. As Noam Chomsky succinctly describes in a recent book, "if we are biological organisms, not angels, much of what we seek to understand might lie beyond our cognitive limits…if there were no limits to human intelligence, it would lack internal structure and would therefore have no scope: we could achieve nothing by inquiry" (104-05).

critical posthumanism have attempted to formulate models for describing "human" beings and their practices within a sort of rhizomorphic network of relationality, or in what has come to be known more generally as a "phenomenon-oriented ontology."[6] The basic project, for most phenomenon-oriented models, is to rearticulate "human" beings within a larger set of relational entanglements, or what Deleuze and Guattari call an "assemblage," or "a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them across ages, sexes and reigns – different natures" (Deleuze and Parnet 69). What is crucial to note, for our purposes, is that Deleuze and Guattari's assemblages are built on *heterogeneous* relationality: they emerge through the convergence of a set of ontologically-distinct beings in the world. While these heterogeneous assemblages do not *implicitly* assume any hierarchical ordering of their constituent beings (and in fact, advocates of assemblage theory will maintain that it does exactly the opposite), what I would like to posit is that this expectation of heterogeneity serves as the basis through which a kind of residual humanism can infect the model.[7] Because these assemblages are essentially emergent collectives whose constituent elements necessarily prefigure their emergence, there is a tendency for a certain set of those constituent elements (i.e.,

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[6] Before we delve too deeply into a discussion of assemblages and agency, I should address the fact that, despite our discussion of his earlier work on modernity, we are not going to look at Latour's Actor-Network Theory, which, although it does engage with a kind of assemblage, is less concerned with the ontological status of beings (or, as Latour instructively terms them, "actants"), but rather the *practical results of their entanglements*. In fact, he interestingly opts to leave the ontological status of his actants as a kind of mystery, writing "no one knows how many people are simultaneously at work in any given individual; conversely, no one knows how much individuality there can be in a cloud of statistical data points" (54).

[7] I should also point out that, as it is outside the scope of the present writing to perform a more rigorous account of assemblage theory, my focus here is primarily on how the notion of the assemblage has been used, or perhaps misused, by certain posthuman theorists, insofar as it relates to Barad's own distrust of the term "assemblages."

"human" beings) to mistakenly see themselves and their practices (the ontological primacy of which has remained unchallenged) as central, as if by default.

For example, in her book *Vibrant Matter*, Jane Bennett develops a theory of vital materialism that leans heavily on the Deleuzian notion of assemblages in an effort to conceptualize the diffuse set of actors (both "human" and not) that are involved in the enactment of any given phenomena. The goal, for Bennett, is "to articulate a vibrant materiality that runs alongside and inside humans to see how analyses of political events might change if we gave the force of things more due" (viii). For Bennett, the emphasis on a wider set of beings is meant to recontextualize "human" agency as just one of many actors behind any given phenomena, such that "[t]he locus of agency is always a human-nonhuman work group" (xvii). The benefit of this approach is that, in theory, it allows us to conceptualize agency as an *interactive* process that emerges through the interaction a diverse set of beings. Thus, "human" beings are forced to account not only for their own intentions, but for how those intentions will interact with a whole set of beings already active in the world.

However, Bennett runs into a familiar problem when she attempts to cash out her ontological model into a prescription for how exactly one might structure a politics that takes seriously the agency of non-human actors. She writes, "surely the scope of democratization can be broadened to acknowledge more nonhumans in more ways, in something like the ways in which we have come to hear the political voices of other humans formerly on the outs" (109). Bennett's vision of a "democracy of things" amounts to a world where the structure of democracy is simply *extended* to include non-human actors. Discrete objects like powerlines, ball-point pens, and coffee mugs are invited to participate in a "democratic" process that is still primarily designed by

and for "human" beings. Thus, Bennett implicitly reaffirms the centrality of "the human" and humanistic ideals. Humanism, in her account, simply expands its borders into a nonhuman landscape in which "the human" is always already at the centre.

Indeed, even the analogy through which this "democracy of things" is presented ought to raise a few red flags if we consider the actual hurdles that most political groups previously "on the outs" face when assimilating to programs that were constructed before their inclusion. In his book *Habeas Viscus*, Alexander Weheliye points out that, "[i]f racialization is understood not as a biological or cultural descriptor but as a conglomerate of sociopolitical relations that discipline humanity into full humans, not-quite-humans, and nonhumans, then blackness designates a changing system of unequal power structures that apportion and delimit which humans can lay claim to full human status and which humans cannot" (3). "Out groups" (viz., in this case, the black community) cannot simply be reinscribed within the boundary of "full humans" without significant changes to the entire definition of "humanness." Meaningful inclusion is predicated on a restructuring of the system *as a whole*. Bennett's suggestion that this simply amounts to broadening "the scope of democratization" dramatically diminishes the impact of the changes required throughout the whole system for real inclusivity and participation: it is not simply a matter of scope.

The whole issue, as I see it, is summed up pretty cleanly when Bennett attempts to cash out her theory into a kind of ethics. She suggests that "[p]erhaps the ethical responsibility of an individual human now resides in one's response to the assemblages in which one finds oneself participating" (37). Rather than instilling a sense of responsibility toward one's assembled community of human and non-human others, Bennett's notion of the assemblage leaves the human

actor observing his relationality to others only indirectly, while he vigilantly monitors his own participation in assemblages whose trajectory he appraises to be "likely to do harm" (37). What is important to note is not only how this conception of agency leaves the human disconnected from what he would otherwise view as "his" actions, but also, perhaps more fundamentally, the fact that, in a certain basic sense, it actually *reaffirms* the distinctly humanist ontological binary between human and nonhuman that Bennett is trying to distance herself from. The human is *still figured* as the starting point of inquiry, as he vigilantly calculates and reacts to his relationship to a heterogeneous assemblage from which he is implicitly uniquely capable of extricating himself.

While Bennett's turn toward this residual humanism does read jarringly against the theoretical project of her work, my suspicion is that she is lead to this position on the basis of her heterogenetic account of the assemblage. Because her notion of assemblages implicitly requires a set of ontologically distinct beings who then iteratively enact a "confederate agency" (37), Bennett's vital materialism does not sufficiently problematize "the human" as a given point of departure. The heterogeneity of her assemblages in fact necessarily fixes the ontological status of "the human" as a discrete being before its inscription within the assemblage. Thus, the human subject remains the starting point of his own calculus, with all the anthropocentric and individualistic assumptions that the liberal humanist conception of "the human" entails. This subject then situates himself within an assemblage of others, who figure mostly as potential impediments to the enactment of his particular intentions. Indeed, Bennett herself provides an account of this basic principle, through her interpretation of Henri Bergson's vitalism: "Attracted to the route of least resistance, the material tendency is a lazy preference for inertia […] This distortion is necessary and useful because humans must regard the world instrumentally if they are to survive in it: there

is an 'inevitable propensity of our mind' to view the world as if it consisted not of an ever-changing flow of time but of a calculable set of things" (77). This tendency toward instrumentality, wherein the world is reduced to a set of "things" that are comprehended primarily in their use-value to a central "human" subject, thus provides the preconditions for the reemergence of the humanist impulse toward anthropocentrism, through which "the human" can be covertly reinstalled as the central figure of the heterogeneous assemblage. Without challenging the ontological primacy of the "human" being, Bennett is left with no recourse to combat the inertial presence of humanistic anthropocentrism.

With this in mind, we can come to understand Barad's own distrust of the notion of the "assemblages." As she describes, in her notion of agential realism, "[h]umans do not merely assemble different apparatuses for satisfying particular knowledge projects; they themselves are part of the ongoing reconfiguring of the world" (171). For Barad, thinking of phenomena in terms of "assemblages" problematically suggests the role of "human" beings is somehow that of both participant *and* observer, implicitly affirming an ontologically-given human subject that (at least partially) pre-figures the emergence of the assemblage. In other words, "the assemblage" comes to resemble the kind of falsely "objective" tool of liberal humanistic inquiry which ultimately serves to further separate (human) "culture" from (nonhuman) "nature" (to recall Latour's criticism of the "moderns" outlined in the previous chapter). For this reason, as we shall see in the next section, Barad's own phenomenon-oriented ontology is structured around a slightly modified notion of the assemblage, which she terms "the apparatus," following the philosophy-physics of Niels Bohr. For Barad, apparatuses are

> not assemblages of humans and nonhumans; they are open-ended practices involving specific intra-actions of humans and nonhumans, where the differential constitutions of humans and nonhumans designate particular phenomena that are themselves implicated in the dynamics of intra-activity […] human bodies, like all other bodies, are not entities with inherent boundaries and properties but phenomena that acquire specific boundaries and properties through the open-ended dynamics of intra-activity. (172)

The point to be grasped, as we begin our more direct discussion of Barad's agential realism, is that she is consciously working to give a phenomenon-oriented ontology that does not rely on the notion of a being ("human" or otherwise) that prefigures its phenomenal entanglement. Unlike Bennett, whose heterogeneous assemblages problematically enable (if not outright encourage) a kind of residual humanism, Barad's agential realism, as we shall see, is explicitly structured to preclude that potentiality. As she describes, her account of phenomena "need not involve humans. Indeed, it is through such practices that the differential boundaries between humans and nonhumans, culture and nature, science and the social, are constituted" (140). As we shall see, for Barad, the issue of residual humanism can be resolved by producing an ontological model that not only focuses on phenomena, but also, more fundamentally, takes phenomena (or what Barad terms "entanglements") to be the primary ontological unit, prefiguring the emergence of individual bodies both "human" and otherwise.

Waves, Particles and Phenomena: Locating the Ontologically Primary Unit

Like Bennett's vibrant matter, Barad's conception of agential realism could be thought of as a kind of distributive mode of enactment, insofar as agency is understood not as the unique capacity or property of individual beings in the world, but rather an emergent feature of the relationality between beings (or, as Barad puts it,"[a]gency is not an attribute but the ongoing reconfigurings of the world" (141)). But the two models vary in at least one fundamental sense. Where Bennett examines the emergence of agency in the interaction between a set of macroscopic objects (i.e., "one large men's plastic work glove […] one dense mat of oak pollen […] one unblemished dead rat (4)) as a starting point for her assemblages, Barad takes this a step further by producing a model wherein discrete objects do not prefigure their entanglements, but are, conversely, iteratively constructed *by* them. As discussed above, this move to not only centre phenomena (as Bennett does) but to see them as ontologically *primary* serves to resolve the issue of residual humanism that too often haunts even the most rigorous posthumanist theoretical work. "Human" beings and their anthropocentric assumptions do not, strictly speaking, prefigure their entanglements, but rather emerge *through* them. With that in mind, the project of this section will be to examine Barad's theoretical justification for this move, which is going to require a brief overview of several key quantum mechanical insights developed by physicist Niels Bohr as the result of a fairly technical debate between Bohr and Albert Einstein over an issue that has come to be known as "wave-particle duality." The result of this section will be a fairly broad outline of how Niels Bohr's conception quantum mechanics provides not only a strong scientific basis for posthuman thought, but also more specifically the theoretical grounds for Barad's conception of agential realism.

Before we get too deeply involved in the details of this debate, though, we would do well to keep in mind that for Bohr, this debate (as well as physics generally) was always primarily philosophical rather than strictly scientific. To illustrate Bohr's approach to the relationship between philosophy and physics, consider this short account written by physicist Werner Heisenberg of his first time meeting Bohr. On conversing with Bohr after a lecture he had given at Göttingen in 1922, Heisenberg observed,

> [f]or the first time I understood that Bohr's view of his theory was much more sceptical than that of many other physicists…and that his insight into the structure of the theory was not a result of a mathematical analysis of the basic assumptions, but rather of an intense occupation with the actual phenomena, such that it was possible for him to sense the relationship intuitively rather than derive it formally. (Heisenberg, quoted in Van Der Waerden 22)

Thus, as we examine the specifics of this debate, we must keep in mind that, while it seems to concern a fairly specific and technical problem in theoretical physics, what is at stake, for both Bohr and Einstein, is the much broader conceptual problem of how science ought to approach objectivity and knowledge. As Barad describes, "[i]ndeed, Bohr's philosophy-physics (the two were inseparable for him) poses a radical challenge not only to Newtonian physics but also to Cartesian epistemology and its representationalist triadic structure of words, knowers, and things" (97).

The story, ultimately, is comprised of two hundred years of debate on the nature of light. In his book, *The Rise of the Wave Theory of Light*, science historian Jed Buchwald provides some valuable historical context for the modern scientific discourse on the shifting nature of how "light" is understood. As he observes, in the early nineteenth century, scientists were divided into

two dominant schools of thought: the emissionists and the wave theorists. The former "conceived of light as a sequence of rapidly moving particles that are subject to forces exerted by material bodies" (xiii), while the latter "thought of light as a regular sequence of spreading disturbances in a universally present medium they termed the ether" (xiii). Buchwald goes on to demonstrate that both theories were able to adequately explain contemporary experiments, but due to the rising demand for quantitative deduction, wave theory (which was much more reliable for producing quantitative results) gradually became the dominant paradigm. Understood in light of Latour's conception of "the moderns" outlined in the previous chapter, this turn to affirm one theory over the other should not be a surprise. The preference for wave theory (without rigorously disproving emission theory) can be seen to follow directly from the modern liberal humanist impulse to explain the world to itself through quantitative data. As Buchwald points out, "the replacement of emission theory by the wave theory was…more a function of a change in the canons of what a theory must do than of its failing abysmally to explain some new experiment" (xiii). That is to say, neither theory was ever demonstrated to be false, and the dominance of wave theory[8] by the end of the nineteenth century was ultimately arbitrated by the dominant institutions of the contemporary (liberal humanist) scientific community. As Barad points out, "[n]ot the result of one singularly defining experiment that laid bare the nature of light for all to see, but rather through a confluence of different factors, by the end of the nine-

[8] It ought to be pointed out, as well, that wave theory was not without its problems: as science historian Bruce Wheaton observes, the load-bearing assumption of the entire theory was the aforementioned "ether", an omnipresent medium through which light waves ostensibly travelled, which, as he notes, "had to have seemingly contradictory properties. It had to be extremely rigid to sustain the high-frequency vibrations of light, and yet be sufficiently yielding to allow matter, such as planets, to pass through it freely" (9). These problems were never satisfactorily resolved.

teenth century, physicists were convinced beyond the shadow of a doubt that light is a wave" (99).

This assertion held fast until the early twentieth century, when a new set of experiments yielded results that, as Barad describes, "seemed to indicate that light manifests particle-like characteristics under one set of experimental conditions and wavelike characteristics under other circumstances" (99-100). This paradox came to be known generally as "wave-particle duality" and served as the basis for much scientific debate, the most well-known of which was a series of exchanges between Niels Bohr and Albert Einstein. Einstein took the position that the duality must, at least for the time being, simply be accepted *as* a duality, writing, "[i]t seems as though we must use sometimes the one theory and sometimes the other, while at times we may use either. We are faced with a new kind of difficulty. We have two contradictory pictures of reality; separately neither of them fully explains the phenomena of light, but together they do" (278). In contrast to Einstein, though, Bohr refuted the claim that wave-particle duality was, in fact, accurately describable as a "duality" at all, but rather, following Heisenberg's principle of indeterminacy,[9] could more accurately be described as a form of what he termed "complementarity." As he explains, Heisenberg's insight

> implies the *impossibility of any sharp separation between the behaviour of atomic objects and the interaction with the measuring instruments which serve to define the conditions un-*

[9] In brief, Heisenberg essentially demonstrates that, when observing atoms, certain pairs of quantifiable variables were mutually exclusive. The classic example is the relationship between position and momentum: as Bohr explains, "any measurement of the position of an electron by means of some device, like a microscope…will, according to the fundamental relations…be connected with a momentum exchange between the electron and the measuring agency, which is the greater the more accurate a position measurement is attempted" ("Discussion with Einstein" 208-09). What's significant to note, for our purposes, is Heisenberg's awareness of the impact of the observer as part of the equation: it is not that the variables themselves exert reciprocal limitations on each other, but rather that our observation of one variable inherently obscures the other.

> *der which the phenomena appear*…Consequently, evidence obtained under different experimental conditions cannot be comprehended within a single picture, but must be regarded as *complementary* in the sense that only the totality of the phenomena exhausts the possible information about the objects. (210, emphasis in original)

The experimental apparatus through which any given aspect or variable of an object is observed is not fundamentally distinct from that object, but rather comprises the necessary preconditions for the emergence of the information discerned. Thus, knowledge or information about objects is best understood not as a feature of the object itself, but rather as an emergent effect of the relationality of the object and the whole of the experimental apparatus.

While this might seem like a fairly innocuous theoretical clarification, Bohr goes on to demonstrate its philosophical implications. The most crucial of these, for our purposes, is that it fundamentally refigures the relationship between observer and observed in the scientific method. Bohr's insight did not pertain to the ostensible paradox of "wave-particle duality" as such, but rather, worked to reconfigure the observer as an essential feature of the emergence of such a paradox in the first place. Rather than stating that sometimes light is particulate, and sometimes it is a wave, Bohr insisted that sometimes we *observe* light as particulate, and sometimes we *observe* light as a wave. In this way, he asserts a model of the human observer that is strictly limited in his capacity to discern knowledge, and in so doing, quietly refutes the dominant liberal humanist conception of man as the objective and isolated observer of a static and wholly knowable natural universe. As science historian Bruce R. Wheaton observes, through Bohr's insights, "[n]ature was declared to be only imperfectly rationalizable in terms of human experience with macroscopic interactions. The programmatic goal formulated in the seventeenth century to re-

duce all physical phenomena to consistent mechanical representation was here recognized to be unattainable" (Wheaton 1-2). Bohr recasts scientific theory not as the mechanism by which some vitruvian conception of a uniquely rational "human" methodically translates the natural world into objective knowledge, but rather a specific set of practices and physical arrangements that attempt to describe certain aspects of a world in which we "human" beings are active participants.

This provides the basis for Bohr's most famous refutation of Einstein, who, alongside Boris Podolsky and Nathan Rosen, publishes a paper in 1935 which asserts that quantum mechanics can present only an incomplete theory of concrete reality.[10] In response to this, Bohr writes, "[s]ince these conditions [i.e., the experimental apparatus] constitute an inherent element of the description of any phenomenon to which the term 'physical reality' can be properly attached, we see that the argumentation of the mentioned authors [i.e., Einstein, Podolsky, and Rosen] does not justify the conclusion that quantum-mechanical description is essentially incomplete" ("Physical Reality," 700). For Bohr, quantum mechanics is completed by the insertion of the experimental apparatus as part of the physical reality that the theory aims to describe. Thus, where Einstein et al. want to locate theoretic objectivity in "the possibility of predicting [a given quantity] with certainty, without disturbing the system" (777), Bohr refutes the notion that "disturbing the system" can be avoided at all, as the whole of the scientific apparatus by its very

[10] While it's outside of the scope of the present writing to give a full account of Einstein et al.'s objection, its instructive to consider their conditions under which a theory can be considered "complete." They write, "every element of the physical reality must have a counterpart in the physical theory" (777). This condition essentially assumes that *all* of physical reality (i.e., "every element" of it) is necessarily accessible to theoretical pursuit. To put it a little crudely, the world, for Einstein et al., is essentially a set of unobstructed data points waiting to be observed and catalogued by a uniquely and objectively rational human actor.

nature constitutes a precise rearrangement (or "disturbance") of the system to discern a given quantity.[11]

In this way, we can understand Bohr to be subtly assembling the pieces of what we would now term a posthuman worldview: the "human" being, no longer an ontologically-given objective measurer of all things, becomes a figure for whom certain aspects of the natural world are necessarily obscured and inaccessible due to his entanglement in their emergence. Similarly, science (as a practice) is transformed from the mechanism through which a static natural world is catalogued and made orderly relative to the "human" observer, and becomes instead, for Bohr, a method by which the world, and "human" beings along with it, is literally rearranged to provide the conditions for constructing and then observing certain quantifiable variables. The crucial shift to note here, as alluded to above, is that, because Bohr now wants to ascribe the observable properties of any object not as features of the object itself (as had been the traditional view), but rather as emergent features of the entanglement between the observed object and the apparatus through which it is observed, we are forced to reconsider what, exactly, constitutes the ontologically-primary feature of this new description of "concrete reality." As Cliff Hooker observes, "*[d]escriptively*, there is a *single* situation, no part of which can be abstracted out without running into conflict with other such descriptions (namely, those of complementary situations). The object cannot be ascribed an 'independent reality in the ordinary sense' " (156, emphasis in original). The object of inquiry ceases to be an ontologically-given starting point with an independent reality and becomes, for Bohr, contingent upon its apparatus for its emergence as such.

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[11] That being said, it is also not the case that Bohr wants to write-off the notion of objectivity completely, as we will see in the next section.

Now, the innovation that Karen Barad makes in interpreting Bohr (which, it will turn out, functions as the basis for her own agential realist account) is that she takes Bohr's explanation here to not only be a refutation of Einstein et al.'s liberal humanist conception of "objective reality," but also a *positive* account of Bohr's own conception of what, ultimately, constitutes reality. She cites the same passage from Bohr's response to Einstein et al. quoted above, writing,

> In discussing Bohr's use of the word 'phenomenon'[…] I pointed out that the 'conditions which define the possible types of predictions' constitute an inherent element of the description of any phenomenon. Therefore the first phrase of the last sentence is consistent with Bohr's use of the term 'phenomenon'. The last sentence then indicates that *the term 'physical reality' can properly be attached to phenomena.* (127, emphasis in original)

Barad is here positing that, for Bohr, the phenomenal entanglements of the apparatus (which, crucially, include our "human" observers) constitute the basic unit of "physical reality" upon which quantum mechanics is structured. Thus, Bohr not only displaces discrete objects as the basic unit of inquiry, but positively asserts his own unique conception of *phenomena* in their place. As he explains,

> [a]s a more appropriate way of expression I advocated the application of the word phenomenon exclusively to refer to the observations obtained under specified circumstances, including and account for the whole experimental arrangement […] speaking in such a way is just suited to emphasize that the appropriate physical interpretation of the symbolic quantum-mechanical formalism amounts only to predictions, of determinate or statistical character, pertaining to individual phenomena appears under conditions defined by classical physical concepts (*Atomic Physics* 64)

For Bohr, discrete objects are relegated to a position of contingency, relative to the ontologically-foundational phenomenal entanglement (of measuring apparatus, observer, ambient conditions, etc.) through which they emerge.

And this, ultimately, is the posthuman conception of the universe that Barad advocates. It is not the static universe that a uniquely rational "man" methodically orders for himself (as nineteenth-century liberal humanists suggest), nor is it a universe of discrete entities iteratively and heterogenetically coalescing into agential assemblages (as Bennett argues), but rather, a universe of constant phenomenal entanglement and activity, through which discrete objects iteratively and contingently emerge. And, as we will see, this becomes the load-bearing axiom of her account of "human" beings and their practices. As she describes, "[h]umanist accounts understand [the production of phenomena] as a direct consequence of human actions, choices, intentions, commitments, ideals, values, concepts, beliefs, presuppositions, goals, and the like. Contrary to this view, I would argue that determinately bounded and propertied human subjects do not exist prior to their 'involvement' in naturalcultural practices" (171). Thus, as we move into a more direct examination of Barad's agential realism and how "human" beings are conceived within it, we must keep in mind this basic shift away from discrete objects and toward phenomenal entanglements as the ontologically-primary unit for our posthuman subjects.

Coherently Addressing "Human" Beings

Having just covered a good deal of fairly dense theoretical ground at a relatively brisk pace, it might be in our best interest to just flatly restate the most critical insights that the previous section was intended to impart in relation to the role of "human" beings in Barad's agential

realism. This can essentially be boiled down to two crucial observations. The first and most obvious is that Bohr's philosophy-physics provides the basis for a conception of the universe that is not only focused on phenomenal entanglements but makes them *ontologically primary*. As has been alluded to above, this subtle clarification will turn out to be a major factor in differentiating Barad's own agential realist account from the heterogeneous assemblages of Bennett's vital materialism and the residual humanism that it invites, and it will serve as the basis for coherently addressing "human" beings without endorsing anthropocentrism. The second observation is that whether atomic entities are fundamentally particulate or wavelike (i.e., the major contention for the nineteenth-century emissionists and wave-theorists) is never, ultimately, resolved. Instead, the problem is reframed to more fully account for the role of the observer as an active constituent in the process by which our atomic entities emerge as either wavelike or particulate (and on this point there *is* consensus: recall that Einstein also recognized that "we must use sometimes the one theory and sometimes the other, while at times we may use either" (278), and his objection was that this seeming duality indicated a theoretical "incompleteness" in quantum mechanics). This point is important to the present writing both because it serves as theoretic justification for Barad's own agential realist account, and because the paradigmatic shift that this reframing necessitates is instructively analogous to the shifting conception of "human" beings that the posthuman turn is attempting to enact. To reiterate, the posthuman turn is not so much looking to resolve the tension Latour points to between "nature" and "culture" (or even the supposed dichotomy Grusin wants to interrogate between "human" and "nonhuman"). Instead, the posthuman turn aims to reframe those binaric divisions as *emergent* features within a singular and dynamic universe. With that in mind, the project of this final section will be to articulate

Barad's agential realism with an explicit focus on how "human" beings and their practices are to be understood in the posthuman turn. The end result will be a conception of the "human" being that can be directly addressed and engaged with without contradicting the posthuman project of "decentering the human" by falling back on some residually humanistic notion of "the human" as an ontological given, while at the same time accounting for the unavoidable presence of liberal humanism in the phenomenal entanglement through which the posthuman subject emerges.

As mentioned above, Barad's conception of agential realism is structured around Niels Bohr's quantum mechanical philosophy-physics, and thus demands a similar shift in thinking. Just as the liberal humanist conception of individually determinate entities with inherent and fixed properties (i.e., "the human" as an ontologically-given universal type of being) is well-suited for the atomistic and mechanical conception of the universe that drove the nineteenth-century scientific worldview, Barad's posthumanism (which, as she notes, "is not held captive to the distance scale of the human but rather is attentive to the practices by which scale is produced" (136)) is best understood as a critical extension of Bohr's quantum mechanical insights, wherein discrete objects of inquiry are inconceivable outside of the specific material arrangement that enables their emergence. The innovative move that Barad makes is that she extrapolates Bohr's unique conception of the experimental apparatus to provide what is essentially a posthuman account of Foucault's notion of discursive practice, which is both aligned with modern quantum mechanics and, crucially, "not calibrated to the human" (Barad 136).

As Barad asserts, "[d]iscursive practices produce, rather than merely describe, the subjects and objects of knowledge practices […] they are the local physical conditions that enable and constrain knowledge practices such as conceptualizing and measuring; they are productive of

(and part of) the phenomena produced" (147). What is significant is the emphasis on materiality or "physical conditions" in Barad's definition of discursive practices. As we will see, this serves as a kind of bridge between the theoretical projects of Foucault and Bohr, both of whom reject a representationalist account of language in favour of a shifting structure through which meaning (or "mattering") is iteratively negotiated. As Barad demonstrates, "the epistemological framework that Bohr develops…rejects the presupposition that language and measurement perform mediating functions. Language does not represent states of affairs, and measurements do not represent measurement-independent states of being" (138). In this way, Barad essentially aims to extend Bohr's unique conception of the experimental apparatus to give a posthuman account of discursive practices. In the same way that Bohr's apparatus productively locates quantifiable variables as emergent features of the entanglement between the observed object and the specific material arrangements through which the observation is being made (as opposed to figuring them as fixed properties of the object itself), Barad's conception of discursive practices locates meaning (or "mattering") not as a fixed property of a given word or concept, but rather as an emergent feature of the material conditions (i.e., social, historical, economic, etc.), through which discourse is iteratively sustained. For Barad, the "apparatus" not only sets the scope and limits of linguistic meaning, but, more fundamentally, prefigures the emergence of "subjects" and "objects" as such. The apparatus, for Barad, becomes a mechanism for understanding not only sets of complementary variables on the atomic level, but also for understanding how the world itself comes to matter (i.e., what emergent elements of the world are understood to be meaningful).

This might seem like a fairly substantial scalar leap, but based on our discussion of Bohr's philosophy in the previous section, we are well positioned to understand how this move is

justified. Essentially, Barad wants to posit that her expanded conception of Bohr's apparatus is itself a kind of discursive practice in the Foucauldian sense, but with one significant difference: where Foucault "fail[s] to provide an adequate account of the relationship between discursive practices and material phenomena" (Barad 146), Barad uses Bohr's notion of complementarity to posit that discursive practices (and the concepts that they enable and iteratively sustain) are inextricable from the specific material arrangements that enable their emergence as such. As she explains, "[a]ccording to Bohr, theoretical concepts (i.e., position and momentum) are not ideational in character but rather specific material arrangements"(139). As discussed in the previous section, this *is* ultimately what complementarity boils down to: certain quantifiable variables only emerge as meaningful within an apparatus that has been appropriately calibrated to locate them. Thus, those quantities, and the discrete physical objects that they describe, are best understood as emergent properties of the *phenomenon as a whole*. What Barad productively emphasizes, here, is the *materiality* of these phenomena. As she elaborates, "any measurement of [a given complementary variable…] cannot be attributed to some abstract, independently existing object but rather is a property of the *phenomenon*- the inseparability of the object and the measuring agencies" (139). Thus, where Foucault advocates a notion of discourse that, as he argues in "The Order of Discourse," seeks to "evade its ponderous, formidable materiality" (52), Barad's own conception of discourse is fundamentally inextricable from its material conditions. Discourse itself, for Barad, is a specific material arrangement that constrains what has meaning, or, literally, what *matters* in both senses of the word. In this way, Barad extrapolates Foucault's notion of discursive practices into what she terms "material-discursive practices" (146), such that *all* concepts (the most important of which, for our purposes, is the nineteenth-

century liberal humanist conception of "the human") are best understood not as abstract or immaterial platonic forms to which "human" beings have been granted a kind of transcendent access, but rather as emergent features of a specific material arrangement.

In this way, Barad presents a model for posthuman critical inquiry that does not depend on some prefigured notion of "the human." Understood in these terms, the goal of posthuman criticism is not, ultimately, abstract or immaterial but rather a *direct engagement with the phenomena through which the world comes to matter*. If concepts are inherently embodied in the phenomenal material conditions of their emergence, then to engage with those concepts is ultimately to engage with the actual material arrangements through which they iteratively emerge. In short, *the epistemological becomes inextricable from the ontological*. This too signifies a radical break from the liberal humanist account of inquiry. As Barad describes,

> [i]n traditional humanist accounts, intelligibility requires an intellective agent (that to which something is intelligible), and intellection is framed as a specifically human capacity. But in my agential realist account, intelligibility is an ontological performance of the world in its ongoing articulation. It is not a human-dependent characteristic but a feature of the world in its differential becoming. The world articulates itself differently. (149)

Like the complementary variables of position and momentum, knowledge is to be understood not as a property or feature of some discrete "knower" (or what Barad calls an "intellective agent"), but rather a feature of the phenomenon through which it emerges as a whole. To engage in inquiry, then, is to entangle oneself in the phenomenal process through which the world is iteratively articulated: not as an objective observer from a position of exteriority, but as an active participant who is both constituted by and a constituent of the knowledge therein produced.

The key point to be grasped here is that Barad's conception of the apparatus is ultimately a synthesis of Foucault's discursive practices (which figures *discourse* as the underlying structural constraints for producing meaning), and Bohr's experimental apparatus (with its emphasis on the specific material arrangements that not only produce the subjects, objects, and concepts that constitute the world but are inextricable from them). Ultimately, for Barad, the apparatus is the phenomenal mechanism that iteratively produces the subjects, objects, and concepts that *matter* (in both senses of the word).

Thus, we can begin to get a sense of where the "human" being (alongside all other ostensibly discrete beings in the world) fits in Barad's agential realist account. Discrete beings are not ontologically primary, but rather emergent features of the universe in its dynamic, intra-active entanglement. Crucially, though, this is not to claim that discrete beings are not "real" in the traditional sense of the word. Ontological contingency is not intended as a challenge to existence as such.[12] Rather, understanding discrete beings (and, most significantly for our purposes, "human" beings) as *emergent* features of an apparatus provides a productive foundation for inquiry. As Barad explains, her agential realist account "does not fix the boundary between human and nonhuman before the analysis ever gets off the ground, but rather allows for the possibility of a genealogical analysis of the material discursive emergence of the human" (150). Unlike the liberal humanist account, in which "the human" functions as the unchallenged and universal starting point for inquiry, Barad's agential realism productively enables us to account for the phenomenal process through which discrete beings iteratively emerge.

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[12] Indeed, anticipation of this exact confusion is one of the primary motivations for making the difference between *"the human"* (i.e., the nineteenth-century liberal humanist concept) and *"human" beings* (i.e., the actual set of beings unevenly constellated around the aforementioned concept) so explicit in chapter one.

What this necessitates, ultimately, is a new understanding of what "beings" are: not fixed things in the world but rather intra-active and relationally-contingent *processes of becoming*. Being a part of the universe is always an active process. Not only that, but, to borrow another term from the quantum mechanical lexicon, it is an *indeterminate* process, as the apparatus of each ostensibly discrete being's emergence is constantly rearticulating itself through the intra-active responsiveness of our dynamic universe. Agency itself is thus properly understood not as a property of discrete beings in the world, but rather the indeterminate process through which the world iteratively articulates itself. "Human" beings, then, do not "have" agency, but rather *participate*[13] in a dynamic and singular project of agential enactment. As Barad describes, "we are an agential part of the material becoming of the universe" (178).

With this conception of agency in mind, it might seem that to focus on the emergent set of beings we have termed "human" beings might put us at risk of slipping back into the anthropocentric humanism we have been working to avoid. But this is not necessarily the case. Joseph Rouse, for example, provides a compelling model of how seemingly distinctly "human" practices can be coherently inscribed within Barad's agential realist account. To do this, he first offers a succinct description of how *all* seemingly discrete beings in the world (and specifically, he follows Barad in examining simple echinodermic organisms called "brittlestars") are best understood within agential realism. As he observes, "[t]he 'brittlestar' ambiguously names both an entity and the iteratively enfolded phenomena that constitute it as the entity it is, an organism. It (the phenomenon) continuously enacts an 'internal' differentiation between the organism, and what thereby becomes its environment or 'outside', but neither side of that difference can be

[13] This, of course, raises the question of *how exactly this participation is constituted*, which will be the focus of the next chapter.

specified non-relationally" (11). Put simply, a discrete being emerges as discrete only *in relation to* what emerges at its environment. Thus, the boundary between a given organism and its environment is best understood as an intra-active point of entanglement, wherein the organism can employ a set of practical adaptations or intentionalities for "self"-preservation. Significantly, these practical behaviours (which, in the case of the brittlestar, would include avoiding perceived threats and searching for food) are best understood not as properties of the organism itself, but rather emergent features of the intra-active responsiveness between the organism and its environment (an evolutionary process that biologist Lynn Margulis terms *symbiogenesis*[14]). Thus, as Rouse summarizes, organisms are best understood as "robust patterns of self-maintaining differentiation from what thereby become their 'environments'" (12).

This notion becomes slightly more complicated in the case of organisms who, through extended intra-active entanglement with their environment, develop a niche capacity to conceptuality articulate the world to themselves, constituting what we have been referring to as "knowledge." In his elaboration of Barad's conception of knowledge, Rouse emphasizes her unique notion of materiality. As he observes, for Barad, "[c]onceptual content is not a representation of an object, but a material articulation of a phenomenon, which encompasses both meaning and what is meant" (5). As noted above, Barad positions her own account in opposition to representationalism, such that knowledge, or what Rouse terms "conceptual content," does not "represent" states of affairs in the world, but rather emerges as a feature of an apparatus. Crucially, though, this does not render conceptual content immaterial. While knowledge of an object does not corre-

[14] It is worth noting that this term, which Margulis delineates in her book *Symbiotic Planet*, is similarly figured as an explicit challenge to anthropocentrism. She writes: "I suspect that the near future of *Homo Sapiens* as a species requires our reorientation toward the fusions and mergers of the planetmates that have preceded us in the microcosm" (11-12).

spond directly *to* that object, it does, ultimately, emerge contingent upon a certain specific material arrangement. In this way, Rouse suggests, beings with the capacity to *conceptually* articulate their environment to themselves, in addition to the more basic organic tendency to maintain differentiation from what emerges as environmental, ultimately navigate the world through two *materially distinct dimensions of intentionality*, and thus exemplify what he terms a "two-dimensional intensional directedness" (20), or what is more traditionally understood as "self-consciousness." While I would opt to remain agnostic with regard to the capacity for "non-human" organic phenomena to access something like the "self-conscious" conceptual articulation evident in "human" beings, I would agree with Rouse's assessment that "[a]s far as we can tell, the two-dimensional normativity of conceptually articulated intra-action has only emerged within the material arrangements of human ways of life as 'naturalcultural'" (12). What is crucial to note here is that we are not being forced to affirm *"human" beings* as either a "natural" or "cultural" phenomenon, but rather, to see "nature" and "culture" as two sides of the same conceptually-articulated coin. As "human" beings, we are capable of conceptually articulating our world to ourselves in infinitely novel iterations, all of which emerge intra-actively through engagement with the specific material arrangements that constitute our environment (consider, for example, the economic, social, and geopolitical arrangements that gave rise to the liberal humanist worldview, as outlined in chapter one). It is this conceptually articulated world that "we," as participants in (and of) the world, iteratively co-constitute, through our active entanglement in the world's indeterminate project of becoming.

Importantly, though, this move to differentiate "human" beings from other phenomena based on our capacity to maintain an apparently (though not necessarily) unique two-dimensional

intentionality toward the world could be misconstrued as a slide back toward the anthropocentrism that Barad explicitly rejects. As Rouse goes on to argue, this is emphatically not the case: as he asserts, "conceptually articulated responsiveness to our environment is not a special capacity of us as organisms: it is an articulation of the world, via the gradual, intra-active construction of a conceptually articulated niche" (21). Properly understood, conceptually articulated intentionality (like *all* practical adaptations) is not a property of "human" beings, but rather an emergent feature of the universe in its ongoing articulation. Put another way, the capacity to conceptually articulate one's intentions is not gifted to discrete "human" beings from some transcendental other (i.e., as Chomsky wryly points out, we are not angels), but rather emerges intra-actively, through the ongoing entanglement and responsiveness of nature as a whole.

For Rouse, this notion of "two-dimensional intentionality" serves to better demonstrate why the phenomenal entanglements through which "human" beings conceptually articulate our intentions are always inherently ethical in nature. As he posits, "[t]he two-dimensional normativity of conceptually articulated understanding opens a gap between meaning and truth broadly construed. It thereby also establishes an accountability for what we become and how we live, within our constitutive goal-directedness toward maintaining our conceptually articulated way of life" (22). Because "human" beings have emerged with a capacity not only to respond to our environment (i.e., the *one-dimensional* intentionality exemplified by the brittlestar) but also to articulate a sense of our "selves" within that environment through what Rouse terms "a partially autonomous practical repertoire" (20) which (like all apparatuses) is ultimately without fixed boundaries and thus indeterminate, we are inherently accountable for (i.e., literally *responsible*

to) our conceptual articulations. We are responsible for our participation in how our world is conceptually articulated, and how we orient ourselves within that conceptually-articulated world.

At this point, we are also hopefully beginning to see how Barad's agential realist account of the human will demand a new conception of ethical engagement that does not limit itself to the anthropocentric assumptions of humanism. As Barad explains,

> Responsibility—the ability to respond to the other—cannot be restricted to human-human encounters when the very boundaries and constitution of the 'human' are continually being reconfigured […] A humanist ethics won't suffice when the 'face' of the other that is 'looking' back at me is all eyes, or has no eyes, or is otherwise unrecognizable in human terms. What is needed is a posthumanist ethics, an ethics of worlding. (392)

Thus, as we move into the third and final chapter of the present writing, we will be engaging with the notion of a posthuman ethics that can both address "human" beings *and* situate them not as ontologically primary actors heterogeneously assembling with other beings, but rather as emergent processes of becoming whose sustained existence is precariously contingent upon their intra-actions within the singular and dynamic universe.

Chapter Three: Practicing Responsive Ethics Through Agential Realism

As our discussion thus far has hopefully made clear, the notion of entanglement is fundamental to Barad's theory of agential realism. Indeed, because the process of entanglement serves as the primary unit of Barad's ontology, it is also the basis for the conception of "human" beings that much of our discussion thus far has served to explicate. The "human" being, no longer the fixed and discrete ideal advocated by liberal humanism, instead emerges alongside the world through this ongoing process of entanglement.

But, as we move into our discussion of how our notion of entangled and emergent "human" beings can be applied toward to construction of a posthuman theory of ethics, we must contend with the equally important (if somewhat less rigorously defined) notion of *responsibility* that Barad employs to describe her agential realist ontology. As we will discuss, the interplay between these two concepts, entanglement and responsibility, serves as the basis for how Barad's agential realism can engage in a discourse on ethics. As Barad notes, "responsibility must be thought in terms of what matters and what is excluded from mattering" (394). For Barad, if "entanglement" connotes the process through which the world itself iteratively materializes, "responsibility" is perhaps best understood as the process by which that world comes to matter (though to be clear, these two processes are, like most aspects of Barad's theory, intimately intra-active and co-dependant, as evident in the dual sense of "mattering" discussed in the previous chapter). Despite the centrality of responsibility to Barad's conception of ethics, she does not fully develop *how* her notion of responsibility is meant to inform the practices of "human" beings, noting simply that "[r]esponsibility entails an ongoing responsiveness to the entanglements of self and other, here and there, now and then" (394). While this statement does instructively bifur-

cate "responsibility" from "entanglement,"[15] it does not get us all that much closer to an understanding of how responsibility can be employed in a practical discussion of ethics. With this in mind, the project of this final chapter will be to expand on Barad's notion of responsibility, with a particular emphasis on how it can be applied to a discussion of ethics in critical posthumanism. To do this, we will first define what exactly we mean by ethics, and consider why Barad's critical posthumanism does not fit nicely with more traditional ethical theory. With that in mind, we will turn to examine Barad's conception of responsibility directly as a basis for comparative evaluation of posthuman conceptions of ethics. Finally, we will consider how this notion of responsibly can and does inform discussions of ethics for critical posthuman theorists.

Clarifying the term "Ethics" in Agential Realism

Before we move into our discussion of how our conception of emergent "human" beings can inform a posthuman notion of ethics, it would be in our best interest to consider what exactly "ethics" is meant to connote in the present context. Barad does not situate herself within a particular tradition of ethical thought (i.e., virtue ethics, utilitarianism, deontology, etc.), but rather contrasts her own conception of ethics with what she terms the "traditional ethics" of liberal humanism. For example, following Emanuel Levinas (who we will discuss at some length in the next section) Barad writes, "the ethical subject is not the disembodied rational subject of traditional ethics but rather an embodied sensibility, which responds to its proximal relationship to the other through a mode of wonderment that is antecedent to consciousness" (391). She goes on to

[15]The significance of this distinction will become clearer as we move through our discussion, but the important thing to keep in mind, for now, is that while these two concepts are co-dependant in some basic sense (as noted above), they are not the *same* process, and "responsibility" is going to turn out to be more directly significant to our discussion of posthuman ethics.

explain that "[a] humanist ethics won't suffice when the 'face' of the other that is 'looking' back at me is all eyes, or has no eyes, or is otherwise unrecognizable in human terms. What is needed is a posthumanist ethics, an ethics of worlding" (392). In both cases, it appears that Barad is less interested in addressing any specific system of ethical theory than she is in defining her own conception of ethics against a more general trend in "traditional ethics" toward ascribing principles to a given "disembodied rational subject." She resists "rational" schematics of ethical engagement, which "won't suffice" in engagements that extend beyond what is "recognizable in human terms." To lay this out a bit more explicitly, we could state that, for Barad, the "traditional ethics" against which she is defining herself might best be understood as a system of principles (indeed *any* system of principles) meant to inform the behaviour of a rational "human" actor. In contrast to this, her own "ethics of worlding" is an effort to rearticulate ethical thought within an ontological model in which there are no pre-figured "human" actors for whom any system of principles can be prescribed, nor any pre-figured end toward which said system can be definitively oriented, but rather an ongoing process of articulation and rearticulation through which the world iteratively emerges and reemerges. Thus, for Barad, ethics can not be understood as an abstract set of principles that then inform behaviour. Rather, the term "ethics" describes this active and ongoing process of emergence. As she posits, "[e]thics is about mattering, about taking account of the entangled materializations of which we are a part, including new configurations, new subjectivities, new possibilities […] ethics is about accounting for our part of the entangled webs we weave" (384). This "accounting" must first and foremost be understood as an ongoing process that cannot be prescribed for in advance, but must rather remain open and indeterminate to accommodate "new possibilities."

What's also important to note, for our purposes, is that both "traditional ethics" and Barad's "ethics of worlding" implicitly assume some degree of indeterminacy and space for "human" intentionality. In both cases, we implicitly assume that there is some being (a "fixed" human in the former, an emergent "human" being in the latter) for whom a theory of ethics will have some kind of practical (if not exactly definitive) effect. For "traditional ethics," which can still rely on fixed notions of free and rationally-acting "humans", this is fairly straightforward: the liberal humanist subject, informed by the principles of this ethical system, exerts his agency against his environment in order to achieve some end (i.e., for Aristotelian virtue ethics, this end is eudaimonia; for Utilitarianism, it is some form of maximized benefit, etc.). For Barad, this formulation is less obvious. In an ontological model in which there are no fixed entities, and agency is a singular and ongoing process of which "human" beings constitute only a small fraction, it remains unclear how a discussion of ethics can gain any practical foothold toward any kind of end.

Thus, we can begin to get a sense of why ethics is such a slippery concept for Barad's agential realism. Although our discussion of agential realism has thus far worked to describe Barad's conception of agency as the process of the world's ongoing enactment (which includes and extends beyond the intentions of "human" beings), we must now find some way to directly engage with that intentionality without reverting to some fixed and privileged notion of "the human." Indeed, the project of a posthuman ethics seems to require attending to two conflicting impulses: we must both discuss the emergent "human" beings and their ethical engagements directly, while at the same time remaining cognizant of the fact that these beings are constituted

as "individuals" only briefly, through intra-active entanglements with what emerges as their environment, alongside the ongoing process through which the world rearticulates itself.

In order to resolve this apparent contradiction, let us again turn to consider Joseph Rouse's notion of "two-dimensional intentionality." As discussed in the previous chapter, Rouse employs Barad's agential realism to provide a conception of the "human" being that occupies two emergently distinct yet intra-active[16] modes of being. In Rouse's account, the "human" being exhibits both the organic tendency for distinguishing its "self" from its "environment" through an iteratively-sustained and permeable boundary, as well as the (ostensibly, though not necessarily) unique adaptive ability to produce a conceptual articulation of the world. This capacity for conceptual articulation, while not directly correspondent to the objects that iteratively constitute its "environment," is similarly constituted by some specific (yet not fully *determinate* in the technical sense described in the previous chapter) phenomenal entanglement. Crucially, neither of these modes of being are fundamentally reducible to the other: because the "human" being (as an organism) emerges alongside its capacity for conceptual articulation, it cannot be the case that we exist as organisms *prior* to our conceptual articulations. As "human" beings, our conceptual articulations do not obscure or otherwise mediate our access to the world, but rather are themselves fundamental conditions for our emergence as beings. As John Searle observes, "[b]ecause mental states, both conscious and unconscious, are themselves intrinsic features of the world, it is not strictly speaking correct to say that the way we discover the intrinsic features of the world

[16] A lot of the diction in this chapter is going to be slippery like this, and, while hopefully the two preceding chapters have sufficiently justified usage of a phrase like "emergently distinct yet intra-active," I still recognize that it is a little jarring. The key thing to remember, in Barad's ontology, is that phenomena are the primary units of reality, such that all other apparent features of the universe (i.e., objects, subjects, concepts) *emerge* from their entanglements as distinct from each other, but are still ultimately *intra*-acting, because they emerge from (and are thus contingent upon) the fundamentally homogenous process that is nature.

is to subtract all the mental states from it" (11). Because "mental states" (i.e., what we have been calling our "conceptual articulations of the world") are themselves features of the world, how we conceptually articulate the world to ourselves (including how we articulate our own conception of "self" within that world) is better understood not as the activity of interpreting a pre-existing "environment" within which we are already situated, but rather, the process by which we are iteratively brought into existence. Thus, when Barad suggests that "[e]thicality is a part of the fabric of the world" (182), it is this basic process that she has in mind. The conceptual articulations through which we emerge and iteratively orient ourselves in the world is, in this sense, an ethics.

What is significant to note as well is that because the "human" being emerges alongside his conceptual articulation of the world, it becomes not only counterproductive but literally incoherent to discuss "the human" as if it were a universal or ontologically-given type of being, as the liberal humanist conception of "the human" would suggest. This again aligns Barad's agential realism with Foucault, who observes,

> in a general fashion, [man's] corporeal existence interlaces him through and through with the rest of the living world; since he produces objects and tools, exchanges the things he needs, organizes a whole network of circulation along which what he is able to consume flows, and in which he himself is defined as an intermediary stage, he appears in his existence immediately interwoven with others. (*Order* 351)

The "human" being, according to Foucault, is inherently co-extensive with what emerges as his environment, and the various activities in which he participates (which for Foucault include economic exchange, scientific inquiry, production and labour) are best understood as the processes upon which the "human" being's emergence as such is contingent. Put simply, we emerge as

"human" through our intra-active entanglements with what emerges as our environment *and* the conceptual articulations through which those entanglements come to be meaningful to us.

And it is through this latter sense of our emergent becoming that we can begin to get a sense of what a posthuman ethics is going to look like. If the "human" being iteratively emerges by way of his conceptual articulations of his environment, then ethics must be understood as co-extensive with that emergence. As discussed in the last chapter, the conceptual articulations through which the "human" being navigates the world iteratively constitutes what comes to matter, in both senses of the word. In conceptually-articulating the world to himself, the "human" being not only iteratively constructs the subjects and objects that constitute his sense of self and environment, respectively (i.e., recall the tethering of the ontological and epistemological fundamental to Barad's account), but, more significantly, articulates certain value judgements regarding which of these emergent bodies are available for ethical consideration. Unlike the universalist notion of "the human" celebrated by liberal humanism, wherein one's availability for ethical consideration is an inherent and inalienable function of an ostensibly universal but ultimately exclusionary figure of the human body (wherein ethical consideration or "rights" are affixed only to those bodies who conform to some normative conception of what a "human" is), Barad's agential realism does not rely on some prefigured and ontologically-given kind of being to whom rights[17] can be affixed, and thus forecloses on a coherent discussion of rights as traditionally understood.

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[17] And I should point out, here, that in what follows I am obviously not looking to refute rights discourse as such. Instead, I am looking to address the fact that a coherent conception of agential realism (like most robust posthuman conceptions of "the human") is not compatible with the more traditional notion of irrevocable human rights. It is worth noting as well that this problem has been tellingly avoided by many posthuman theorists. As Upendra Baxi points out, "some of the finest writing concerning the posthuman in this genre scarcely pauses to relate human rights futures to a posthuman world" (197). What follows is perhaps best understood as an attempt to clarify this seeming incompatibility.

Interestingly, this may not be as big of a loss as one might assume. As Judith Butler describes, "[w]hat makes a body discrete is not an established morphology, as if we could identify certain bodily shapes or forms as paradigmatically human…but that is to miss the crucial fact that the body is, in certain ways and even inevitably, unbound— in its acting, its receptivity, in its speech, desire, and mobility" (*Frames* 52). For Butler, to structure a discourse of ethics around a normative and exclusionary conception of "the human" to whom rights can be affixed is to prematurely limit who (or what) such rights can ultimately be extended to. Thus, non-normative bodies (i.e., bodies not conforming to certain racial, sexual, gendered, or ability norms), or even phenomenal entanglements that never materialize as bodies as such (i.e., to whom or what do we affix "rights" to directly deal with an issue like anthropogenic climate change?[18]) are unrecognizable and thus excluded from (or at least underrepresented in) a discourse that focuses on "rights." As Butler goes on to explain, "it follows, then, that certain kinds of bodies will appear more precariously than others, depending on which versions of the body, or of morphology in general, support or underwrite the idea of the human life that is worth protecting, sheltering, living, mourning" (*Frames* 53). An ethics structured around a notion of inherent "rights" affixed to a given notion of what the "human" being is *supposed* to look like is thus constantly a step behind what the "human" being ultimately *is*: not the static vitruvian ideal celebrated by liberal humanism, but rather the dynamic and indeterminate process of becoming that is perpetually articulating itself alongside the rest of the world. If we are to take seriously the posthuman conception of "the human" not as a fixed type of being but rather a process of *becoming*, then a posthu-

[18] And to be clear, this is a real problem: by saying anthropogenic climate change is an issue only insofar as it impedes on the rights of future humans (i.e., "what kind of planet do we want to leave behind to *our children*?"), while often a necessary tactic, only indirectly targets the actual violence that humans are committing against the earth itself, and thus demonstrates one of the limits of rights discourse.

man ethics must move beyond the rigid calculus of interactions between fixed bodies endowed with a set of inalienable properties (of which, notably, we are constantly seeming to discover more), but rather place the emphasis on the entanglements through which these bodies iteratively materialize (or, literally, "come to matter"). As Barad describes, "ethics is therefore not about right response to a radically exterior/ized other, but about responsibility and accountability for the lively relationalities of becoming of which we are a part" (393). A posthuman ethics that takes seriously the project of "decentering the human" must move beyond a narrow focus on interacting and quantifiable bodies and instead emphasize the process of becoming through which the world articulates itself.

Interestingly, this need for discussions of ethics that move beyond fixed notions of "the human" to emphasize this intra-active process of becoming is beginning to be understood in a wide range of critical disciplines. For example, in her recent book *Ethics of Invention*, Sheila Jasanoff provides a timely critique of quantifiable-variable risk analyses in technological innovation. As she demonstrates, such analyses rest "on relatively thin descriptions of reality" (58). In place of this, she develops a model of analysis that can more fully account for the subtle dynamism of the intra-action between "human" beings, technology, and what emerges as their environment as a whole, writing, "[t]he risks of modernity […] are not purely technological—mere malfunctions within machines— but hybrid, dynamic, and sociotechnical" (56). Jasanoff develops a model of ethical engagement that does not attempt to simply describe what technology ought to be to accommodate some fixed notion of the "human" being, but much more productively works to reinscribe the relationship between "human" beings and their technology as an intra-active process of becoming. She advocates for what she terms the "technologies of humili-

ty," which, as she describes, "include a heightened concern for the way technological risks are framed and measured, a focus on the needs of the most vulnerable, an assessment of technology's unequal distributive impacts, and a conscious effort to remember the mistakes of the past" (86). For Jasanoff, an ethics of technological innovation cannot be limited to a thin description of the quantifiable risks of a given technology, but must more broadly account for the impact that such a technology would have in articulating the world differently.

Similarly, recent writings by environmental theorist Rob Nixon work to conceptualize a notion that he terms "slow violence," or "the violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is not typically viewed as violence at all" (2). For Nixon, the emphasis is on expanding the scope of what counts as violence beyond the normative frame of human experience, thus implicitly challenging the anthropocentric assumptions that inform our conception of what is deserving of ethical consideration, such that we can more readily account for disasters (ecological or otherwise) that "are anonymous and star nobody" (3). Throughout Nixon's work, we are again confronted with a model of ethics that works to distance itself from the normative anthropocentrism of rights discourse, toward a more fluid model of intra-active ethics that examines phenomena as a whole. Although Nixon and Jasanoff are working in unique fields of inquiry, the move for both theorists is structurally similar. Both theorists' work extends beyond a conception of ethics that is tailored to a fixed notion of "the human" and its attending limits, and moves toward a discourse of ethics wherein "the human" is not a fixed entity, but rather a malleable participant in the ongoing process through which the world articulates itself.

It is this basic move beyond a fixed notion of the human that is central to understanding Barad's conception of a posthuman "ethics of worlding." Rather than conceiving of ethics as a system of principles to be employed by rational actors toward some end, Barad posits ethics as the process through which the world's mattering is articulated on an ongoing basis. What is important to note is that, thus far, this conception of ethics as a process of "worlding" is essentially value neutral, and while both Nixon and Jasanoff are working toward ends that most observers would probably be inclined to view as "good," we have not yet begun to describe a notion of ethics that is synonymous with something like "morality": it is simply, as Barad claims, "a part of the fabric of the world" (182). Thus, in our next section, we will turn to address how this broader conception of ethics as "worlding" can be employed by "human" beings to achieve some positive effect, by way of a direct discussion of Barad's unique conception of *responsibility*.

Recognizing "Human" Responsibility

Thus far, we have sketched a basic conception of Barad's notion of ethics, which extends beyond a fixed notion of "the human" and instead describes the process through which the world (alongside its constituent beings, both "human" and not) articulates itself. As noted above, this process in and of itself remains essentially value-neutral. Sheila Jasanoff's "technologies of humility" constitutes an ethics, in that it articulates new conceptions of "the human" alongside our shifting technological landscape, but we can also point to less positive examples: U.S. President Donald Trump's vulgar nationalist populism is a kind of ethics as well, in that it describes an anachronistic conceptual articulation of the world wherein "human" beings are rigidly stratified by ethnic and religious identifiers. And while both of these conceptual articulations of the world

do constitute an ethics in Barad's sense of the term, it would be clear to many readers that one of these ethics is vastly preferable to the other. Thus, the project of this section will be to outline the mechanism through which we can appraise a given ethics. As alluded to above, this mechanism is *responsibility,* or the degree to which a given ethics is *responsive* to the inherent entanglements through which the world is articulated. By the end of this section, we will be better equipped to describe how some ethics are better (or "more responsible") than others.

First, let us consider the somewhat technical connotation that the term "responsibly" carries in this context. To recall: unlike the notion of agency advocated by liberal humanism, Barad's agential realism forces "human" beings to acknowledge their inherent entanglement in the world not as a potential principle of ethical engagement, but rather as an inherent and irrevocable feature of being-in-the-world. This inherent entanglement with the world, for Barad, essentially means that we are also inherently *responsible* for the world as well. As she describes, "just as the human subject is not the locus of knowing, neither is it the locus of ethicality. We (but not only "we humans") are always already responsible to the others with whom or which we are entangled, *not through conscious intent but through the various ontological entanglements that materiality entails*" (393, emphasis mine). "Human" beings, alongside all other emergent beings of the world, are not afforded the luxury of choosing whether or not to engage. Rather, our existence inherently entails our entanglement as part of a single dynamic agentive process, and thus affirms our inherent responsibility toward that process.

Indeed, the responsibility resulting from our inherent entanglement in the world provides the basis for our emergence as individuated "human" selves as such. As Butler observes, "could it be that when I assume responsibility what becomes clear is that who 'I' am is bound up with

others in necessary ways? […] In effect, could it be that through the process of assuming responsibility the 'I' shows itself to be, at least partially, a 'we'?" (*Frames* 35). For Butler, when we speak of responsibility, we are fundamentally talking about the (emergent) *ability to respond*, or the capacity to see our "selves" in relation to some similarly emergent other or set of others and conduct ourselves accordingly. Thus, the ongoing process through which we conceptually articulate ourselves against what emerges as our environment (i.e., our ethics, in Barad's unique conception of the term) is always already a process of iteratively determining the emergent set others for which or to whom we recognize our responsibility. This formulation is significant, because it allows us to use responsibility, or the degree to which a given ethics is responsive to the world, as a kind of baseline criterion against which we can compare opposing ethics.[19]

With this in mind, we can refine the criticisms of liberal humanism discussed in the first chapter. In this sense, the Euro- or anthropocentric shortcomings attributed to liberal humanism can be understood as essentially *irresponsible ethics*, in that they fail to fully grasp the depth of our responsibility to the world. As Butler observes, "[i]f I identify community of belonging on the basis of nation, territory, language, or culture, and if I then base my sense of responsibility on that community, I implicitly hold to the view that I am responsible only for those who are recognizably like me in some way" (*Frames* 36). Understood in these terms, the problem with the liberal humanist notion of a universal figure of "humanness" (which, as discussed in chapter one, extends beyond the broad binomial category of *Homo Sapiens* to assert a given culture at a given historical moment as somehow "more human") is that it inherently limits the set of others to

[19] Although, as we will see, this is never going to be in absolute terms. Some ethics might *appear* to be more responsive than others, but appearances (like Bohr's principle of complementarity discussed in the previous chapter) are always necessarily incomplete and obstructed by the observer.

whom its subjects can meaningfully be responsible, or able to respond. Rather than seeing the whole set of emergent others as similarly contingent phenomena within a single project of agential intra-action, the liberal humanist subject can recognize only those others that fit its narrow and exclusionary notion of "the human."

This is exactly the limited range of responsibility that Barad's posthuman conception of ethics is well situated to rectify. Again, we can recall Barad's dual sense of mattering, wherein the ontological is irrevocably tethered to the ethical, and ask: how do we rearticulate the world to ourselves such that those beings ignored by the exclusionary ethics of liberal humanism come to matter? How do we conceptually articulate the world to ourselves in a way that can responsibly account for those beings to whom (or to which) we are currently unresponsive? We can see how Barad's agential realist account is well positioned to respond to these questions. As discussed above, the key for Barad has always been the ontological primacy of phenomenal entanglements, such that the emergent subjects, objects, and concepts that iteratively co-constitute the world are contingent upon their intra-active dynamism for emergence as such. As she observes, "the ethical subject is not the disembodied rational subject of traditional [i.e., liberal humanist] ethics but rather an embodied sensibility, which responds to its proximal relationship to the other through a mode of wonderment that is antecedent to consciousness" (391). For Barad, the subject iteratively emerges alongside its ethics through an indeterminate process of intra-action that is necessarily prior to conscious intentionality. We have discussed this notion of emergent subjects at length in the previous chapter, but what is important to note in this formulation is the phrase "mode of wonderment," as it subtly captures the sense of humility that ought to inform our conception of the other(s) that iteratively populate our world. If we are to take seriously the

notion that our emergence as individuated "human" beings is necessarily contingent upon a set of (similarly emergent) others, but that those others are never *fully knowable* to us, then our ability to respond must always account for the fundamental incompleteness of our access to the whole of the phenomena. In contrast to the liberal humanist conception of a universal "human" whose actions are self-justified through his capacity for reason, which in turn somehow enables an ostensibly objective vantage from which the "correct" action is always self-evident (thus rendering any corrective self-reflexivity redundant), the posthuman subject must constantly revisit and rearticulate his conceptual articulations of the world (i.e., his ethics) out of a recognition that the enactment of any "reasonable" response to one's entanglements is always contingent upon the apparatus through which the response's parameters are articulated. What *matters* to each subject emerges as a feature of that subject's conceptually-articulated worldview, which itself is always contingent upon an incomplete understanding of the phenomena that it is conceptually articulating. To participate responsibly, we must vigilantly rearticulate our conceptual articulations of the world (and our "selves" along with it) to *become alongside* a world which will constantly evade and exceed our expectations and understanding.

What is notable as well is that Barad frames this "mode of wonderment", wherein the (emergent) other is recognized in its (similarly emergent) alterity to the "self" (and thus, in a basic sense, the boundary against which one iteratively *defines* the self), as following from the ethical metaphysics of Emanuel Levinas, whose own radical conception of the "human" is similarly contingent upon an emergent relationality to the other. As he observes, "[b]etween the one that I am and the other for whom I answer gapes a bottomless difference, which is also the non-indifference of responsibility, significance of signification, irreducible to any system

whatsoever" (*Other* 6). For Levinas, the "human" being emerges as an individuated "self" through a relational gap, or an irreducible difference between a "self" and an "other" through which the ability to respond emerges (i.e., in order to *respond* in any meaningful sense, one requires an other to whom the response can be directed). This is another tricky connection for Barad, as her invocation of Levinas could be misconstrued as a reversion to a kind of anthropocentrism (as distrustful of certain liberal humanist notions as Levinas appears to be, he still makes worrying allusions to "the human genre" or "the fraternity of men" (*Other* 6)), but Barad resolves this potential appeal to anthropocentrism by extrapolating Levinas' baseline definition of "the other" through "noncoincidence with oneself" as a broad and wholly inclusive gesture toward the full range of possibilities of alterity. As she observes, the Levinasian notion of "having-the-other-in-one's-skin" (*Otherwise* 115) can be extended to include

> a spectrum of possibilities, including the 'other than human' as well as the 'human'…Responsibility— the ability to respond to the other— cannot be restricted to human-human encounters when the very boundaries and constitution of the 'human' are continually being reconfigured and 'our' role in these and other reconfiguring is precisely what 'we' have to face. (Barad 392)

The "human" being iteratively emerges as such through his ability to respond to the others alongside whom (or which) he iteratively constitutes the world.

To be clear, this move to see "the human" as both an emergent feature of the world *and* an individuated subject holding the world in a position of alterity is not a contradiction in terms, so long as we recall Barad's emphasis on phenomenal entanglement as necessarily prefiguring the emergence of the subject as such. To reiterate, the subject *is* ultimately contingent upon the

phenomenal entanglement of the world for its emergence, but a feature of that emergence is the ongoing process of differentiation from what simultaneously emerges as the subject's environment, such that the emergent subject itself is necessarily contingent upon some set of "others" against which it defines itself. What this amounts to, ultimately, is a posthuman account of why the "human" being is predisposed toward anthropocentrism, as his emergence as such is essentially predicated on the intuitive binaric division between "self" and "other." The project of a posthuman conception of ethics, in this sense, is to make a case for why this emergent relationship to alterity should manifest itself not as a kind of hostility toward (or struggle against) the other, but rather as a responsive, mutually-beneficial process of becoming.

To reiterate, responsibility is here figured as the basis upon which we can evaluate a given ethics because it serves as the necessary precondition for the emergence of "the human" as such, which in turn implicitly structures "the human"'s relationship to the rest of the world. My emergence as an "I" is contingent upon a whole set of emergent beings that can only ever exist to "me" as an other, but upon whom I am dependant (or entangled with) for my existence as such. In this sense, to be responsible (or to practice a responsible ethics) is to see what emerges as your environment for what it is: not a quantifiable field of value over which you hold any right to claim dominion, but rather a never-fully-knowable other (or set of others) to whom (or which) you literally owe your emergence as such.

In this sense, we can see Barad aligning herself with theorists such as Gayatri Spivak, who observes that "[t]his is perhaps one way of being responsible to the thinking of responsibility. That whatever is formalizable remains in a sort of intermediary stage. The rest cannot be purely formalized. These steps must be formally taken and experienced as limits before the usual be-

ginnings can be made" ("Responsibility" 22). For both Barad and Spivak, responsibility is the active process through which the "human" being recognizes (or, literally, responds to) the scope and limits of his experience. Rather than positing the "human" as a uniquely self-reflective actor against a static and mute natural world, Spivak's notion of planetarity forces "human" beings to acknowledge that the world beyond their experience is not silent and inactive, but rather simply inaccessible (or, at least, not *fully* accessible) to the "human" subject. Thus, we are not absolved of our responsibility toward it, nor are we able to speak definitively about what a "correct" response would look like, but rather must renegotiate our responsiveness on an ongoing basis. We must *become with* our others.

What is notable, for our purposes, is Spivak's emphasis on the *experience* of those limits. The grounds for responsibility are located not through the acknowledgement of limits in the abstract, but rather the ongoing process through which the subject emerges. The subjective experience of the *responsible* posthuman subject (i.e., a subject that is articulated through the practice of a *responsive* ethics) is inextricable from the limits against which he defines his sense of "self." Thus, one's ethics, or the emergent conceptual articulations through which the subject orients himself as part of the world, not only emerge in relation to alterity (i.e., the distinction between "self" and "environment") but are necessarily bound against alterity as an absolute limit, or the precondition for their (i.e. the conceptual articulations) emergence as such. Thus, the whole range of possible conceptual articulations through which the "human" being can come to know the world, although indeterminate, are still bound inextricably to this alterity as an absolute limit.

This is a subtle clarification, but a crucial one, as it allows us to retain "responsibility" as a necessary feature of "human" beings without relying upon some prefigured or ontologically-

given conception of "the human." In other words, "responsibility" is here being figured not as a property of the "human" being as such, but rather, a necessary condition for the emergence of the "human" being through the ontologically primary phenomenal entanglements described by agential realism. Understood in this way, responsibility, or the ability to respond to our not-fully-knowable others, is not a "principle" of posthuman ethics, but rather the experiential precondition that is fulfilled "before the usual beginnings can be made" (Spivak, "Responsibility" 22). The world is thus both the entangled and dynamic process through which the "human" being emerges and, simultaneously, the radically exterior and not-wholly-knowable other to which the "human" being is necessarily responding through the process of conceptually articulating his world.

With this in mind, we can further refine our understanding of what a truly responsible ethics might look like through Spivak's notion of *planetarity*. Like Barad, Spivak aims to reinscribe the relationship between "human" beings and what emerges as their "others" by challenging what it means to be a "human." As Spivak argues, "[i]f we imagine ourselves as planetary subjects rather than global agents, planetary creatures rather than global entities, alterity remains underived from us; it is not our dialectical negation, it contains us as much as it flings us away" (*Death* 73). To be planetary subjects is to come to terms not only with the absolute alterity against which we as "human" beings define ourselves, nor to see that alterity as the flat and silent void against which we are free to impose our will, but rather to understand it as a mysterious and inaccessible being in and of itself. In this sense, to be planetary, or to see one's self in the context of the planet, is to be humbled in every sense of the word. As Spivak goes on to suggest, "[t]he 'planet' is…perhaps always, a catachresis for inscribing collective responsibility as right. Its al-

terity, determining experience, is mysterious and discontinuous—an experience of the impossible" (*Death* 102). In this sense, a truly responsible ethics is one that actively engages in an ongoing responsiveness to the world (and, implicitly, the emergent set of beings and phenomena through which the planet constitutes itself), while at the same time acknowledging that it can never definitively speak "for" the world.

Thus, as we move into the final section of this chapter, in which we will be examining how theorists working within the posthumanities can employ this broader sense of responsibility toward the world, we must remain cognizant of the experience of limits, or foundational humility upon which this conception of "the human" is constructed, as a basic tenant of what theory itself can claim to do.

Practicing Responsive Theory

In the previous section, we worked to demonstrate how Barad's conception of responsibility, which is the precondition for the emergence of "the human" as such, provides a basis for comparative evaluations of ethics, or modes of seeing oneself in the world. In this conception, an ethics is understood to be better or worse by virtue of the degree that it *recognizes* our inherent responsibility toward the world. A more responsive ethics is one that can meaningfully engage with more aspects of the world as it emerges. Crucially, though, we also note that these evaluations are never fully determinative, and must therefore be vigilantly revised in response to a world that is constantly exceeding our expectations through its ongoing and indeterminate process of rearticulation. In this section, we will consider how critical posthumanist theory is

well situated to perform exactly this kind of vigilant revision. As we will see, though, this new role for theorists will itself require a considerable rearticulation of how we understand the relationship between theory and the rest of the world.

To do this, we can first turn to the work of Donna Haraway, whose theoretical inquiry has displayed a particular sensitivity to the importance of responsiveness to the world, and whose career can be seen to trace an instructive trajectory as to how she arrived at this particular conception of responsibility. As discussed above, ethics, in the context of agential realism, is best understood not as a set of moral principles to guide fixed and bounded human actors, but rather an ongoing process of rearticulating and refining what it is to be in the world. This performative understanding of ethics echoes the notion of "becoming with" which has become a central feature of Haraway's recent work. For example, in her book *When Species Meet*, she argues that being in the world is always an inter- (or, as Barad would put it, *intra*-) active process of becoming: "If we appreciate the foolishness of human exceptionalism, then we know that becoming is always becoming *with*—in a contact zone where the outcome, where who is in the world, is at stake" (*When* 244). If we are to take seriously the notion that "human" beings are not the fixed centre of the world, then we must be open to the possibility of a world that has no fixed centre of organization, but is rather an ongoing decentralized process of articulation and rearticulation.

As with Barad, for Haraway this process itself constitutes a kind of ethics. As she describes, "[o]nce 'we' have met, we can never be 'the same' again. Propelled by the tasty but risky obligation of curiosity among companion species, once we know, we cannot unknow. *If we know well*, searching with fingery eyes, *we care*. That is how responsibility grows" (*When* 287, emphasis mine). Like Barad, Haraway recognizes the fundamental tethering of how we see the world

and how we perform our ethics within it. Thus, the basis for caring is in *knowing well*, which is always an active practice in the world. This style of engagement, for Haraway, "does not invite a disengaged 'liberal' ethics or politics but requires examined lives that take risks to help the flourishing of some ways of getting on together and *not* others" (*When* 288-89). Haraway frames the overall goal of her conception of ethics not as directly conducive to *human* flourishing, but, interestingly, toward the flourishing of "ways of getting on together." For Haraway, the project of ethics is itself framed as a *process of becoming*. This is important to note, because it means the work of criticism is not only never fully complete (as it is always working in response to a world that is constantly rearticulating itself in new and unexpected ways), but, even more fundamentally, that we (both as theorists and as "human" beings) can never fully *know,* in absolute terms, the degree to which our theoretical models are contributing to this overall process.

Indeed, what we must remain cognizant of, as we move into a discussion of how Haraway's thinking on this subject developed, is how deeply rooted our traditional understanding of "theory" is in the anthropocentric assumptions of humanism. As Hanna Meißner points out, "[t]he assumption that it is possible to distinguish social dimensions of our reality— that there is a 'we' who, in a self-reflexive move, hold ourselves accountable, at least to a certain degree, for what becomes real— is constitutively entangled in the heritage of Enlightenment and humanism" (7).

Crucially, this is not to suggest that the work of posthuman theory is inherently futile, but, much more affirmatively to propose that the work of self-reflexive critical inquiry requires an ongoing responsiveness to the world which manifests not as a series of abstract decrees through which some reductive aspect of the world is modelled and described, but rather, itself constitutes

an active participation in the world in its ongoing articulations. Indeed, as Meißner goes on to demonstrate, Haraway does not outright reject the transformative potential of critical theory, but rather, reinscribes it as a form of performative enactment. Meißner writes, "[t]he notion that it is possible to make a difference in the world by working on the right accounts (theories) of the world…is taken up by Haraway and reworked through an understanding of language as performative force that does not simply describe existing things but is actually involved in the materialization of the phenomena it speaks about" (8). Thus, just as Barad figures "knowledge" and our conceptual articulations of the world as the material discursive practice through which the world materializes, Haraway's work in the 1980s (specifically, her essay on "Situated Knowledges", which we will discuss below), can be understood as an effort to rescue theoretical inquiry from anthropocentric humanism by framing it as a kind of performance both *in* and *of* the world. Our discussion of Barad's rejection of representationalism in chapter two leaves us well-positioned to understand how this move is achieved. Rather than figuring "theory" as the interface between a given "subject" and "object", or the lens through which "human" beings are granted access to some transcendent "other", Haraway figures theory as an active process through which the world iteratively comes into being. As Meißner describes, "[i]n this interpretation, theories are not perceived as representations of a somehow pre-existent reality, but as constitutive elements of specific, situated, and thus partial and limited, realities" (8). Again, the refutation of humanism is implicit in the *limits* that such an interpretation necessarily requires. " Theory" does not extricate knowledge from the world through a privileged position of direct and "objective" access to the object of inquiry as such, but rather serves as a specific arrangement of the world with which a certain aspect of the object of inquiry becomes entangled, such that knowledge is pro-

duced. Knowledge, in this sense, is always situated not in the object that it ostensibly describes, but in the entanglement of the object and apparatus though which the knowledge emerges. In this way, disparate modes of knowing the world can, at least in principle, be productively interfaced through a rigorous accounting of the theoretical apparatuses through which each of the knowledges emerges. As Haraway describes in her essay on "Situated Knowledges," "[w]e need the power of modern critical theories of how meanings and bodies get made, not in order to deny meanings and bodies, but in order to build meanings and bodies that have a chance for life" ("Situated" 580). The strength of any given theory, in this sense, is not simply the breadth of knowledge that it produces regarding a given object of inquiry, but rather the degree to which it can account for how that knowledge was ultimately produced.[20]

With this in mind, we can begin to get a sense of the relationship between Barad's sense of ethics (i.e., the process of "worlding" through which the world comes to matter), and Haraway's conception of critical theory (which similarly aims to describe "how meanings and bodies get made"). In her project of situating knowledges within their constitutive discursive practices, Haraway's earlier work aims to provide a theoretical basis for rigorously comparing the production of "meanings and bodies", or what Barad would now simply term ethics. The initial suspicion for Haraway, alongside like-minded feminist scholars with whom she describes working toward a theory of situated knowledges, was that by accounting for the discursive practices through which different knowledges were produced, one could arrive at some basic Truths about

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[20] Notably, this is one of the major strengths of scientific rationalism, which builds consensus out of a rigorously defined methodological apparatus. The point to be grasped here is scientific rationalism is not the *only* mode through which knowledge can be produced, nor does every apparatus for the production of knowledge have to look like scientific rationalism. The real value of multiple forms of knowledge emerges though our ability to compare them without biases, which can only be achieved through an accounting of their respective situations.

the world: “We would like to think our appeals to real worlds are more than a desperate lurch away from cynicism and an act of faith like any other cult’s, no matter how much space we generously give to all the rich and always historically specific mediations through which we and everybody else must know the world” (“Situated” 577). She goes on to describe the project of peeling away layers of discursive mediation in order to reveal at some capital-T Truths as a form of “epistemological electroshock therapy” (“Situated” 578), which, rather than arriving at a position wherein diverse sets of knowledges can be productively accounted for within their contexts, drives one toward a kind of disassembled schizophrenia where knowledge simply ceases to feel real at all. As she jokingly observes, she and the feminist scholars with whom she undertook this project “ended up with one more excuse for not learning any post-Newtonian physics and one more reason to drop the old feminist self-help practices of repairing our own cars. They’re just texts anyway, so let the boys have them back” (“Situated” 578). Ultimately, this effort leads Haraway back to where she started. As she observes, “it is not enough to show radical historical contingency and modes of construction for everything. Here, we, as feminists, find ourselves perversely conjoined with the discourse of many practicing scientists, who, when all is said and done, mostly believe they are describing and discovering things by means of all their constructing and arguing” (“Situated” 579).

In retrospect, we can perhaps see why Haraway’s emphasis on discourse (and a specifically *Western* conception of discourse) as the locus of knowing throughout “Situated Knowledges” forecloses on a more responsive conception of the relationship between theory and the world. The traditional dominance of language in the Western conception of the production of knowledge appears to limit the relationship between the knowing subject and the world as a

thing to be known. Indeed, this tension is perhaps unique to the Western academic tradition: as Meißner goes on to describe, " 'our' very possibility to perform analysis […] is predicated on a subject position that operates within the material-discursive space of modern Western rationality. Practices of knowing in the sciences as well as in the humanities are contingent on specific epistem-ontological conditions that enact a separation of a subject (desiring to know) and object/subject (which is to be known)" (18). We can observe Haraway struggling with this tension in an interview with Constance Penley in the early 1990s. As Haraway describes, "[p]erhaps only these organized by language are *subjects*, but agents are more heterogenous. Not all the actors have language. And so that presents a contradiction in terms because our notions of agency, action, and subjectivity are all about language" (Penley et al. 9). The point here is that, because Haraway's work on "Situated Knowledges" had implicitly privileged language as the locus of knowing, she was unable to meaningfully engage (or respond to) those "actors" or beings who did not use language as traditionally understood.

Indeed, it is this basic tension that Barad is addressing when she claims that "[l]anguage has been granted too much power" (132). Barad's de-emphasis of the role of language in favour of a broader conception of agentive materiality is an implicit challenge to the traditional Western conception of knowledge that privileges language as the locus of knowing (and thus conceptual articulations and, ultimately, ethics). As Meißner describes, "[w]ith her notion of agential realism Barad shifts the focus from questions of epistemology and representation […] to questions of epistem-onto-logy and practices of intra-action (how are we part of the reality we seek to know, which realities are constituted, and which are excluded?)" (17).

The shift in Haraway's thinking away from a language-based conception of "situated knowledges" and toward a much broader conception of knowing based on "searching with fingery eyes" (*When* 287) is instructive and worth considering because it exemplifies exactly the kind of shift that is conducive to a broader recognition of responsibility in Barad's conception of ethics. The challenge for the posthuman theorist, in this sense, is to examine how "other" modes of knowing and being can be productively examined such that they can be meaningfully integrated (or responded to) in our ongoing project of rearticulating the world. This critical turn toward non-linguistic modes of knowing is compellingly exemplified by critical theorist and dancer Erin Manning, who, like Barad, structures her conception of embodied knowledge as a stark rejection of traditional Western language as the basis for knowing. For Manning, our overemphasis on the self as the starting point of inquiry (i.e., the knowing subject) is an artifact of the central role that language has been afforded in structuring our thought: as she observes, "This me, my, mine is a habit, a turn of phrase that gives in to the linguistic progression, that, in so many languages, gives order to the sentence by making the subject the instigator of all action" (165). By way of a counterpoint, Manning turns to examine dance and movement as an equally valid mode of knowing, writing, "[m]ovement courses through the me that is in formation: experience, perception, feeling— all of these are movements, and each of them contributes, in an infinity of ways, to what 'I' will become in any given occasion […] Wondering the world directly, in movement, is to participate in an unfolding that challenges the centrality of the I" (166-67). In this way, Manning rearranges the process through which knowledge emerges. In her account, knowledge does not follow from a prefigured subject arranging the world to fulfil certain projects of inquiry but rather the reverse: the phenomenal enactment of the world (or the moving body responding to its

environment) is figured as the precondition for the emergence of the individuated subject. In "[w]ondering the world" through movement, Manning offers a model for inquiry that is not the work of a knowledge-desiring subject, but is rather polyvalent and omnidirectional, directly responsive to the world in its enactment.

For Manning, the benefit of taking dance and movement seriously as a mode of inquiry is located precisely in its refusal to fix the subject position in place, thus clearing the way for *wonder*, or unrestricted responsiveness to the world. She writes, "wonder only surfaces in a field of exploration unmotivated by a pre-existent subject. Wonder as the force of having-been-moved felt in the present-passing, the force that recalibrates every starting point and every equilibrium, a force of exuberant disorientation" (168). Manning not only expands on Barad's assertion that "the human subject is not the locus of knowing" (393), but also productively demonstrates the inherent limits that such an anthropocentric model of knowledge would require. By emphasizing the importance of wonder in the formation of the subject, or undirected or "disoriented" responsive inquiry into the world, Manning provides a model for how theory can productively articulate conceptions of "the human" as it continues to respond to its environment in new and unexpected ways.

It is exactly this disposition of wonder that allows for the production of theory that extends beyond fixed notions of "the human" and allows for critical posthuman theorists to work toward constructing increasingly responsive ethics. If we take seriously Barad's conception of ethics as "the fabric of the world" (182), or the ongoing process though which we articulate ourselves alongside the world, then an agential realist discussion of ethics will be most productive

when it pursues exactly this sense of wonder to advocate for an ongoing recognition of our responsibility toward the world as it emerges alongside us.

The Human Alongside Nature: Toward a Posthuman (Geo)Politics

By way of a conclusion, let me offer a brief epilogue to the little story with which we opened, in an effort to illustrate the direction that the preceding discussion has been working to orient future theoretical inquiry. In 2009, the Lord Howe Island Board released a draft of a "Rodent Eradication Plan" to deal with the black rats that have been thriving on the island since their accidental introduction in 1918. The plan, which, as Board Chair Alistair Henchman assures us, has been "prepared using published information, experience obtained from successful eradications on other islands in New South Wales, extensive advice and guidance from overseas experts in the field, local knowledge, community feedback and peer review" (*Draft* i), is to "distribute poison baits to all parts of the island group […] by aerial and hand broadcasting […] The operation will require 42 tonnes of the bait pellets, containing 840 g of brodifacoum poison" (*Draft* vii).

Perhaps unsurprisingly, the plan to drop 42 tonnes of poisoned cereal pellets onto the island has been met with significant resistance from many Lord Howe inhabitants. Speaking with Michael Slezak at *The Guardian*, resident Rob Rathgeber claims, "[t]his stuff is going to rain down on the island. It's going to come on to our rooftops. It's going to be in the soils […] We will be the first permanently populated island that will have this treatment. The very first. We'll be the guinea pigs." And while the plan itself explicitly states that "A 30 m buffer zone will be established around all dwellings" (*Draft* 27) in an effort to prevent it from ending up on rooftops, Rathgeber's anxiety is hard to ignore. The entanglement of 42 tonnes of poisoned pellets with the island's ecosystem will almost certainly produce some unforeseeable responses (much in the

same way that the introduction of masked owls in the 1920s did). Indeed, island residents such as Rathgeber are so uninspired by the elimination plan that they see it as a kind of governmental conspiracy. As Slezak goes on to point out, Rathgeber is "so convinced of the danger and nonsense of the plan, he argues there must be a financial motivation behind it. 'I think it's at a higher level of government.' " These claims remain unfounded, but they do instructively demonstrate a certain populist distrust of institutional power that characterizes much of our current neoliberal geopolitical dynamic. Citizens like Rathgeber simply do not trust their government to act with the best interests of the citizenry in mind.

Indeed, this latest episode in the ongoing saga of Lord Howe Island implicitly grapples with the exact dynamic that the conception of "the human" described throughout our present discussion must work to interrogate, between liberal humanist exceptionalism (wherein "the human" is the only actor against a mute and static nature), and reactive agential nihilism (wherein the sheer complexity of the world leads "the human" to a position where effective action seems impossible). On both sides of the argument over whether or not to implement the Rodent Eradication Plan, we have groups of "human" beings that ultimately want to do what *they think is best* given their particular understanding of the world (or, what we have termed their "conceptual articulation of the world"). Those favouring the eradication plan come armed with studies, statistics, and institutional backing that effectively demonstrate that the best thing for the island as a whole is for the rats to be systematically destroyed. Those opposed argue that the experts who produced this plan are not to be trusted, and, studies or not, the sheer magnitude of the proposed plan is too extreme and poses too much risk to the local environment to undertake.

In the terms of our present discussion, what is playing out here is two conflicting conceptual articulations of the world. On one hand, we are presented with a world in which "the human", armed with scientific rationalism and technological innovation, takes it upon himself to "solve" what he perceives to be a problem that only he is capable of fixing. Board Chair Henchman, in this sense, is the universal liberal humanist conception of "man", self-justified in his action against a flat and mute natural world. On the other hand, we have an articulation of a world controlled by a centralized power who cannot be trusted or productively interfaced with, but must simply be resisted in favour of inaction. Rob Rathgeber, in this sense, is driven by something of an *over*reaction to liberal humanist exceptionalism. Fearing the overreach of institutional power, he advocates non-action, thus effectively denying the capacity for "the human" to productively participate in the ongoing process of becoming that in part constitutes nature.

Now, crucially, what I would like to highlight is that neither of these conceptual articulations are particularly productive, and the work of our discussion thus far can help us understand the shortcomings of both positions as essentially a failure to adequately respond. In the case of the Island Board, there are clear indications that, despite Board Chair Henchman's claims to the contrary, the insight of local islanders was not foundational to the eradication plan's construction. As James Howe reports in an article for *Geographical*, "[p]roponents of eradication admit that the consultation associated with the eradication programme was grossly inadequate, considering the community's size and nature […] 'Here [on Lord Howe Island], it was done backwards: the scientists put together the eradication plan and thought that public consultation was giving a talk at the public hall,' says [local naturalist and museum curator, Ian] Hutton. 'There was an inevitable backlash.' " But the islanders, in their own way, seem to have failed to recognize the re-

sponsiveness of the island's ecosystem: the research presented in the draft of the plan points out that the present local strategy for managing the rat population has been sporadic, piecemeal poisoning efforts, and has resulted in poison-resistant rodents. The draft points out that, "[t]he current control programme in the palm forests, undertaken by the LHI Board, remains largely unchanged since 1986. Approximately 1000 permanent bait stations are dispersed among 33 separate locations in the palm forest, covering approximately 140 ha. The bait used is loose, crushed wheat impregnated with [common poison] warfarin […] however, the mice developed resistance to warfarin […] and were actually feeding on the bait" (*Draft* 12). In both cases, we can observe the basic limits of present conceptual articulations to adequately recognize a broader sense of responsibility.

So, we can ask ourselves: in what ways has the preceding discussion prepared us to navigate the complexities of actual political engagement? Does our agential realist conception of "human" beings point us toward the construction of a politics that can more readily recognize the wider range of responsibility necessary for a posthuman conception of politics? Over the last three chapters we have traced the emergence of "the human" as an exclusionary mechanism of power employed to justify the omission or outright subjugation of non-normative bodies based on metrics of ethnicity, gender, sexual orientation, or ability. This redefinition of the term "human" can be employed to help us refine our conception of the diverse set of bodies that the term unevenly describes to arrive at what we could call a Baradian critical posthumanist notion of the human being (or, what I have chosen to provisionally term *"human" beings*). It is not a fixed or ontologically given type of being in the world, but rather an emergent pattern of self-reflexive differentiation from what simultaneously emerges as its environment.

We then examined how Barad's agential realist account of matter can be understood to situate "human" beings as self-reflexive processes of becoming, which emerge alongside and in response to their ongoing entanglements with the rest of nature. We outlined how agential realism aligns with and extends Bohr's entangled conception of matter to offer an alternative conception of the set of beings unevenly constellated around "the human," not as exceptional or ontologically distinct from the rest of nature, but rather emergent from it.

Finally, we considered ways in which this conception can be put to use alongside Barad's unique conception of ethics as a performative process of becoming, through which "human" beings, as emergent, self-reflexive processes both in and of nature, can become *alongside* the rest of the world through an ongoing recognition of their inherent responsibility (in the Levinasian sense) toward it. Through an examination of the work of Donna Haraway and Erin Manning, we outlined ways in which theory can productively work to recognize this responsibility, by "wondering the world," or rendering emergent aspects of nature legible to "human" beings on an ongoing basis.

What I am sure you have noticed, though, is that while we have positioned the present writing as a project focused on rearticulating the ongoing entanglements between "human" beings and the rest of the natural world, we have not attempted to sketch what an agential realist politics of entanglement would look like in any specific detail. But what I would like to posit is that any actual *framing in advance* of such a politics would go against the conception of entanglement that the present writing has been working to delineate. Instead, what we have been attempting to outline is perhaps best understood as an agential realist political *disposition* for "human" beings. Rather than framing a fixed political system through which this intra-active sense

of responsibility can be engendered, I suggest that a responsive disposition, or what Haraway might call an internalized sense of "becoming with," serves as a necessary precondition for the emergence of a truly responsive and posthumanist sense of solidarity with our community of others, which cannot be predicted in advance but must emerge through active, self-reflexive conceptual rearticulations of the world. As moral philosopher Richard Rorty observes, "[s]olidarity is not discovered through reflection but created. It is created by increasing our sensitivity to the particular details of the pain and humiliation of other, unfamiliar sorts of people" (xvi). And while for our purposes we would need to extend Rorty's sense of community to include unfamiliar beings more generally (i.e., both "human" and "nonhuman" others), his point is an instructive one. Communal solidarity with the diverse set of beings that iteratively constitute the world is not some universal principle to be revealed through rational inquiry, but is rather a goal to be achieved through active and responsive participation in the world as it emerges. To prescribe in advance a politics that extends beyond the anthropocentric paradigm of liberal humanism is to paradoxically *reaffirm* the liberal humanist claims to absolute objective reason of "the human" that the first chapter of this work was intended to critique.

This is not to say, of course, that we need to abandon any discourse on human responsibility, or to see "the human" as a thing of the past, but rather, to shift our thinking of what "human" beings need to become, and continue to become, in order to best respond to the universe in its ongoing process of becoming. It is my hope that the work of this present discussion, in examining and extending Barad's conception of "the human" in agential realism, will help in orienting "human" beings toward this more responsive disposition toward our others.

Works Cited

Barad, Karen. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter.* Duke UP, 2007.

Baxi, Upendra. *Human Rights in a Posthuman World*. Oxford UP, 2007.

Bennett, Jane. *Vibrant Matter: A Political Ecology of Things*. Duke UP, 2010.

Bogost, Ian. *Alien Phenomenology: Or What It's Like To Be A Thing*. U of Minnesota P, 2012.

Bohr, Niels. "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review*, vol. 48, no. 1, 1935, pp. 696-702.

—. "Discussion with Einstein on Epistemological Problems in Atomic Physics." *Albert Einstein: Philosopher-Scientist*. Edited by Paul Arthur Schilpp, MJF Books, 1949, pp.199-242.

—. *Atomic Physics and Human Knowledge*. John Wiley & Sons, 1958.

Bostrom, Nick. "A History of Transhumanist Thought." *Journal of Evolution and Technology*, vol. 14, no.1, 2005, pp. 1-25.

Braidotti, Rosi. *The Posthuman*. Polity, 2013.

Buchwald, Jed. *The Rise of The Wave Theory of Light*. U of Chicago P, 1989.

Butler, Judith. *Frames of War: When Is Life Grievable?* Verso, 2010.

—. *Precarious Life: The Powers of Mourning and Violence*. Verso, 2004.

Burchhardt. Jacob. *Civilization of The Renaissance in Italy*. Phaidon, 1937.

Chomsky, Noam. *What Kind of Creatures Are We?* Columbia UP, 2015.

Cooper, Melinda. *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era.* U of Washington P, 2008.

Davies, Tony. *Humanism*. Routledge, 1997.

Deleuze, Gilles, and Parnet, Claire. *Dialogues*. New York: Columbia UP, 1987.

Derrida, Jacques. "The Animal That Therefore I Am (More to Follow)." *Critical Inquiry*, vol. 28, no. 2, 2002, pp. 369-418.

Du Bois, W.E.B. "The Study of the Negro Problems." *Annals of the American Academy of Political and Social Science*, vol. 11, no. 1, 1898, pp.1-24.

Einstein, Albert, Boris Podolsky, and Nathan Rosen. "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review*, vol. 47, no. 1, 1935, pp. 777-80.

—, and Leopold Infeld. *The Evolution of Physics*. Cambridge UP, 1938.

Foucault, Michel. "The Order of Discourse." *Untying The Text: A Post-Structuralist Reader,* edited by Robert Young, Routledge & Kegan Paul, 1981, pp. 48-78.

—. *The Order of Things: An Archaeology of the Human Sciences*. Routledge, 1989.

Grusin, Richard, ed. *The Nonhuman Turn*. U of Minnesota P, 2015.

Haraway, Donna J. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol. 14, no. 3, 1988, pp. 575-599.

—. *When Species Meet*. U of Minnesota P, 2008.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. U of Chicago P, 1999.

Hooker, Clifford. "The Nature of Quantum Mechanical Reality: Einstein Versus Bohr." *Paradigms and Paradoxes: The Philosophical Challenge of the Quantum Domain*, edited by Robert G. Colodny, U of Pittsburgh P, 1972, pp. 67-208.

Howe, James. "Total wipeout: after a shipping accident introduced rats to Lord Howe Island in 1918, the rodents have slowly been destroying its biodiversity." *Geographical*, Mar. 2012, pp. 36-42. Accessed 21 Feb. 2017.

Husserl, Edmund. *The Crisis of European Sciences and Transcendental Phenomenology*. North-western UP, 1970.

Irigaray, Luce. *An Ethics of Sexual Difference.* Trans. Carolyn Burke and Gillian C. Gill. Cornell UP, 1993.

Irni, Sari. "Book Review: Indeterminate Matter." *Nordic Journal of Feminist and Gender Research*, vol. 18, no. 1, 2010, pp. 52-56.

Jasanoff, Sheila. *The Ethics of Invention: Technology and the Human Future*. Norton, 2016.

Kipling, Rudyard. *The Works of Rudyard Kipling*. Wordsworth Editions, 1994.

Krulwich, Robert. "Six-Legged Giant Finds Secret Hideaway, Hides For 80 Years." *NPR*, 29 February 2012. Accessed 1 December 2017.

Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford UP, 2005.

—. *We Have Never Been Modern*. Harvard UP, 1993.

Levinas, Emmanuel. *Otherwise than Being, or Beyond Essence*. Trans. Alfonso Lingis. Martinus Nijhoff, 1981.

—. *Humanism of the Other*. Trans. Richard Cohen. U of Illinois P, 2003.

Lord Howe Island Board, *Draft Lord Howe Island Rodent Eradication Plan.* Lord Howe Island Board, 2009. Accessed 20 February 2017.

Manning, Erin. “Wondering the World Directly- or, How Movement Outruns the Subject.” *Body & Society*, vol. 20, no. 3/4, 2014, pp. 162-188.

Margulis, Lynn. *Symbiotic Planet: A New View of Evolution*. Basic Books, 1998.

Mbembe, Achille. “Necropolitics.” *Public Culture*, vol. 15, no. 1, 2003, pp. 11-40.

Meißner, Hanna. “Conversing with the Unexpected: Towards a Feminist Ethics of Knowing.” *Rhizomes*, vol. 30, no. 1, 2016, DOI: 10.20415/rhiz/030.e05

Morgan, Marcus. “Review: Rosi Braidotti, *The Posthuman.*” *Sociology*, vol. 48, no. 1, 2014, pp. 203-204.

Nixon, Rob. *Slow Violence and The Environmentalism of The Poor.* Harvard UP, 2011.

Penley, Constance, Andrew Ross and Donna Haraway. “Cyborgs at Large: Interview with Donna Haraway.” *Social Text*, vol. 1, no. 25/26, 1990, pp. 8-23.

Rose, Nikolas. *Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-first Century*. Princeton UP, 2007.

Rorty, Richard. *Contingency, Irony, and Solidarity*. Cambridge UP, 1989.

Rosenman, Ellen Bayuk. “Sexual Identity and ‘A Room of One’s Own’: ‘Secret Economies’ in Virginia Woolf’s Feminist Discourse.” *Signs*, vol. 14, no. 3, 1989, pp. 634-650.

Rouse, Joseph. “The Conceptual and Ethical Normativity of Intra-active Phenomena.” *Rhizomes*, vol. 30, no. 1, DOI: 10.20415/rhiz/030.e01.

Searle, John R. *The Construction of Social Reality*. The Free Press, 1995.

Siedentop, Larry. *Inventing The Individual: The Origins of Western Liberalism*. Penguin, 2015.

Slezak, Michael. “Trouble in paradise: Lord Howe Island divided over plan to exterminate rats.” *The Guardian*, 8 February 2016. Accessed 18 February 2017.

Spivak, Gayatri. *Death of A Discipline*. Columbia UP, 2003.

—. "Responsibility." *boundary 2*, vol. 21, no. 3, 1994, pp. 19-64.

Stringer, Christopher. "What Makes A Modern Human." *Nature,* vol. 485, 2012, 33-35.

Van der Waerden, B.L. *Source of Quantum Mechanics*. North-Holland, 1967.

Weheliye, Alexander G. *Habeas Viscus: Racializing Assemblages, Biopolitics, and Black Feminist Theories of the Human.* Duke UP, 2014.

Wheaton, Bruce R. *The Tiger and The Shark: Empirical Roots of Wave-Particle Dualism*. Cambridge UP, 1983.

Wiener, Margaret J. "Colonialism and the Politics of Magic in the Netherlands Indies." *Magic and Modernity: Interfaces of Revelation and Concealment*, edited by Birgit Meyer and Peter Pels, Stanford UP, 2003, 129-158.

Wolfe, Cary. *What Is Posthumanism?* U of Minnesota P, 2010.

Woolf, Virginia. *A Room of One's Own & Three Guineas*. Penguin, 1993.