STRANGE MATTER, STRANGE OBJECTS: AN ONTOLOGICAL REORIENTATION OF THE

PHILOSOPHICAL CONCEPT OF WONDER

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Wonder has had a rich and diverse history in the western philosophical tradition. Both Plato and Aristotle claim that philosophy begins in wonder, while Descartes marks it as the first of the passions and Heidegger uses it as a signpost for a new trajectory of philosophy away from idealism and nihilism. Despite such a rich history, wonder is almost always thought to be exhausted by the acquisition of knowledge. That is, wonder is thought of almost exclusively in epistemological terms and is discarded as soon as knowledge has been achieved. In this dissertation, I argue for an ontological reorientation of wonder that values wonder beyond its epistemic uses. To do this, I read the phenomenological and ontological work of Maurice Merleau-Ponty through recent developments in object-oriented ontology and new materialism.

Much of Merleau-Ponty’s work is directed toward dissolving the distinction between subject and object. His insights regarding the mutual constitution of the world lead to the possibility of an operative wonder that occurs between subject and object. Both object-oriented ontology and new materialism radicalize these insights by articulating them in terms of a vibrant or quasi-agential material world. Objects and assemblages of objects are capable of performing the becoming of the world that includes human activity, but is not reduced to it. As such, the world is capable of both self-organization and practice. Ultimately I use the philosophy-physics of Karen Barad to argue that operative wonder acts like a kind of superposition of relations between objects, and thereby accounts for a concept of wonder that is both ontologically significant and acutely generative.
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INTRODUCTION

When I was first introduced to phenomenology as a way of doing philosophy, I was attracted by its originating goal. That is, I was excited by the call to go back to things themselves. I wanted to invest my time in a kind of philosophy that was engaged in real things found in everyday life, and phenomenology seemed to do that. From Husserl’s table, to Heidegger’s hammer, to Merleau-Ponty’s typewriter, phenomenology took everyday objects as philosophically valuable. Not only did phenomenology provide a framework for thinking about objects, it also instilled a sense of mystery to those objects. The world always recedes in ever growing horizons of perception or larger ontological regions and we only have epistemic access to what can be experienced. Every attempt to fully grasp the world requires us to step further into a horizon that continually withdraws from our grasp. Merleau-Ponty’s focus on embodiment places humans in a kind of dialogue with the world so that objects call for our attention and arrange our desires in an operative intentionality that is hidden beneath our explicit intentions. The world calls us to investigate while simultaneously receding from our grasp, revealing that our investigation always fails to gain complete access. The world and the objects found via the phenomenological method are mysterious and wonderful.

But as I continued to investigate phenomenology, especially in terms of the natural world and our ethical obligations to nonhuman entities, I kept returning to the idea that phenomenology is limited by its insistence on the consciousness-world correlation. That is, phenomenology seems to be inherently concerned with the way that the world appears to consciousness. If this is the case (as I’ll argue in chapter 3), then phenomenology is necessarily
an idealism that fails to get beyond intentional objects of consciousness. The “real” things under investigation are always immanent to our consciousness so that their reality is based on human experience. Surely Heidegger, Merleau-Ponty, and many other phenomenologist make reference to the concrete world of objects, but any claim about the objects themselves are reserved for non-phenomenological investigation. Any claim about the material world beyond consciousness must be made apart from the phenomenological method. How, then, can we attend to the natural world, including problems not limited to human consciousness such as climate change or relations with nonhuman animals?

These limits of the phenomenological method have not gone unnoticed. The development of eco-phenomenology has attempted to overcome such worries. But even there the goal of phenomenology is to “bring to expression...our relation with nature and the experience of value rooted in this relation” (Brown and Toadvine xii, emphasis mine). Phenomenology is incapable of treating the material world outside of the correlation between consciousness and world. While we may want to maintain the insights garnered from phenomenological analysis, taking the mattering world seriously requires that we put, in Irene Klaver’s words, phenomenology “on the rocks” (“Stone Worlds” 356). It is for this reason that I am examining object-oriented ontology and new materialism, especially in order to further explore the notion of wonder.

Proponents of phenomenology have attempted to articulate the connection between phenomenology and wonder. In the preface to the *Phenomenology of Perception*, for instance, Merleau-Ponty claims that the reduction itself, a foundational piece for any phenomenological investigation, is a kind of practice in wonder. To quote Merleau-Ponty, “[t]he best formulation of
the reduction is probably that given by Eugen Fink, Husserl’s assistant, when spoke of ‘wonder’ in the face of the world” (xv). Wonder occurs when we slacken our epistemic hold on the world and allow what emerges to surprise us into awe. Surprise and wonder, while linked, are not identical. While this sounds like a possible way to describe wonder in terms of real objects, or at least in terms of our encounter with the material world, because phenomenological analysis is limited to consciousness all we ever end up wondering about is our conscious representations of objects. If we are ever to get beyond the bounds of consciousness, then we need a framework that allows for an explicit kind of realism.

Both object-oriented ontology and new materialism provide such a framework and extend the work of phenomenology by radicalizing its conclusions. Perhaps more than new materialism, object-oriented ontology is willing to risk the philosophical danger of speculation. As such, object-oriented ontology attempts to break out of the limits of consciousness and attend to material objects as real objects. More importantly, object-oriented ontology explicitly argues that objects are real despite their relation, dependence, or interaction with humans. This “reality” manifests in various ways, but perhaps the most interesting result of object-oriented philosophy is that nonhuman objects are capable of being more than Cartesian res exensa, and thus, more than bits of dead matter floating in a material ether acting only in response to some other causal agent. Within both new materialism and object-oriented ontology, objects become agents in the material becoming of the world. Agency gets distributed amongst various entities, including, but not limited to, human objects.

While I adopt the language of objects throughout most of this project, I want to note that I have never been fully comfortable with the term as a broad description of the ontological
position promoted by this type of philosophy. The word “object” surely has a strong history in philosophy and quickly invokes thoughts of a dualistic relation between subjects and objects. Given that object-oriented ontology seeks so explicitly to abolish this dualism, it may seem strange to maintain such embedded and sedimented language. Unfortunately I have not been able to come up with a suitable alternative for my own project. Material entities, affordances, aporia, machines, assemblages, and phenomena (as well as many others) have all been considered, though found deficient for one reason or another. While objects have often been thought of as the correlate to a subject that is capable of manipulating and controlling it for personal use, the term object also invokes thoughts of resistance, such as the chair that resists the motion of my foot, causing me pain, or the wall that resists my entrance, or the objection to poorly justified claims. So while I admit that the term has its failings, it is the term I have chosen to (reluctantly) adopt and one that I will continue to question as I develop my thoughts further.

It may have sufficed to merely appeal to object-oriented ontologies robust views on objects and their resistance to what they call correlationism, where correlationism refers to the idea that all philosophy about the real must be reduced to the relation between consciousness and the world. However, new materialism, and specifically the new materialism of Jane Bennett and Karen Barad, provides an analysis of both the political consequence of material agency, and the enchantment that results from thinking about matter as agential. Both Bennett and Barad articulate a vibrancy and liveliness to the material world that radicalizes the phenomenological attention given to everyday objects. The typewriter is more than an object for me. It has its own set of relations and its own set of powers (or qualities) that are exhibited differently in different
contexts. Such activity and relations do not rely upon a human observer or the involvement of human consciousness.

Regardless of the stated limitations of phenomenology, I do not wish to abandon the insights that the phenomenological method can provide. Rather, and following Karen Barad, I wish to read phenomenology, and specifically the phenomenology of Merleau-Ponty, through both object-oriented ontology and new materialism. Thus the methodology in place here is one of diffractive reading. Rather than critique phenomenology using new materialism and object-oriented ontology, I want to attend to the new ripples created by their engagement. This is a creative process rather than a destructive one and entails that we cannot leave either method untouched. Rather, as Barad claims, diffractive reading is “a cutting together-apart, where cuts do violence but also open up and rework” the limits of scope and possibility (*Meeting the Universe Halfway* 52). I want to extend the scope of phenomenology and develop a kind of wonder that relies upon an engagement with the material world. I want to go “back to the things themselves,” while leaving room to speculate about how those things wonder apart from human engagement.

In early March of 2014, while working on this project, I went to visit my older brother. At the time he had a one year position at Washington and Lee University in Lexington, Virginia and had rented a very small house about 20 minutes into the hills surrounding the small town. At one point I stepped outside to gather my thoughts and to take a break from reading and I was immediately struck by the silence of the place. I could hear every movement of the trees and almost feel the impact of every object that fell from them. At the time I was working my way through Karen Barad’s *Meeting the Universe Halfway* and had just read her description and
analysis of the Brittlestar. The Brittlestar is a brainless organism that looks very similar to a sea star and has the ability detach a part of its body if it senses danger. Sometimes this detachment forms into a new and independent Brittlestar, while other times it merely acts as a distraction to potential threats. For Barad, the Brittlestar’s ability to detach its body in this way challenges the idea that bodies are static bits of lifeless matter. The example of the Brittlestar has broader implications for both epistemological frameworks and embodiment. Like the Brittlestar, if we look closely at the world using quantum physics as a methodological guide, it becomes very difficult to describe objective independence. That is, it is very difficult to articulate an object’s independence from other objects. Barad uses this insight to argue for an ontological primacy of phenomena such that no object is ever completely independent of its discursive-material context. Further, the example of the Brittlestar should give us pause when we consider matter to be a lifeless extended substance. Each detachment, separation, and new relation signals the possibility for new actions, directions, and agents of the becoming of the world.

So as I stood on the porch of my brother’s house in the hills of Lexington, Virginia listening to branches fall to the earth, I was struck by the idea that the world is always in the process of birth. Like the Brittlestar, the branches that fall from the trees enter into, or give birth to, new phenomena. It is this aspect of the world, that it is continually in the process of birthing new phenomenal, discursive, and material situations, that reveals what I will call an ontological wonder. I will ultimately argue that wonder occurs between objects as an operative mechanism of becoming, that it is not exclusive to humans, and that it is fundamental for the orientation of reality. As such, I appeal to the work of Irene Klaver (2013; 2014), where she develops this notion in the context of operative imagination, which I bring to bear on the concept of wonder. I
also look to quantum physics as a way to support what I will ultimately call operative wonder. While Merleau-Ponty, new materialism, and object-oriented ontology provide the theoretical framework for a kind of “weird realism,” it is quantum physics that articulates the material basis for this persistent birth of the world. As such I will appropriate concepts from quantum physics, such as superposition, entanglement, and uncertainty, to strengthen arguments made from more (explicitly) philosophical positions.

But before we attempt to develop an ontological wonder, we should, in lockstep with the history of western philosophy, ask: what is wonder? Wonder has had a rich and diverse role in the history of philosophy. Plato has Socrates tell Theaetetus that philosophy begins in wonder (Theaetetus 155d), while Aristotle makes the same claim in the Metaphysics (982b12). As western philosophers have attempted to reground philosophical thinking, the return to wonder has consistently emerged as a mechanism for beginning again. Descartes, for instance, speaks of wonder as first among passions and Heidegger attempts to return to wonder in order to place philosophy on a new trajectory away from idealism and nihilism.

So when thinking about how to define wonder, we could appeal to both Plato and Aristotle and articulate wonder in the sense of the Greek term thaumazein, which describes a sense of wonder at the most familiar. For example, Aristotle tells us in On the Parts of Animals, that “in all natural things there is something marvelous (or wonderful)” (645a16-17). Or, we could locate wonder alongside the fear of God in the Old Testament, or use the term to indicate a kind of medieval awareness of the work of God in miracles which exceed the laws of nature (Parsons 84). Or, we could follow an etymological path from the Old English wundero to the German Wunde, which would closely tie wonder to the word wound (Ibid 85) and indicate that
wonder creates an opening into our conceptual framework by piercing or wounding that framework. Or, we could follow Heidegger and revisit *thaumazein* in order to articulate an ontological wonder that is intimately concerned with *Dasein* and the ability to think Being (Llewelyn 63).

A common thread across these versions of wonder is the way that wonder is so easily dismissed. So often wonder maintains little significance beyond the initial motivation to investigate the surrounding world. At least since Aristotle, wonder has been thought of as a means to knowledge. Aquinas sums this attitude up by claiming that wonder is a *desire* for knowledge. This reformulation of wonder's role in philosophical thought explicitly expresses how little wonder has been valued by itself. In this scheme, once knowledge is obtained wonder is treated as akin to ignorance, and thus a hindrance for the philosophical project as a whole.

Taking stock of the history of philosophical wonder, I argue that wonder has almost exclusively been considered an epistemological concept. It aids us in directing our attention to scientific inquiry, it provides guidance for recognizing the presence and judgment of God, or it offers insight regarding our noetic faculties and failings. In almost all cases, wonder is an epistemic tool for seeking out and discovering knowledge. The issue I see with treating wonder as a strictly epistemological concept is that it is too often limited to the realm of human experience. Even Heidegger’s version of *thaumazein* requires that we understand wonder in relation to *Dasein*’s ability to think Being. By contrast, the wonder that I will argue for exceeds the human realm, will challenge traditional ontological frameworks that are grounded in a Platonic/Cartesian dualism between spirit and matter, and offer a radically ecocentric ontological framework. To do this I want to move the question from “what is wonder?” to
“where is wonder?” That is, I want to work toward placing wonder rather than defining it outright. I will use the work of Maurice Merleau-Ponty as my guiding theoretical framework and read him through the recent developments of object-oriented ontology (OOO) and new materialism(s).

Chapter Outline

Chapter 1 argues that we must problematize the place of wonder in order to reorient it as an ontological concept. There I begin with a discussion of thaumazein, the Ancient Greek word for wonder. Plato’s claim in the Theaetetus that philosophy begins in wonder places thaumazein explicitly in the realm of knowledge. Ultimately Plato seems to argue that because knowledge cannot provide an accurate account of itself, we are left to wonder at our inability to gain absolute knowledge of the world. The very ground of knowledge itself is whisked from under our feet and we must begin the task of philosophy, which is to love wisdom without ever fully obtaining it. While Plato may have intended to indicate our lack of absolute knowledge, thaumazein is quickly appropriated by Aristotle as a way to initiate the desire for knowledge, thus setting the stage for wonder to be used almost exclusively as an epistemological concept.

As an epistemological concept, philosophy has focused on defining wonder. That is, it has attempted to answer the question: what is wonder? But the task of defining wonder is also the task of rendering wonder a static tool used to guide our inquiries. I argue that reading the phenomenological and ontological work of Merleau-Ponty through recent insights from new
materialism and object-oriented ontology challenges not only our claims to knowledge, but also our conception of wonder as a static tool that can be easily disregarded.

Both new materialism and object-oriented ontology argue that matter is more than a lifeless extended substance. Rather, matter is vibrant, quasi-agential, and independent of human involvement. Because the world is full of non-rational, self-organizing entities, such as weather patterns, Brittlestars, economic markets, and landfills, we must re-distribute agency to include nonhuman, and even nonliving objects. If we grant that nonhuman and nonliving objects are capable of a quasi-agency, then we can also grant them the possibility of actuating a kind of wonder. Both new materialism and object-oriented ontology work to challenge the idea that humans can gain absolute access to the world. The world is a buzzing, vibrating, swirl of self-organizing activity that iterates its own becoming and no amount of knowledge can overcome the gap between knower and known. Rather than reduce the world to our knowledge, new materialism and object-oriented ontology reveal that the world is incapable of being fully grasped. As such, our own sense of wonder cannot be disregarded by a knowledge that we cannot obtain. I end the chapter by placing wonder between objects. This is initially described in terms of Merleau-Ponty’s concept of flesh. Reading the concept of flesh through new materialism and object-oriented ontology allows us to think of flesh as a kind of communication system between objects, and thus provides a framework for speculating about objects and relations of objects beyond the limits of consciousness. Ultimately, this leads to the development of an ontological wonder that is actuated by objects (human or nonhuman), and which is developed in the proceeding chapters.
Chapter 2 takes a step sideways and argues that we must account for the aesthetic treatment of wonder before explicitly developing an ontological wonder. Turning to aesthetics after introducing the project as one oriented toward ontology may seem strange. But by focusing on the aesthetics of wonder I will be doing two main things: First I establish a need for a new conversation about wonder via the discourse on disenchantment and the politics of art and second, I bridge the gap between the anthropocentric position of traditional (epistemic) wonder, and the eco-centric position of an ontological view of wonder that displaces the distinction between subjects and objects. In the first half of the chapter I argue that aesthetics has contributed to the development of wonder by describing rare experiences or rare objects. I then appeal to the work of Jeffrey Kosky and Timothy Morton in order to broaden our experience of wonder beyond rarities and surprises. Specifically, Kosky argues that art can disrupt our scientific demand for absolute knowledge by demonstrating that mystery and enchantment are fundamental to our experience of the world. Enchantment is not a mark of a rare experience. Rather, it is a reorientation of our relation to the world such that our grip on the world slackens, and the view becomes fuzzy. We cannot rely on an absolute source of light (be it God or reason), and we must find new footing in the dark world of material mystery.

Morton complements Kosky’s work by offering an object-oriented version of causality. For Morton, all causality is aesthetic. Because all objects recede from our grasp, what we experience as causality is an aesthetic presentation of causality. Rather than reduce such presentations to conscious representations, Morton argues that aesthetic causality is deeply rooted in materiality. Aesthetic causality expresses the inability for any object to gain full access to any other object, and opens up the possibility for agency to be distributed beyond living
objects. More importantly, I argue that Morton’s aesthetic causality offers a framework whereby wonder can be attributed to nonliving objects.

I then turn to the work of novelist Haruki Murikami in order to elaborate on the scope of ontological wonder, and to expand the relationship between art and ontological wonder. Specifically, I look at the novel *1Q84* as a dramatization of both aesthetic causality and ontological wonder. I end the chapter by arguing that aesthetic causality leads us to the idea of operative wonder, a concept I develop fully in chapter 3.

In Chapter 3 I turn explicitly to the development of an ontology of wonder. I define ontological wonder as an operative wonder that grounds both our experience of wonder and the ability of nonliving objects to wonder. Building on the previous chapters, I work to more cohesively integrate the explicit ontology of Merleau-Ponty with both object-oriented ontology and new materialism. I also take a more extended look at the connection between operative wonder and quantum physics. Reading object-oriented ontology and new materialism diffractively through quantum physics, I argue that we can apply concepts such as superposition, entanglement, and decoherence to articulate operative wonder more fully. On my account, operative wonder occurs prior to actual states of affairs, and acts as the generative component to relations between objects. In terms of quantum physics, operative wonder is a kind of superposition of all potential relations between objects, leading to the collapse of that potential into an actuality. This actuality is activated by the presence and withdrawal of the specific powers or qualities of each object in the relation. Operative wonder extends and radicalizes the result of my diffractive reading of Merleau-Ponty, new materialism, and object oriented ontology.
Chapter 4 concludes the project with an extended look at museums as a kind of case study for integrating operative wonder in a concrete setting. Wonder and museums have had a very long and rich history. I explore this relationship, beginning with the cabinets of wonder that were common in Sixteenth Century Europe. I then go on to describe how the museum has become an instrument of disenchantment rather than an instrument of wonder. The integration of entertainment in the museum, as well as our desire to provide historical or thematic narratives to “make sense” of the art found in museums, leads to a consumptive, and thereby dismissive, attitude toward art that mirrors the epistemological disregard for wonder in the face of knowledge. I then turn to the garden as a model for the museum that lacks explicit borders, actualizes an enchantment that incorporates a whole environment, and plays on the tension between mystery and revelation that reveals operative wonder at work. While operative wonder, like quantum superposition, cannot be seen explicitly, the garden as a model for the museum demonstrates the agential activity of nonhuman and nonliving objects, and the wonderful, strange, and mysterious becoming of the material world.
CHAPTER 1
PLACING WONDER: MERLEAU-PONTY, NEW MATERIALISM, AND OBJECT-ORIENTED ONTOLOGY

Thaumazein, Epistemological Wonder, and Ontological Wonder

I will begin with wonder in the Greek sense of *thaumazein*, where *thaumazein* indicates a wonder that is aroused by that which is most familiar. According to Mary-Jane Rubenstein, “*thaumazein* arises when the understanding cannot master that which lies closest to it—when, surrounded by utterly ordinary concepts and things, the philosopher suddenly finds himself surrounded on all sides by aporia” (3). *Thaumazein*, unlike astonishment or surprise, is not merely an experience or feeling when engaging the unordinary. Wonder, as *thaumazein*, requires that the familiar and the everyday act as primary motivation for wonder. The fact that *thaumazein* is concerned with the familiar marks it as very close to the kind of wonder that I want to develop. However, a major problem that I see with thinking about wonder as *thaumazein* is that it is primarily an epistemological form of wonder.

*Thaumazein* prominently emerges in Plato's *Theaetetus* as a mirror of the Socratic problem of knowledge. The dialogue is largely aimed at describing the epistemological gap between the physical world and the world of forms, and finds the character of Theaetetus swept up in the dizzying activity of *thaumazein* because of “the collapse of the perfectly sensible premise that nothing can be anything other than what it is” (Rubenstein 4). A rock is both big and small depending on the context in which it is judged, and the physical effects of aging will soon make Socrates, who is taller than Theaetetus at the time of their conversation,
shorter than Theaetetus. Wonder, then, motivates the interrogation that would lead to the closing of this aporia in pursuit of knowledge. Tellingly, Socrates is horrified at his own hasty definition of knowledge (Plato 195c), ultimately guiding him back to the “safety” of the open strangeness of wonder at the most familiar.

While Socrates’ lack of knowledge leads him back to wonder, the development of wonder in the history of western philosophy has not been nearly as kind. At least since Aristotle, the western philosophical tradition has chosen knowledge over the dizzying uncertainty of wonder. Aristotle repeats Socrates’ claim that philosophy begins in wonder only to reorient it toward the end of gaining knowledge. According to Aristotle, “it is because of wondering that men began to philosophize and do so now.” Yet, “a man who is perplexed and wonders considers himself ignorant, so if indeed they philosophized in order to avoid ignorance, it is evident that they pursued science in order to understand and not in order to use it for something else” (982b13-982b21). Thus, for Aristotle wonder is the beginning of philosophy but only insofar as wonder leads to knowledge. Wonder is an indication of ignorance and must be overcome by understanding via scientific investigation.

Aristotle’s epistemological orientation of wonder sets up a long tradition in western philosophy of treating wonder as merely a beginning that must ultimately lead to knowledge. Aquinas, Descartes, Hume, Kant, and Hegel all appeal to a sense of wonder that leads to, or must be overcome by knowledge. It is not until Heidegger takes up thaumazein in his 1937-1938 Freiburg lectures that the epistemological meaning of thaumazein is questioned. There Heidegger returns to the beginning of philosophy in order to avoid the path of representative thinking, and claims that wonder is “the basic disposition compelling us into the necessity of
primordial questioning” (143). According to Rubenstein, Heidegger had to return to *thaumazein* because “finding another beginning for thinking depends on thinking through the first one” (29). Thus thinking has to “go back – and forward” in order “to attune itself to” the unconcealment of wonder” (Rubenstein 28). Regardless of the fact that Heidegger explicitly desires to uncover the ontological nature of wonder, he does so within the context of thinking and in terms of Dasein’s ability to think Being.

Merleau-Ponty and an Ontological Wonder

In contrast to Heidegger’s ontological wonder that demands a new beginning for thinking, I will argue for an ontological wonder that moves beyond the necessity of human involvement at all. To do this, I will be employing the phenomenological and ontological insights of Merleau-Ponty as a theoretical framework. In this section I will provide a brief justification for employing Merleau-Ponty’s philosophy as such a framework.

In a widely cited text, M.C. Dillon argues that Merleau-Ponty offers two major theses in the *Phenomenology of Perception*: an epistemological thesis of the primacy of perception and an ontological thesis of the primacy of phenomena (51). Both theses are grounded in the world of pre-reflective bodily engagement. For Merleau-Ponty the body and the world are not two separate entities that meet at some given time, but the body as body-subject is always already in the world. In the *Phenomenology* he makes this explicit in terms of intentionality: “What distinguishes intentionality from the Kantian relation to a possible object is that the unity of the world, before being posited by knowledge in a specific act of identification, is 'lived' as ready-
made or already there” (xix). Here Merleau-Ponty sets up an implicit distinction between knowledge which requires a reflection of the transcendental consciousness, and a phenomenological knowledge that occurs via the body and is not fully reliant upon consciousness.

This phenomenological knowledge, I argue, can be described in terms of operative intentionality. According to Merleau-Ponty, operative intentionality is “that which produces the natural and antepredicative unity of the world and of our life, being apparent in our desires, our evaluations and in the landscape we see” (PhP xx). Further, operative intentionality does this “more clearly than in objective knowledge,” and furnishes “the text which our knowledge tries to translate into precise language” (ibid). What is particularly important for this project is that operative intentionality, and the kind of phenomenological knowledge that follows, allows for a sustained wonder by revealing a world that always recedes from the grips of absolute knowledge that “consciousness” strives for. Philosophy for Merleau-Ponty is not the movement from initial wonder to absolute knowledge as a “reflection of a pre-existing truth, but, like art, [is] the act of bringing truth into being” (xxii). Philosophy is the act of interrogating the most familiar in order to reveal it as the most strange. But the form of revelation that Merleau-Ponty strives for is one where the world would be left to express itself. That is,

in order to accomplish its will for radicalism, [philosophy] would have to take as its theme the umbilical bond that binds it always to Being...it would have to no longer deny, no longer even doubt; it would have to step back only in order to see the world and Being, or simply put them between quotation marks as one does with the remarks of another, to let them speak, to listen in (VI 107).
A second aspect of Merleau-Ponty’s philosophy that I will draw heavily upon is his explicit ontology developed in *The Visible and the Invisible*. Perhaps the most important and the most difficult concept within this ontology is the notion of *flesh*. According to Merleau-Ponty, “flesh lines and even envelops all the visible and tangible things with which nevertheless it is surrounded, the world and I are within one another, and there is no anteriority of the *perciere* to the *percipi*, there is simultaneity” (*VI* 123). The flesh works to dissolve the hierarchical organization of humans as separate and superior to the non-human world by folding the human body into the same flesh of the world without reducing the world to a simple monism. The world as flesh is a generative unity in difference. For Graham Harman, a proponent of object-oriented ontology, flesh is a kind of “electrified medium in which all entities, as elusive styles generate surfaces of qualities that fuse together or signal messages to one another” (*Guerrilla Metaphysics* 58). It is through flesh that diverse objects are able to come into contact with each other. Harman goes on to say that “there is nothing specifically human about the flesh, which functions as a general communications medium rather than as a narrowly perceptual one” (Ibid 54). This concept of flesh, though not fully developed, offers a path to an ontology that is both wondrous and radically ecological. In this vein, Fred Evans describes flesh as achieving a pluralized identity, a unity composed of difference, such that each visible is at once part of the identity and the other of the rest. Because of this particular type of unity, the affirmation of any one visible is immediately also the valorization of the others. Thus no visible is granted natural superiority over the rest (144).

What I will argue is that Merleau-Ponty’s concept of flesh allows for a relation and communication between objects that does not require human involvement or human access, and enables wonder to take place in between these relations.
On a more practical level, promoting an ontological wonder that remains significant beyond epistemological interrogation can have significant influence on at least two major ongoing discourses: 1) Philosophical engagement with environmental issues, and 2) the re-enchantment of the world after modernism and the enlightenment. These concerns, I argue, are intimately linked and will be developed as a part of the ongoing theme of this project. Recent developments in new materialism offer an opportunity to introduce both of these concerns within a conversation on wonder.

New Materialism

The recent development of new materialism(s) has brought together a variety of disciplines including quantum physics, biology, feminism, phenomenology, post-structuralism, and post-Marxism. According to Rick Dolphijn and Iris van der Tuin, authors of *New Materialism: Interviews and Cartographies*, new materialism has been gaining traction since the late 1990s (13). Coined separately by Rosi Braidotti and Manuel DeLanda, new materialism (or neo-materialism) stresses “the concrete yet complex materiality of bodies immersed in social relations of power” (Ibid 21). Focusing heavily on feminist issues of embodiment, Dolphijn and van der Tuin work to extend discussions of bodies beyond the human context. That is, the bodies at stake in new materialism are not limited to human bodies, but include non-human animals, plants, rocks, weather patterns, computers, and throw rugs.

In one of the interviews conducted by Dolphijn and van der Tuin, Manuel DeLanda claims that “neo-materialism is based on the idea that matter has morphogenetic capacities of
its own and does not need to be commanded into generating form” (Ibid, 43). Although he does not describe this capacity in terms of agency, it is clear that matter is not merely passive stuff waiting for humans to form it into something meaningful. There is a sense in which matter is capable of a kind of self-organization. Matter, therefore, must be accounted for within political, social, historical, geological, and meteorological processes, not as a passive, accidental actor, but as an active, quasi-agential participant. For DeLanda this has radical effects for the way that we understand self-organization. Looking at weather patterns as an example, he states, “[i]t is absurd to think that complex self-organizing structures need a “brain” to generate them. The coupled system atmosphere-hydrosphere is continuously generating structures (thunderstorms, hurricanes, coherent wind currents) not only without a brain but without any organs whatsoever.” (Ibid, 43). Granting the possibility of self-organization to non-human and non-animal objects negates consciousness or thought as a necessary condition for active engagement and challenges the Cartesian understanding of individual subjectivity.

In Meeting the Universe Half Way, Karen Barad explicitly and thoroughly challenges the theme of Cartesian individualism using similar insights as DeLanda. Here Barad develops what she calls “agential-realism,” which she describes as an “epistemological, ontological, and ethical framework that...provides a posthumanist performative account of technoscientific and other naturalcultural practices” (32). Barad's agential-realism is deeply influenced by the physics/philosophy of Niels Bohr, and is founded on the concept of intra-activity. Unlike interaction, “which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action argues that distinct agencies do not precede, but rather emerge through, their intra-action” (33). Important for Barad is the idea that there are no
individuals outside of intra-action. On an ontological level, the basic units of reality are phenomena (39), which she describes as “neither individual entities nor mental impressions, but entangled material agencies” (56). In one move, scientific atomism and Cartesian individualism are denied. It is not possible to “find” atomic particles just existing out in the world, nor is it possible to encounter individual agencies separate from their social, historical, biological, and cosmological contexts. Atoms are only found by subjects that are constituted by the specific material practices currently ongoing. Both atoms and individuals emerge from such intra-action. Further, matter is not merely passive stuff, waiting for an active, self-moving agent, such as the rational human being, to move inert objects. In Barad's agential-realism, matter and objects have the same motivating capacities of movement as humans do. Thus, agential-realism also radically challenges traditional notions of causality.

It is not difficult to draw some initial parallels between Barad's “agential realism” and Merleau-Ponty's ontological thesis of the primacy of phenomena. For both, it is not possible to describe individuals prior to inter/intra-action. Rather, objects are constituted by the mutual engagement that occurs within phenomenal unities. However, unlike the theoretical scope of the Phenomenology of Perception, Barad takes such insights beyond the context of human experience.

What is really radical about Barad's view is that, on the basis of quantum physics, she argues for an almost complete eradication of boundaries and divisions between objects. Based on the presence of diffraction in certain quantum physics experiments, Barad concludes that each object always already merges with their surrounding objects. At stake is a fundamental assumption regarding representation and reflection as means of access to the world. Reflection
often requires that we attempt to step back and separate ourselves from the world in order to observe and analyze the world via some critical distance. For Barad, however, there is no world to be found that can be accurately reflected because the act of separation and the critical distance required are impossible. Instead, the world is continually articulated by an ongoing performance of difference. So while reflection “reflects the themes of mirroring and sameness,” diffraction “is marked by patterns of difference” (71).

At the heart of Barad’s agential realism, is the principle of quantum entanglement. Quantum theory, in physics, has altered ideas about space, and the way that objects affect each other over distances. Barad takes quantum entanglement and extends it beyond a physical principle and into metaphysics. The world and all the objects found in it are intimately entangled to the degree that individual objects are no longer the building blocks of reality. Rather, phenomena, which are materially and discursively produced, count as the ontological foundation of reality. On this account, matter, humans, bugs, bird nests, microscopes, fountain pens, and glass sculptures equally count in the production of phenomena.

Barad's philosophical insights provide at least two major clues to thinking about wonder in ontological terms. First, humans and non-humans must be thought of on an equal ontological level. Humans, while distinct from animals, rocks, tumbleweeds, and bath robes, are no more ontologically significant. All objects are always already entangled with their surrounding objects, creating phenomena rather than individuals. The second clue, built on quantum physics, is that entangled objects (including humans), take part in the ongoing performance of the world as a continual articulation of difference. For Barad, this articulation of the world “is not a human-dependent characteristic but a feature of the world in its differential becoming.
The world articulates itself differently” (149). Further, and perhaps most importantly, humans are radically part of the world, intra-acting and entangled to the degree that it is very hard to really tell where the human ends and the world begins. As we will see, this claim by Barad comes very close to the ontology developed by Merleau-Ponty in *The Visible and the Invisible*.

As Barad, DeLanda, Dolphijn, and van der Tuin have indicated, new materialism is, at least partly, motivated by the desire to provide a new ontological and ethical status to nonhuman objects by arguing for something like material agency. Matter is not passive, but participates in self-organization and the constitution of phenomena via intra-action and entanglement. In *Vibrant Matter*, Jane Bennett argues for a vitality of matter whereby things have the capacity “not only to impede or block the will and designs of humans but also to act as quasi agents or forces with trajectories, propensities, or tendencies of their own” (viii). Bennett contends that “the image of dead or thoroughly instrumentalized matter feeds human hubris and our earth-destroying fantasies of conquest and consumption” (Ibid ix). It is not sufficient to place all active power within the human subject given that objects and groups of objects (or “assemblages” as Bennett calls them) seem to act and react indifferently to human agents. Bennett offers a pile of garbage as an example. When various pieces of trash interact with each other, they become more than those individual pieces. They form an assemblage that produces consequences unforeseen and unintended by any human agent that placed them together due to their capacity for self-organization. Further, objects like trash interact with one another in a way that often requires a response from humans (e.g. by odor or chemical emission). Thus garbage must be taken as a quasi-agent or actant within a political context.
There is a sense in which Bennett's project is aimed at highlighting the strangeness and wonder of the world via our engagement with objects. She claims that “enchantment points in two directions: the first toward the humans who feel enchanted and whose agentic capacities may be thereby strengthened, and the second toward the agency of the things that produce (helpful, harmful) effects in human and other bodies” (Ibid xii). There is a continued focus on the human subject in relation to wonder and enchantment even while there is a theoretical move to displace “humans at the ontological center or hierarchical apex” (Ibid 11). Bennett continues:

Vital materialists will thus try to linger in those moments during which they find themselves fascinated by objects, taking them as clues to the material vitality that they share with them. This sense of a strange and incomplete commonality with the out-side may induce vital materialists to treat nonhumans – animals, plants, earth, even artifacts and commodities—more carefully, more strategically, more ecologically (Ibid 17-18).

There are two things that I find extremely helpful and interesting in this appeal to human experience. The first is the strangeness of the world that is found in objects. It is the experience of such strangeness that first prompts us to begin to wonder about the world and thus to pay attention to it. Therefore, I do not completely leave the tradition of wonder informed by Plato, Aristotle, Descartes and Kant. This is because of the second insight from Bennett's appeal to humans which provides an explicitly political context in which to treat wonder. When we begin to wonder about the world because of its strangeness, because we find in objects and phenomena the ability to self-organize and act semi-autonomously with a political milieu, we must make political and ethical decisions that include matter and objects on the same ontological level as humans. In Bennett's terms, we could describe this ability to make
political actions that more thoroughly incorporate matter as an ontological equal in terms of thing power (Ibid 10).

While I concede that we must continue to talk about the ethical and political consequences of vibrant matter in terms of humans, I argue that there is a distance between humans and wonder that I do not find in Bennett. That is, for Bennett wonder remains an affect, response, emotion, or passion that can be firmly located within the human. The tension between focusing on humans and focusing on objects and matter is one that I find in Merleau-Ponty as well as new materialism. It is by developing the relationship between the two, and reading them alongside object-oriented ontology, that displacing wonder from the human becomes possible.

Overall the project of new materialism maps nicely onto Merleau-Ponty's explicit ontology. Diana Coole, editor and contributor to a collection of essays on New Materialism, explicitly appeals to Merleau-Ponty, claiming that “Merleau-Ponty’s aim [in The Visible and the Invisible]...is to explain a generative, self-transformative, and creative materiality without relying on any metaphysical invocation of mysterious, immaterial forces or agencies” (93). Coole's appeal to Merleau-Ponty leads her to argue that, rather than seek an absolute knowledge of the world typically found in scientific investigation, we ought to “plunge” into the world, “watching with wonder as new meanings emerge and striving creatively to express, indeed to emulate, the formative process before it is overwritten by reifying discourses and performances” (101-102). As Coole sees it, it is through the concept of flesh that Merleau-Ponty is able to argue for an intimate contact and engagement with the world without overpowering the world with dominating and reductive appeals to knowledge. It is by recognizing “that bodies
and objects are simultaneously seeing and seen...all jostling together and intersecting to
gestate and agitate the dense tissue of relationships that constitute the flesh” that the
philosopher is capable of being “everywhere and nowhere” (106).

New materialism, then, is a varied, transdisciplinary attempt to challenge traditional
understandings of matter, agency, political activity, bodies, gender, and race. I have not dealt
with the strong feminist writings found under the new materialism umbrella. Rather, for my
project, new materialism’s challenge to traditional conceptions of matter, agency, and
ontology, open the possibility for extending the discourse on wonder beyond the limits of
epistemology. Most importantly, new materialism demands that we take seriously the idea that
we as humans are not separate and distinct from the rest of the world. But more than just
levelling a kind of ontological or ethical status of humans and non-humans, this radically
changes the way that we should understand politics, physics, biology, sociology, meteorology
and so on, because of the way that matter asserts itself actively within these contexts.
Therefore, the non-human world that we find at our fingertips or in the purview of our gaze
cannot be thought of as inert, passive res extensa capable of revealing an exhaustive knowledge
of our physical surroundings. The possibility that matter is capable of self-organization and
active participation demands that we not only view the world with an initial sense of wonder,
but that we ought to remain in wonder over the inexhaustible mystery of the world.

This mystery of the world, though, is not a metaphysical mystery at the dualistic division
between spirit and matter. It is not the contemplation of an otherworldly realm that mystically
manifests itself here in the physical world. Rather, it is the realization that physics and magic
have much more in common than we typically think and that the world is filled with a
strangeness that is inexhaustible because its depth is inexhaustible. If, as Merleau-Ponty and new materialism indicate, there is no possibility of separating humans from “nature,” then there is no possibility of exhaustive knowledge because humans will always affect and rearrange “nature” from within. There is no stopping point at which to peer in on “nature” from the outside and find it in a pure state. This is directly opposed to a traditional scientific framework that treats reparability, or the exterior perspective of the observer to the observed, as a necessary condition for objective investigation (Barad, *Meeting the Universe Halfway* 184). In the account of the world provided by new materialism, “there is no inside, no outside. There is only intra-acting from within and as part of the world in its becoming” (Ibid 396).

Like Barad, Merleau-Ponty held that the basic units of reality are phenomena. While this becomes much more explicit in *The Visible and the Invisible*, it is implicit in the earlier *Phenomenology of Perception*. According to M.C. Dillon, along with the more widely known thesis of the primacy of perception, Merleau-Ponty held to an ontological thesis of the primacy of phenomena (51). On the basis of this second thesis, Merleau-Ponty promotes the principle of autochthonous organization, which according to Dillon, means that “the Gestalt organizes itself and generates its own internal coherence; the perceptual meaning, the configuration of parts within the Gestalt contexture, is intrinsic to the sensuous content” (81). I point this out here not only to indicate the similarities between the self-organization of new materialism and the autochthonous organization of Merleau-Ponty, but also to develop and congeal an ontological framework built on the science studies of Barad, the political philosophy of Bennett, and the phenomenological insights of Merleau-Ponty.
Much has been made about Merleau-Ponty’s focus on the body. And rightly so. But according to Dillon, there is an ontologically rich reason that motivated Merleau-Ponty to spend so much time on the body. Dillon explains:

The body is important for Merleau-Ponty, because it is a prime exemplar of flesh. And flesh is important because it is the element that unlocks an ontology: it is the element that Merleau-Ponty, before his death, thought would allow him to resolve the ontological problems he had been working on since he first encountered them underlying fundamental issues in psychology (35).

Merleau-Ponty’s conception of flesh allows him to explore an ontology that lies between immanence and transcendence. This ontology is very similar to Barad’s in that both demand that we understand humans as intimately interwoven, intertwined, or entangled with the world. According to Barad, “Bodies are not situated in the world; they are part of the world” (376). Or again, “we are of the universe—there is no inside, no outside. There is only intra-acting from within and as part of the world in its becoming” (396). Barad comes to this conclusion by way of Niels Bohr’s philosophy/physics, as well as insights drawn from contemporary quantum physics. Her point is that, on a physical basis, there is very little separating humans from the rest of the world, and that boundaries dividing objects are constituted by cuts in phenomena rather than by exterior lines of individually and autonomously existing objects. Merleau-Ponty comes to this conclusion as a way to escape the limitations of empiricism and intellectualism. Surprisingly, however, there is a common example between Bohr and Merleau-Ponty that helped them to reach extremely similar ideas.

According to Barad, Bohr made a distinction between instruments of observation and objects of observation by appealing to the use of a cane by a blind man (358). Barad explains:
Bohr’s discussion focuses on two possible complementary practices: on the one hand, the man can hold the cane tightly so that it functions as an instrument of observation (an extension of the person trying to negotiate the room); on the other hand, he can hold it loosely so that it becomes an object of observation. The cane is neither inherently part of the object nor the agencies of observation. The line between subject and object is not fixed and it does not preexist particular practices of their engagement, but neither is it arbitrary. Rather, object and subject emerge through and as part of the specific nature of the material practices that are enacted.” (Ibid, 358-359)

Again, for Barad the insights of physics lead to the disruption of the subject and object as preexisting relations. It is only in the contact between the person and the cane that each is constituted. This echoes a similar point made by Merleau-Ponty in the *Phenomenology of Perception*. Here Merleau-Ponty describes the blind man's cane as becoming a part of the body’s engagement with the world through what he calls habit, where “[h]abit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments” (166). While Barad's is an explicitly ontological point, Merleau-Ponty is describing the role of the body as the “general medium for having a world” (169). The body is how we experience the world, how we take up our desires and projects within the world, and thus, to an extent, how we know the world. One limitation to Merleau-Ponty's project at this point, a limitation acknowledged by him in *The Visible and the Invisible* (200), is that the focus is too narrowly placed on the human subject. It is as if he could not escape the anthropocentric language of Cartesian thought in order to describe the world beyond human experience. It is here that the insights of object-oriented ontology can aid in thoroughly extending Merleau-Ponty's philosophy beyond the description of human experience.
Object-Oriented Ontology

Object-oriented philosophy properly begins with Graham Harman. Throughout his career, Harman has developed a unique approach to ontological concerns primarily through novel readings of Martin Heidegger’s “tool analysis” found in *Being and Time* and Latour’s “actor-network theory.” On Harman’s account, object-oriented ontology requires that we understand objects as the most fundamental bits of reality. For Harman, objects are “anything that has a unified reality that is autonomous from its wider context and also from its own pieces” (*Quadruple Object* 116). Partly motivating this move to focus on objects is the desire to eliminate a hegemonic ontological framework. That is, following Heidegger, he wants to move away from “the sort of traditional philosophy which holds that one type of entity can explain all the others – whether it be atoms, perfect forms, the *apeiron*, mental images, or power” (Ibid 85). While Harman does not explicitly follow this train of thought, it is easy to see how an ontology focused on objects can lead to a more ecologically oriented framework.

For Harman and other object-oriented philosophers, one barrier to be overcome is the insistence that “the human-world gap is the privileged site of all rigorous philosophy” (*QO* 136). Harman labels this “philosophy of access” and sees it as a particular limitation of phenomenology. He explains: “the problem [of phenomenology] is that human and world remain the only two poles of this philosophy, both of them participants in every situation of which one can speak” (*QO* 139). As such, the concern regarding “philosophy of access” distances Harman’s thought from the philosophy of Merleau-Ponty. According to M.C. Dillon, “For Merleau-Ponty, the real world is the perceived world is the phenomenal world” (156). It is not possible to abandon the perspective of the human subject in order to examine “what Being
can indeed be before it be thought by me,” for “there is no Brute world, there is only an elaborated world” (Merleau-Ponty, VI 48). Even the “not-knowing of the beginning” (Ibid, 49) of perception is a not-knowing for the perceiver.

While it is clear that Merleau-Ponty's ontology does not fit easily into the general scope of object-oriented ontology, I argue that the similarities between the two make them possible allies. One overlap occurs with the concept of flesh developed by Merleau-Ponty in The Visible and the Invisible. At one point in The Quadruple Object, Harman claims that “If I perceive a tree, it can probably perceive me in turn. But this must occur as part of a different relation, not as the reverse side of the same one” (75). For Harman, there are no subjects, only objects with varying capacities to relate to other objects via their qualities.¹ This seems, prima facie opposed to Merleau-Ponty's notion of reversibility, whereby the thing touching and the thing touched overlap and pass into each other based on a single flesh (Merleau-Ponty, VI 123). But if, as Dillon claims, Merleau-Ponty's “paramount goal” was “to carry Western philosophy beyond the dualism of subject and object,” (Ibid 155) then there are no subjects in Merleau-Ponty's ontology either. Rather than reduce everything to coincidental objects, Merleau-Ponty places each thing into a relationship of reversibility that is based on the fecundity of flesh. Dillon goes on to explain that the “essence of the reversibility relation” is “not that the tree I see sees me, but that I am visible from the standpoint of the tree as it is from mine because we are both made of the same stuff: the flesh of the world” (170).

¹ It should be noted that for Harman, objects never relate to other objects. This is due to the fourfold nature of objects such that the reality of the object is not identical with its qualities. Thus the real object always recedes from possible access, while the qualities that it presents or manifests relate to the qualities of other real objects.
Harman acknowledges the benefits of thinking about the world in terms of flesh. As mentioned previously Harman describes Merleau-Ponty's concept of flesh as a kind of “electrified medium in which all entities...generate surfaces of qualities that fuse together or signal messages to one another” (Guerilla Metaphysics, 58). It is possible to read the flesh as a mechanism for rejecting an established ontological superiority of one type of object over another. Further, it is not clear that the flesh is itself an object that determines the value or the existence of other objects and thus avoids the hegemonic tendencies of phenomenology that worry object-oriented philosophers. Harman leans towards this reading of the flesh when he claims that “[f]lesh cannot be absent when two pieces of plywood, abandoned in a ghost town, smack into each other in a windstorm. Even for these stupefied objects there is an intertwining of the visible and the invisible, given that they fail to exhaust each other’s depths through their causal interaction” (Ibid 54-55). For Harman and for object-oriented ontology, no interaction ever exhausts the object's being. There is always some aspect of the object that recedes from every interaction because no object is capable of gaining full access to any other object.

Both Merleau-Ponty and object-oriented ontology reject a position of idealistic absolute knowledge. For object-oriented ontology an object has two poles: it is both a real object and a sensual object. The sensual object is the focus of most traditional phenomenological analysis. It is that which presents itself via perception. The real object, however, always exceeds relations, is not accessible via perception, and is rarely, if ever, fully known. A real object has no reliance on human perception or consciousness for its reality. Thus object-oriented ontology rejects idealistic absolute knowledge because it fails to allow for real objects that exceed human consciousness. For Merleau-Ponty, the sensual object pole is the visible aspect of The Visible
According to Dillon, what is not revealed by perception is “an invisible that stands in a tensed relation of identity-and-difference with the visible” (157). The invisible is the ideal “that is expressed in language, constituted in thought, and projected by culture” (Ibid).

Perhaps most important here is the fact that within the framework of object-oriented ontology, real objects always recede from absolute access, and thus maintain a necessary sense of mystery. It is in this sense that object-oriented ontology promotes wonder as a fundamental mode of engagement with the world. Ian Bogost, a video-game developer, philosopher, and proponent of object-oriented ontology, claims that “to wonder is to suspend all trust in one's own logics, be they religion, science, philosophy, custom, or opinion, and to become subsumed entirely in the uniqueness of an object's native logics” (124). While I appreciate Bogost’s enthusiasm for both objects and wonder, the ethical and political conclusions he gleans from this sort of realism are problematic, if not troubling. For Bogost, embracing genuine wonder means that we ought to “leave rigor to the dead,” “trade furrows for gasps,” and “rub our temples at one another no longer. Let's go outside and dig in the dirt” (133). But if we are to truly take objects as ontologically independent from human perception and thought, then rigor ought not to threaten wonder. That is, if we agree with Bogost that the alien is everywhere (133), that knowledge never truly permeates objects (123), and to wonder is to suspend our human logics, then rigor can promote wonder just as much as it can stifle it. Research as investigation certainly provides a more intimate familiarity with the objects being investigated, but it can also promote an intensification of strangeness. Taking wonder seriously does not require that we give up on the practical aspects of science and philosophy but that we reorient our attitudes towards them.
Levi Bryant's approach to object-oriented ontology can be helpful here. As I have mentioned, for a very long time wonder has been described as residing almost solely within the human subject. As a result, wonder has been spoken of most often as a means to an end. Aristotle’s claim that philosophy begins with wonder only to the degree that it ends in knowledge highlights this point. However, despite Aristotle's own view that wonder is something to be dismissed by knowledge, his ontological insights provide a possible clue to discovering a wonder that does not reside solely in humans or within the limits of human experience.

If we return to the *Theaetetus*, we find that the claim that philosophy begins in wonder arises from the dizzyingly and disturbing elusiveness of knowledge. That is, it seems possible to know that something is other than it is. At the most basic ontological level we can say the same thing about objects (as substances) and their qualities. According to Bryant, “if a substance is always one then this is because, while a substance might be compounded of many parts or other objects, *qua* substance the substance is still one substance” (75). For Bryant, there is a supposed tension that lies at the heart of an object's relation to its component parts, including its qualities. If we take as an example a computer, it is clear how a single object can be thought of as both one and many. The computer is one computer. Yet it is made up of many parts including keys, screens, motherboards, memory slots, wires, and fans. Where exactly does the computer end and the fan begin?

It is here that objects become wonderful in two ways. The first is that we can experience them with a sense of wonder. Harman captures this experience of wonder nicely when he says that
there is something permanently strange about the manner in which an enduring sensual
object can appear in countless incarnations depending on the viewer's angle, distance,
and mood. Perhaps children still appreciate this strangeness; in adults, strenuous
exercises may be needed to recapture the atmosphere of mystery that ought to
surround the merest rotation of a wine bottle or the shifting of a light behind a
mountain.” (QO 98)

It is not only possible to arouse wonder at the site of something beautiful or shocking, or in the
realization that the same horizon appears blue just before dawn and a dazzling orange just after
sunset. The fact that the dull leaf of a fake plant is also buzzing with the activity of electrons
and microscopic organisms, or that the computer is at the same time a single unit and a
conglomeration of component parts and complex processes can likewise evoke an experience
of wonder. This first sense has been thoroughly identified and described throughout the
western philosophical tradition and analyzed in epistemological terms. The second way that
objects are wonderful is ontological in nature and has largely been ignored in the western
tradition.

Although Bryant does not provide an extended discussion of wonder, his version of
object-oriented ontology provides an opening to include wonder as part of the ontological
makeup of objects. One way that Bryant does this is to read Aristotelian ontology through the
work of Roy Bhaskar. While it is clear that Aristotle did not consider his ontological position as
one that locates wonder in objects, combining Aristotelian insights with Bhaskar's work it
becomes possible to talk about wonder as a quality of objects. According to Bryant, if we begin
“with ontology and note that substance is such that 1) it can actualize different qualities at
different times (Aristotle), and that 2) it can fail to actualize qualities (Bhaskar), we can now
argue that the very essence or structure of substance lies in self-othering and withdrawal” (85).
Bryant's main point here is that there is something in objects that continually withdraws from interactions or relations with other objects. Important for Bryant is the idea that Bhaskar considers objects as containing qualities or powers that must be activated. Specific qualities or powers of an object are activated depending on the qualities of other objects that the first object encounters. For the most part, we only see a very limited set of qualities for each object. This limited set of available qualities is due to the fact that we relate, as humans, in a specific way to specific objects, and that we often find objects within similar states of affairs. Scientific experimentation offers us the ability to induce the activation of qualities that are not often seen because of these limitations. Scientific experimentation does not ever give us direct access to the object as such, but works to demonstrate that objects succeed or fail to actualize their qualities under typical circumstances. For Bryant, this actualization is not causally determined by the qualities of other objects, but is an object's active engagement with other objects. According to Bryant, “if we had an ontologically accurate language, we would instead say that “the mug blues” or that “the mug is bluing” or that “the mug does blue.” The blueness of the mug is not a quality that the mug has but is something that the mug does. It is an activity on the part of the mug” (90).

With this active ability to engage and relate to other objects via various qualities Bryant brings us back to Jane Bennett's thing-power and Karen Barad's principle of intra-action. Both Bennett and Barad argue for a kind of vibrancy of matter that considers it an active participant in constituting its surrounding environment and its political milieu. Bryant continues this trend explicitly within the context of an ontological discussion. For Bryant there is a kind of politics of objects where different combinations of objects result in different manifestations of qualities.
and different events. This is not a reduction of events to formal causality. Rather, this is a radical inclusion of objects of all sorts within the realm of agency. According to Bryant, “[i]f experimental activity is necessary, then this is because generative mechanisms” of objects “can be dormant, inactive, or veiled by the agency of other objects or generative mechanisms” (48). It is this agency of objects in relation with other objects that places wonder beyond the realm of human experience. Wonder is no longer limited to the dizzying experience of the novel or the strange, but can be found in the most ordinary of objects as a quality or power of that object. Thus wonder arises as an experience for a sentient object when that particular quality or power is activated in such a way that the sentient object can access it.

Because objects are active, quasi-agents, it is not the case that objects passively await for a sentient object to access its power of wonder. Rather, it is the object that does the wondering in the sense that Bryant's mug blues. We would then more accurately say that objects actively wonder. As such, it is not merely the strange or the novel that is capable of motivating the experience of wonder, but every object. The most familiar objects and contexts are actively full of wonder even though some may appear more dormant than others. This appearance, though, is not only an appearance to the sentient object (either human or otherwise). Rather, the wondering that objects do can be actualized by relations and accessed by only certain objects within a certain context.

Placing Wonder in the Flesh

By questioning the place of wonder I do not want to dismiss the perplexing nature of
wonder, but to re-locate it. By locating wonder in objects, especially objects that have an ontological status not determined or conditioned by human access, wonder maintains its dizzying, unsettling nature while avoiding a necessary reduction to knowledge. But it is not enough to merely locate wonder in objects. We must also locate wonder in a broader political and ethical context. For this, I will briefly return to Bennett before appealing to Merleau-Ponty’s explicit ontology.

According to Bennett’s vitalism, objects ought to be given independent ontological status because their capacity to act is not necessarily tied to human agency. In Vibrant Matter she appeals to Spinoza's idea of conatus. For Bennet, “Conatus names “an active impulsion” or trending tendency to persist,” (2) which is shared by both humans and non-humans. When placed together, a group of objects is capable of forming an assemblage. These assemblages are then capable of merging, shifting, and reorganizing to produce effects that are a result of no human (or superhuman) agency. Recognizing the possibility for objects to reorganize, and to thus internally produce independent consequences, Bennett claims that “American materialism, which requires buying ever-increasing numbers of products purchased in ever short cycles, is anti-materiaility. The sheer volume of commodities, and the hyperconsumptive necessity of junking them to make room for new ones, conceals the vitality of matter” (Ibid 5). As such there is a mutually constitutive relation between the ontological status of objects and our treatment of them. On one hand, if we treat objects like junk, then we conceal their autonomous quasi-agency. On the other hand if we realize this quasi agency, then we will more readily respect objects as more than junk. Importantly, this relationship to objects need not always refer to synthetic or artificial objects (like Bennett's examples of trash, electrical grids, and metal chains)
but can also be extended to natural objects, ecosystems, and watersheds.

Part of the quasi-agency that Bennett offers is based upon the unpredictable nature of the relation between multiple objects. We have already seen that there is a kind of politics of objects (what Bryant will call a democracy of objects) whereby some qualities are activated and some qualities are dormant. This is a component of any relation of objects. That something continually escapes human knowledge regarding how assemblages of objects will act and react allows wonder to enter into a broader political discussion. That is, the fact that objects are capable of an internal organization and politics requires human (or human objects) to react according to our qualities and powers.

According to Bennett, a revitalization of wonder would counteract the tales of disenchantment that are often told about the contemporary world (*Enchantment of Modern Life* 14). Because the world has become a utilitarian, calculated, mathematical projection without gods, monsters, or magic, we fail to be enchanted by it. The story that Merleau-Ponty tells (in both his phenomenological account of perception and his explicit ontology) is one of engaging the world in such a way that the world is always new, always full of wonder, always enchanted. In the preface to the *Phenomenology of Perception*, Merleau-Ponty claims that the best formulation of the phenomenological reduction was provided by Eugen Fink when he likens it to a state of “wonder in the face of the world” (*PhP* xv).

What Bennett offers is an enchantment that makes it politically and ethically relevant to engage with objects as having performative value independent of all humans. She does not, however, escape placing wonder within the human subject. In *The Enchantment of Modern Life* she claims that wonder is a state that involves a “temporary suspension of chronological time
and bodily movement” (5). Wonder remains tied up with the response of the subject to the object. Object-oriented ontology, on the other hand, places wonder fully within the realm of objects. Ian Bogost goes so far as to claim that “wonder is the way objects orient” (124). What I want to argue is that there is a tension between the way that objects wonder and the way that humans experience wonder. We cannot reduce wonder to a human experience or power, yet we must also take into consideration the wonder of objects within the human political realm in order to gain perspective on how we ought to treat objects in light of their quasi-agency. Locating wonder in something like Merleau-Ponty's concept of flesh may be helpful in revealing and alleviating this tension.

For Merleau-Ponty, philosophy not only begins in wonder, but also leads to wonder. In The Visible and the Invisible, he claims that philosophy is a “past of experience and of knowledge that one day ends up at this open wondering” (105). If we can say that humans are ontologically equal to other objects, then this power to wonder is similar, if not identical, to other object's power to wonder. That is not to say that rocks and apples feel a sense of wonder when presented with a work of art or when placed on the edge of the Grand Canyon. Rather, it is the same in the sense that an apple and a stop sign both red. It is identical in power but not in actualization because it is always working in concert with other powers and qualities within a particular object or in a particular milieu. The concept of flesh highlights this point in two ways: 1) it offers a reversibility between objects that does not require an identity of those object and 2) it allows for a communication and relation of objects without requiring that one type of object reign over all other types of objects.
For Merleau-Ponty, the concept of flesh has “no name in any philosophy,” cannot be talked about in terms of substance, and is an “element” or “a concrete emblem of a general manner of being” (The Visible and the Invisible 147). The flesh is that which allows each object or visible to engage with other objects or visibles on the same plane of being. The flesh “lines and even envelops all the visible and tangible things with which nevertheless it is surrounded, the world and I are within one another, and there is no anteriority of the percipere to the percipi, there is simultaneity” (Ibid 123).

Even as Merleau-Ponty developed an explicit ontology that challenged the traditional understanding of subjects and objects, his analysis most often remains in the voice of the human sentient object. But this does not entail that the flesh only describes the relationship between humans and the world of visibles. In describing the engagement with the visible, Merleau-Ponty remarks that “[s]ince the total visible is always behind, or after, or between the aspects we see of it, there is access to it only through an experience which, like it, is wholly outside of itself” (Ibid 136) This sounds very similar to Levi Bryant’s claim in The Democracy of Objects that “the very essence or structure of substance lies in self-othering and withdrawal” (85). For Bryant this structure indicates that objects are not identical with their qualities, and therefore not absolutely accessible. Objects always recede and are thus never fully known. Likewise, Merleau-Ponty claims that because the visible is “wholly outside of itself” that “our body commands the visible for us, but it does not explain it, does not clarify it, it only concentrates the mystery of its scattered visibility” (The Visible and the Invisible 136). Paradoxically, the same self-othering that negates absolute access to objects also provides the ability for relations between objects via reversibility. According to Merleau-Ponty,
he who sees cannot possess the visible unless he is possessed by it, unless he is of it, unless, by principle, according to what is required by the articulation of the look with the things, he is one of the visibles, capable, by a singular reversal, of seeing them – he who is one of them (Ibid 134-45).

At the most basic level, human and object are made of the same stuff. But rather than reduce humans to objects, this sets up a dynamic and generative interaction. Through this reversibility the flesh becomes a “thickness...between the seer and the thing” and “is constitutive for the thing of its visibility as for the seer of his corporeity; it is not an obstacle between them, it is their means of communication” (Ibid 135). Our interaction with things never fully exhausts either the subject or the object and the relationship between sensible-sentient and sensible is not dominated by one or the other. Instead the two form “a couple more real than either of them” (Ibid 139).

When read in conjunction with new materialism and object-oriented ontology, this couple need not remain limited to sensible-sentient and sensible but can apply to all objects and their relations with other objects. Merleau-Ponty himself confirms this reading when he claims that

“[e]ach landscape of my life, because it is not a wandering troop of sensations or a system of ephemeral judgments but a segment of the durable flesh of the world, is qua visible, pregnant with many other visions besides my own” (Ibid 123). Beyond the scope of vision, each object is pregnant with the potential to actualize hidden powers in different contexts and among different objects. Each object has the power to wonder beyond the limitations of human access. We can even talk about this in terms of assemblages if assemblages themselves become a type of object. This opens up a question regarding the constitution of objects and the limit to
what can be counted as an object. Returning to Karen Barad’s agential realism, I argue that this problem is evidence of ontological wonder rather than an obstacle to its description.

Barad’s focus on phenomena at times sounds very much like Merleau-Ponty’s notion of horizon. In the *Phenomenology of Perception* Merleau-Ponty relies heavily on the figure/ground relationship developed in Gestalt psychology. Accordingly, he describes the world as an ever-receding horizon built on an ever dynamic relationship of figure and ground. This takes place specifically in terms of attention. For Merleau-Ponty turning one’s attention to a new object makes what was previously an indeterminate horizon, or ground, into a determinate object, or figure (35). By so doing, a new horizon opens up for the newly explicit figure. This is a continuous process that demands a kind of fluidity between figure and ground such that each object has a horizon that can in turn be its own object with its own horizon. Thus we have embedded in each horizon numerous other horizons and beyond each horizon is a greater and more extensive horizon.

Karen Barad makes similar remarks in *Meeting the Universe Halfway*. According to Barad a phenomenon is an entanglement of subjects and objects (and objects and objects) that are not the result of human practices (140). Phenomena are constituted by what she calls “agential cuts” made by apparatuses. For Barad “[a]pparatuses are not bounded objects or structures; they are open-ended practices. The reconfiguring of the world continues without end” (170). She sees this as particularly important for the laboratory setting insofar as apparatuses are not technical instruments used for measuring, but are material-discursive practices that include the measuring machines, the scientists performing the experiment, the scientific method utilized, the building in which the laboratory is set, and so on. The “cuts” that constitute specific
phenomena limit the set which is included in particular apparatuses within material-discursive practices. But such limits can be extended almost indefinitely, much like Merleau-Ponty's horizons, depending on the objects and context involved. Further, such “agential cuts” need not rely on human involvement or human agency. This again leads to an understanding of matter as dynamic, generative, and self-organizing, for according to Barad

In an agential realist account, matter does not refer to a fixed substance; rather, matter is a substance in its intra-active becoming—not a thing but a doing, a congealing of agency. Matter is a stabilizing and destabilizing process of iterative intra-activity. Phenomena—the smallest material units (relational “atoms”)—come to matter through this process of ongoing intra-activity (151).

For Barad this generative aspect of matter is fundamental to the constitution of reality. It is an ontologically primordial principle to the degree that matter engages “in an ongoing reconfiguring of the world” (170). On this account “matter does not refer to a fixed substance; rather, matter is a substance in its intra-active becoming—not a thing but a doing, a congealing of agency. Matter is a stabilizing and destabilizing process of iterative intra-activity” (151).

While Barad denies that there are any truly individual objects existing in the world, her position is not far from Bryant's object-oriented approach. Barad concludes that phenomena are the basic units of reality, and that as such, it is only via intra-action that the world is constituted. Bryant, however, sees individual objects pre-existing any kind of relation, even claiming that objects resist relations with other objects altogether due to the non-identify of objects and their qualities. Yet, Bryant also claims that the qualities of objects, which are more like active powers than passive properties, actualize differently given the context. On Bryant's account, a mug “blues” differently given the lighting surrounding the mug. While there are clear
ontological differences between Barad and Bryant, both positions lead to an active and vibrant world where objects (or matter in Barad’s terms) act as the source for this generative activity.

At the heart of the new materialism, object-oriented ontology, and, as I will argue, Merleau-Ponty’s flesh is the desire to rid philosophy of the binary logics that have dominated western thought since Plato. The world does not need humans to inject meaning into the world, or to provide categories and structures for its constitution. Humans are but one part of the active “congealing of agency” of matter, one object among objects, or one sensible in the flesh of the world. But where does this leave wonder? Where can we find wonder?

In the following project I will develop two arguments. First wonder remains a description of a particular experience had by humans. In this sense wonder remains within the human “subject.” Yet, because the world is populated by self-organizing, quasi-agential, and vibrant matter, this experience of wonder ought to be a self-othering experience. We cannot wonder about the world, find concrete answers via scientific experimentation, and move on. That is, because the experience of wonder is generated by the vibrancy of matter and the reversibility of flesh, it can never lead to a knowledge that cancels out the initial dizzying experience of wonder. In fact, rigorous exploration of the world, rather than negating the experience of wonder, reveals a repetition of wonder motivated equally by the most strange and the most familiar. Our access to the world is always necessarily incomplete and thus built upon a foundation of sustained mystery, no matter how habit and cultural sedimentation conceal this fact.
Second, wonder is more than an experience had by humans and can perhaps more accurately be described as an ontological quality or power of objects. Given that humans are objects this does not displace wonder from humans. Rather, it rejects the idea that humans are the only kinds of objects that wonder. Further, because various qualities are actualized in different contexts and there is a non-identity between objects and their qualities, I will argue that wonder resides in the relation between objects as a kind of quality. This synthesizes the first and second argument and concludes that the experience of wonder by humans is the manifestation of the quality or power to wonder in relation to other objects. Thus, I will argue for an ontological wonder that is properly placed as a relation between objects, ultimately leading to what I will call operative wonder.
On the road map toward developing an ontological wonder, turning to the aesthetics of wonder may seem like a strange detour. However, aesthetics and ontology are not separated by a large gap in the world of object-oriented ontology, and by appealing to the aesthetics of wonder I hope to clarify how I am using objects and how such a discourse on objects manifests in the world around us. Specifically I will focus on two general discourses surrounding the aesthetics of wonder. The first is the idea that both modern philosophy and modern science have left us disenchanted with the world because we have adopted a desire for absolute knowledge. We have attempted to eliminate mystery, and with it, anything that falls outside the bounds of reason. By so doing we have created a world that is cold and sterile, lacking any value other than utility. It is argued, then, that what we need in order to break free from such a disenchanted view of the world is a means by which to re-enchant the world. For new materialism this means realizing that the world, at a basic physical and ontological level, is much stranger than the one we have adopted from modern science. Matter is generative and quasi-agential so that mystery and wonder can be found in the very structure of the world we live in. Likewise object-oriented ontology contends that objects continually resist absolute access and exceed the limitations of language. In Realist Magic Timothy Morton, goes so far as to challenge the law of noncontradiction and argue that the life of an object depends on its maintaining a sense of paradox or even contradiction.

The second aspect of aesthetics I will focus on comes from the world of literary fiction. It
would seem that developing an ontological scheme that relies on realism would negate the kind of wonder found in fictional worlds or fictional objects. To the contrary, imaginary objects are no less real than physical objects. As such, fiction can provide clues toward understanding what an ontological wonder might look like. To this end, I will turn to Haruki Murakami’s expansive novel *1Q84* to broaden my discussion of wonder and objects.

Aesthetics of Wonder: Rare Experiences

In *Wonder and the Rainbow*, Phillip Fisher explicitly attends to the aesthetics of wonder. According to Fisher, wonder, which deals with “the aestheticization of delight,” has been neglected since the rise of Modern Romanticism (1-2). Fisher’s main goal is to elaborate on wonder as an experience of the unexpected and the rare. According to Fisher, “Wonder does not depend on awakening and then surprising expectation, but on the complete absence of expectation” (21). For Fisher, wonder is explicitly tied to new and strange experiences that are encountered without an established category of reason. He argues that wonder has disappeared from aesthetic discussions because “memory and expectation are so fundamental to the narrative arts and, usually, to music that wonder is ruled out, or is replaced, we might say, by mere surprise, as in a twist of plot” (Fisher 21). Wonder, therefore, is not surprise, nor is it a kind of curiosity. Rather, it is a passive encounter with the completely unexpected that produces an experience of shock.

Fisher goes on to argue that wonder ought to be distinguished from estrangement, where estrangement is the ability of art to make something familiar strange. Art is capable of reframing everyday objects to be viewed in a new, unfamiliar light. But this does not produce
wonder because “estrangement has everything to do with the problem of boredom, with overfamiliarity, with the dull effects of habit” (Fisher 28). Fisher uses the rainbow as an extended example to demonstrate why “wonder is not one more episode in the aesthetic history of boredom,” but something altogether distinct (28). Fisher’s point is that even though the rainbow is a familiar object, it is always a sudden and unexpected experience. Further, people may understand the “cause” of the rainbow, or be able to explain its appearance in scientific terms, but “[t]his knowledge seldom lets us anticipate the experience. As a result, each experience of the rainbow is sudden, unexpected and widely separated in time from our most recent instance” (34).

While Fisher’s account of rainbows aligns with the possibility of an ontologically oriented wonder that wonders at the most familiar, each possible instance of wonder generated by the rainbow seems to be concealed by habit and cultural sedimentation. That is, even though a rainbow is always an unexpected event, it rarely prompts any kind of dramatic reaction because I am, in a sense, used to the appearance of rainbows. For Fisher, aesthetic wonder “is part of the mobility of attention, interest, and delight,” and powers the “capacity to notice the actual details of” an object (Fisher 39). But it is unclear why or how this kind of wonder is prompted. Surely there are times that I am more affected by the appearance of a rainbow than others. When I am pointing out the presence of a rainbow to my daughters, for instance, I experience the wonder at the sight of the rainbow more easily, or at least more dramatically, than when I am mowing the lawn by myself. But if the unexpected is a mark of wonder, and the rainbow is always unexpected, then wonder should occur every time that a rainbow appears. The fact that it doesn’t, however, makes Fisher’s account seem incomplete.
In response to these worries, Fisher offers a few clarifying remarks. First, his description of wonder as aesthetic is directly related to scientific inquiry. Thinking about science from an aesthetic perspective shifts the burden of activity from the human inquirer to the object. That is, “we do not have to seek out the things that we ought to think about scientifically. They strike us, as the stars do. They call attention to themselves against a background of things that do not spontaneously, on their own, call attention to themselves” (40). It seems that here Fisher is describing a world that is active and full of objects and assemblages that call attention to themselves, demanding that we investigate them scientifically. But there is a limit to this spontaneity of things since they are only capable of activity insofar as they make themselves available for human thought. It is only human thought that has access to the kind of qualities that these particular objects are enacting at this particular time.

This leads to Fisher’s second point: wonder is specifically attuned to an inquiring human mind. To quote Fisher: “True wonder is a phase of the alert mind, of the mind in its process of learning” (Fisher 56). For Fisher, wonder need not be prompted at every appearance of a rainbow if the rainbow has already prompted us to inquire about the science behind that appearance. It may be unexpected and, at times, cause us to attune our attention to its appearance. But it need not generate wonder every time it appears. Further, wonder carries on after knowledge fulfills the initial inquiry because new aspects of the rainbow are revealed. Fisher goes so far as to extend the idea that philosophy begins in wonder, stating that “philosophy begins in wonder, continues on at every moment by means of wonder, and ends with explanation that produces, when first heard, a new and equally powerful experience of wonder to that with which it began” (Fisher 41).
While Fisher makes a strong case for a kind of wonder that continues on through the acquisition of knowledge, I am concerned that attaching wonder explicitly to learning limits wonder to an epistemological context. Doing so would restrict wonder to human agents and would turn all objects into scientific objects that call to human observers to study them. While this kind of attitude has led to some astounding scientific breakthroughs, it has also ushered in an age of disenchantment. Moving beyond epistemological wonder, even in terms of aesthetics, requires that we work to re-enchant the world and challenge the restriction to knowledge advocated by Fisher.

Disenchantment and Re-enchantment: Why Art Matters

Although enchantment and wonder are not identical, there is a clear similarity between the two. Enchantment refers to a power or quality given to another object by a specific source. A magical genie might give the power of flight to an ordinary carpet, or a wizard might give the power to an ordinary blanket to make anything under its cover invisible, or a software designer might give the power of dynamic speech to cylindrical device with speakers. All of these objects could be called enchanted. Labeling something as enchanted, then, requires that there be a certain mystery related to the cause of that power. How is it that the genie or the wizard can provide ordinary objects with magical powers? Because the mechanisms by which such causality occurs cannot be explained by science, we turn to the language of enchantment to fill in. So when we speak of an enchanted world, we are speaking about a world filled with a mysterious kind of causality.

Wonder, on the other hand, is typically thought of as something specifically related to
the way humans engage or relate to certain situations or problems. Theaetetus begins to wonder because he is faced with a seeming contradiction that occurs in everyday life. Aristotle wonders because he is confronted by things that he is ignorant about. Wonder, then, is thought of as a human capacity that powers our inquiry into things that we do not know or have a category by which to explain. Enchantment requires mystery that has no rational explanation while wonder seeks to eliminate ignorance by finding answers to the unknown.

The modern period of philosophy is blamed for ushering in an age of disenchantment because modern philosophy and science desire to know with absolute certainty. Here wonder works to obtain knowledge, which negates enchantment. Such certainty requires that objects act in predictable ways. As such, “the disenchantment tale figures nonhuman nature as more or less inert “matter” (Enchantment of Modern Life Bennett 7). In Arts of Wonder Jeffry Kosky claims that this disenchantment follows equally from the modern philosophy of Descartes and Kant and the theological insistence on God’s providence. To quote Kosky: “It is as if a certain form of enlightenment (the principle of rendering reason) shared a common structure of bringing things to light with a certain form of religion (the God who shines a light on all things). This format or way of organizing our picture of the world is modern disenchantment” (5). Kosky’s major concern here is that there is a single explanatory element, be it reason or the providence of God, which flattens existence and renders the world completely calculable or conceivable.

This flattening disenchantment has not always been considered a bad thing. For instance, much of modern thought was built on the idea that only a disenchanted world could be investigated with certainty. Kosky goes so far as to claim that disenchantment acted as “a
signal of healthy-minded autonomy” (Kosky, XII). Modern science owes quite a bit of its method and effectiveness to disenchantedment. A major problem with this view, like the one proposed by Fisher, is that it creates a very short hierarchical ladder of values. Humans are highly valued because they are capable of self-movement and purpose, while matter and non-human life are devalued because of their inert and inactive nature. In this framework all things are “rendered to the I that knows” (Kosky 7) such that final causality justifies a disenchanted world. For Kosky this means that “rational investigation can secure on solid grounds the order of the cosmos so that we can be certain of where things stand” (Ibid). For Bennett, the project of re-enchantment is one that imbues nature, matter, and, I argue, objects with a kind of vitality and quasi-agency. This is not, however, to overlay objects and matter with human generated meaning and purposiveness. Rather, this means relaxing our hold on the world in order for matter and objects to generate their own performative activity.

For Bennett, re-enchantment is motivated by a desire to reorient our ethical engagement with the world. She challenges the division between nature and culture in hopes of generating an enchanted world that fosters ethical and political generosity. To quote Bennett: “I tell my alter-tale because it seems to me that presumptive generosity, as well as the will to social justice, are sustained by periodic bouts of being enamored with existence, and that it is too hard to love a disenchanted world” (Bennett 12). Further, the kind of enchantment that Bennett describes is firmly rooted in human emotions and bodily comportments. According to Bennett, “enchantment entails a state of wonder, and one of the distinctions of this state is the temporary suspension of chronological time and bodily movement. To be enchanted, then, is to participate in a momentarily immobilizing encounter” (Bennett 5).
Bennett extends the scope of enchantment beyond the mind and incorporates our bodily engagement with objects. When we encounter an enchanted object, our orientation to the specific object at hand, and the world in general, changes. We become wrapped up in the object, and loose our sense of time because we adopt the object’s sense of time. Aesthetic wonder, then, occurs when we interact with an enchanted object to the degree that we attend to the objects sense of time as our own.

Like Bennett, Canadian philosopher Kenneth Schmitz also sees wonder as an ethically motivated project. In *The Recovery of Wonder* he argues that there is a direct link between human freedom and the dignity of objects such that “wonder is the middle term that joins our freedom to the dignity of things” (11). For Schmitz, freedom can be acquired only if we venture back into the realm of being beyond the subjectivity of the human (95). But this is not to forget about objects. Rather Schmitz intends to include objects in the realm of being in order to let “the otherness of things come into play in a radical way” and thereby allow for a “radical transcendence” that can “be truly free” (Ibid).

Schmitz’ secondary concern lies in our reduction of objects or things to atomistic terms. For Schmitz, providing an intellectual account of a tree only in terms of waves, particles, and processes neglects an important aspect of the tree, thereby limiting our ability to act with it, or in relation to it. When we attend to the tree itself, breaking with the Kantian prohibition to speak about the noumenal realm, we begin to break the spell of modern disenchantment and thereby open up an everyday world populated by wonder.
Schmitz acknowledges that our attitude toward objects has become one of domination and likens our treatment of objects for personal use to a kind of slavery. To quote Schmitz: “it is as though a new form of slavery has emerged in modern times: not the bondage of human beings to other human beings, but the bondage of things to humanity. We become no longer stewards of nature but its unrivaled masters” (121). In order to gain a new sense of freedom that extends beyond human subjectivity, we must break the bond of slavery that drives our attitude toward objects in general and what we tend to call “nature” in particular. To do so, Schmitz suggests that we attend to art, poetry, and literature (Ibid 119). Such artistic endeavors are able to dramatize the interaction between objects, including non-human objects, consequently making the implicit narrative and aesthetic aspects of appearance and causality explicit.

To be sure, Schmitz project is an overtly humanist project. He wants to reorient our thinking in order to pave the way for new ways of interacting with objects and with nature. His explicit aim is to change the attitudes and the actions of humanity while ascribing new values to non-human objects. While I want to avoid falling into a purely humanist discourse, I think there is something compelling about the claim that literature and poetry can dramatize the relations between the qualities of objects that are impossible to observe. This does not mean that such dramatization has any effect on these relations. Rather, it highlights the fact that objects need not be affected by humans to have both causal power and agential capacities. Thus artistic activities hold the potential to establish the kind of ontological wonder that I am arguing for within the context of human discourse.

Bennett’s project is also explicitly tied to human activity and ethical engagement while
requiring an ontological framework that deepens the autonomy of objects by extending the
powers of free action and a quasi-agency. I want to extend these insights by Bennett and
Schmitz to develop an ontologically oriented understanding of aesthetic wonder by using the
tension between disenchantment and re-enchantment as a starting point.

Like Bennett, Jeffrey Kosky’s project is oriented toward re-establishing enchantment in a
disenchanted world. In *Arts of Wonder*, Kosky details how the intersection of art and religion
can help to re-establish enchantment. For Kosky, disenchantment arises from “the dismissal of
the very notion of “mystery” from our encounter with the world and with ourselves” (XII).
Disenchantment results from our universal ability to microscopically investigate any portion of
physical reality and provide a comprehensive and atomistic account of what we find. There is
no mystery except the kind of mystery to be overcome. Likewise, there is no wonder except the
kind that represents ignorance and which leads to knowledge (either scientific or
philosophical). While this kind of attitude has rendered amazing scientific and technological
advances, Kosky laments that he is disenchanted with modern disenchantment and longs for a
world of mystery and magic.

To recapture the mystery of the world, Kosky travels beyond the limits of the city and
ventures into the New Mexico desert. A major obstacle to mystery can be found in the use of
technology to manipulate causality. According to Kosky, “cause operates reasonably in the
world when the world has been altered by modern technologies. And inversely, technology
alters the world when cause has been made to operate reasonably” (Kosky 12). *The Lightning
Field* of Quemado, New Mexico was designed by Walter de Maria and seems to offer a
counterexample to this theme. Although it provides a deliberately altered field for the sake of
producing a specific result, the technology employed by the lightning field more closely resembles a Native American rain/lightning dance, than a scientific laboratory. Here is Kosky’s poetic description of the field and its intended result:

Strong conductors of electrical current, steel rods provide a path of least resistance through which a surplus of negatively charged electrons in the storm clouds overhead might discharge themselves to an area of excess positive charge. This discharge can result in momentary flashes here on earth of temperatures hotter than the surface of the sun. When positive and negative connect, lightning flashes, joining heaven and earth, sky and ground, in an instant that is revealed as quickly as it disappears (51).

The Lightning Field offers an opportunity to explore a state of affairs where unreasonable causality is at work. It allows for the mystery of lightning to unfold in terrifying fashion, without being able to clearly predict when it will occur. Like the enchanted cloak, there is very little that science can do to predict exactly when lightning will strike. Causality remains at play here, but a strange, almost magical causality that is explained as accurately by western meteorology and Pueblo traditions. Experiencing lightning first hand is as far as one can get from the representations of weather that we often consult on the morning news. Lightning strikes in patterns and with force that challenges our desire to capture information and reduce events to graphs and charts. Out here where “the lightning flashes in the desert darkling...there is no permanent place to rest or home to lay your head, nothing that abides permanently alongside you granting you the felt stability of an anchor on solid ground” (Kosky 20).

When connected to the lack of true predictive power of science, the fact that the poles do attract lightning, though not in a certain causal relation, points to the self-organizing relationship between the “weather” and the poles. Why doesn't this always work? Is it just that our knowledge is limited or is there an agency here? Somewhere between Western science and
the Pueblo lightning dance is the quasi-agency and vibrancy of weather patterns and the interaction between lightning and land. Epistemological wonder tries to take these aesthetic experiences and reduce them down to the knowledge that we can gain from them. Like weather science, which “provides a model of what causes the rain,” we replace the experience of something beyond our reason with a reasonable representation (Kosky 49). Like the Pueblo traditions, “the capricious, occult causes of extravagant effects (lightnings/serpents) have been banished from [our] world picture, replaced by law-abiding, calculable ones” (Kosky 49).

Beyond weather in general, lightning poses a particular problem for representation because it is not visible by another light. Rather, it is an object made of light. As such, it cannot be represented clearly and distinctly by another source and is even rendered invisible by technology designed to capture it as a representation (e.g. the flash of a camera) (Kosky 20). Proper lighting “clears a place for a world of reliable objects, ones that render themselves serviceable to the self-assertive project of mastering nature and building a secure world” (Kosky 69). Because lightning disallows any sort of “proper lighting” its presence produces a layer of mystery that exceeds our grip of mastery.

It is only when light can produce “clarity and distinctness” that the world appears reasonable, rational, and calculable. The move from wonder to knowledge, therefore, depends on a reliable form of causality that presents the world in a clear and distinct light. The problem is that often causality does not work this way. The lightning in the lightning field offers an explicit example of this because the poles that line the field do not cause the lightning to flash, but call it in the dark, seducing it away from other locations. The poles are not enchanted like the magic carpet or the invisibility cloak. Rather, the whole climate becomes enchanted,
reserving and expending a magical power to light the sky and to produce an unrepresentable object. Through the lightning field we can begin to see how expansive enchantment can be when it includes every object, including the world as a whole.

When the world becomes enchanted, previously inert objects begin to resemble a swell of living entities. The world is then revealed to be much too complex for a simple distinction between living and non-living. In the lightning field nothing is held in its place for very long because the field “comes alive and does something...undulating like flowing water, desert sand, or serpent” (Kosky 55-56). The lightning field provides a clue to understanding not only those rare occurrences where we are struck by something terrifyingly unfathomable or uncategorizable, but also to the wonder and enchantment of everyday life. When the atmosphere becomes enchanted, wonder is expanded beyond the rare experience of lightning in a strange desert field. Rather than seek to know the “causes” of this experience, we are opened to a strange world that “comes alive and does something,” an active world capable of self-organization and quasi-agential activity. Formulating a strange kind of causality, then, is an important component of building an ontological wonder, for such causality would allow for the mystery of the world to necessarily exceed the grasp of certain knowledge. Here I turn to Timothy Morton’s version of causality to explicitly connect causality, aesthetics, and wonder.

Aesthetic Causality and the Law of Noncontradiction

In *Realist Magic*, Timothy Morton argues for an object-oriented causality, asserting “that causality is wholly an aesthetic phenomenon” (17). For object-oriented ontology there is a fundamental and irreducible gap between any given object and its qualities so that the qualities
of the object can never be identified with the object itself (Morton 27). Objects “are both themselves and not-themselves” (Ibid). Morton goes on to claim that this gap challenges the long held, but never proven “Law of Noncontradiction” (Ibid). To quote Morton: “In defiance of the Law of Noncontradiction...objects present us with the following paradox: objects are both objects and non-objects. All objects are open secrets, like the Liar: This sentence is false” (Ibid). Whenever an object presents itself, be it to a human, a rock, or itself, it only presents itself via its qualities. The object is never fully accessible because it cannot be identified with the sum of its qualities or the sum of possible perspectives—an object cannot be reduced to its qualities or its relations.

If objects never directly relate to other objects, then causality is in a bit of a bind. How can we say that one object causes another to do something if they are always receding from contact? This is especially problematic for object-oriented ontology given that it claims to be a kind of realism. The objects being discussed are real, and therefore the interactions between objects, including causation, must also be real. A retreat to idealism is out of the question here. Morton’s response to these issues is to argue for an aesthetic causality. According to Morton, “if objects are irreducibly secret, causality must reside somewhere in the realm of relations between objects, along with things like number, qualities, time, space and so on” (30). Rather than derail object-oriented ontology as a realist philosophy, it is “precisely because reality is real—that is, encrypted against access by any object, including a probing human mind—that the aesthetic dimension is incredibly important” (Morton 31). Morton goes on to claim that “causality occurs in front of things,” which means that “causality is the way objects talk to one another, apprehend one another, comprehend one another: causality is the aesthetic
I argue that this aesthetic dimension that allows for contact and causality between two or more otherwise inaccessible objects is very close to Merleau-Ponty’s concept of flesh. As such, Morton’s discussion of causality opens up the possibility that the flesh is more than some kind of ontological ether. Rather, the flesh is the aesthetic, a field of communication between objects that maintains the reality of objects while allowing for a dynamic and generative tension of identity and difference.

In The Visible and the Invisible Merleau-Ponty assigns activity to the flesh as an active conduit of communication. According to Merleau-Ponty, “between the alleged colors and visibles, we could find anew the tissue that lines them, sustains them, nourishes them, and which for its part is not a thing, but a possibility, a latency, and a flesh of things,” (VI 132-33). The flesh is generative as a latent possibility of action and the ongoing becoming of the world. Merleau-Ponty goes on to claim that “the thickness of flesh between the seer and the thing is constitutive for the thing of its visibility as for the seer of his corporeity; it is not an obstacle between them, it is their means of communication” (135). This claim by Merleau-Ponty is remarkably similar to the claim made by Morton that causality is how objects talk to each other. Causality is communication, generation, and constitution. It is not efficient causality where one object simply compels another object to move or change. Rather, causality on both Merleau-Ponty’s and Morton’s accounts requires an intimate entanglement of objects while still allowing for difference.

Thinking about flesh in terms of causality also helps relieve the flesh of its own objectivity. That is, if the flesh is an object that mediates communication and sustains the visible world, there must be another object between the flesh and the world to mediate that
relationship. The flesh is not a container in which objects relate or communicate with each other, nor is it an environment or world in which objects interact. The flesh is thus not an ontologically prior object that explains all other objects. In fact, the flesh is not an object at all but what Morton calls interobjectivity. According to Morton, “There is no world, strictly speaking—no environment, no nature, no background…there is simply a plenum of objects, pressing in on all sides, leering at us like crazed characters in some crowded Expressionist painting” (122). The flesh as the causal dimension, then, means that the flesh is not an object but “the uterus in which novelty grows” and that which “guarantees that something new can happen, because each sample, each spider web vibration, each footprint of objects in other objects, is itself a whole new object with a whole new set of relations to the entities around it” (Morton 122).

A major theoretical goal for Morton is to refute the idea that scientific determinism accounts for the reality in which we live. Objects are intimately entangled to the degree that we cannot merely say that one thing causes another thing to occur. We cannot say, for instance, that global warming has caused the rain to fall on my head (Morton 70). Nor can we say that because global warming has not caused the rain to fall on my head, that global warming does not exist. Rather, we need a new causal theory that can account for “large complex systems” in the same way that it accounts for “quantum scale” systems (Ibid). That is, we need a causal theory that can account for the “indeterminacy” and the “irreducibly probabilistic” nature of reality (Morton 69).

Reality is indeterminate and irreducibly probabilistic because objects are intimately entangled with one another. Morton supports this claim by appealing to the messy
entanglement of quantum coherence, which entails that when an object gets close enough to another object, the two objects blend into one another (Morton 68) thereby disallowing a clear distinction. At the quantum level, to measure “something just is to hit it with a photon or an electron: hence to alter it in some way” (Ibid 33). Quantum physics calls this measurement because of the intention to explore and describe such interaction. But because objects that are not concerned with the scientific goals of calculation also act at a quantum level, such measurement can be seen as a species of interaction. Thus we can say that to interact at the quantum level is just to alter another object in some way by becoming entangled with it. At this level reality is a mess. Interacting objects are both themselves and not themselves and causality cannot be localized at specific points given that all interaction is alteration of both objects involved.

Returning to the language of aesthetics, Morton claims that “at the quantum level...every seeing, every measurement, is also an adjustment, a parody, a translation, an interpretation. A tune and a tuning” (Morton 33). Not only does each encounter between objects require alteration, both objects also must readjust their output of qualities to fit the new context. It is as if objects broadcast radio signals to surrounding objects, adjusting their frequency in order to communicate. This adjustment and tuning is a necessity because of the way that objects recede from other objects. No object is absolutely available to another object or to itself. They are only available in so far as they are tuned to the right frequency. What is available to other objects in interaction changes given the capacities and qualities of those other objects. Bacteria are available differently to humans than they are to other bacteria and the sound of my favorite song is available differently to me and to the ant crawling across my
desk. The ability of one object to affect another object requires a specific tuning that corresponds with a kind of entanglement.

At times both object-oriented ontology and quantum physics sound like idealism. If causality is aesthetic and fixed boundaries are negated by quantum coherence, then the encounter between objects seems to be limited to representation. However, Morton firmly denies that this is the case, for although quantum physics often leads to very strange conclusions, it is overwhelmingly a realist theory. It describes and measures real events and real objects but in a way that is foreign to other empirical sciences. To quote Morton: “far from underwriting a world of pure illusion where the mind is king, quantum theory is one of the first truly rigorous realisms, thinking its objects as irreducibly resistant to full comprehension, by anything” (Morton 45). A mark of realism for Morton, then, is the openness to irreducibility. Morton takes this even farther, claiming that both quantum physics and an aesthetic theory of causality challenge the law of noncontradiction, which stands as a fundamental pillar of western logic and science.

For Morton, objects are little miracles that are simultaneously themselves and not themselves. There is an infinite regress of miracles “inside” each object and an infinite progress of miracles “outside” each object (50). The world is fundamentally and performatively strange, weird, and magical—in a word, wonder-full. As such we require a new kind of logic that attends to this wonderful world by incorporating the contradictory. According to Morton, “because objects are themselves and not-themselves, the logic that describes them must be paraconsistent or even fully dialetheic: that is, the logic must be able to accept that some contradictions are true” (36). Contradictions can no longer be relegated to the false. They are
not marks of theoretical missteps, but the mark of veracity. Unless a theoretical framework allows for contradiction, it must be lacking in credibility given that it fails to account for both causality and quantum level activity.

Thus, the world is a strange community of objects that are locally hierarchical but ontologically equal. There are no “top, bottom, or middle objects,” only an “infinite non-totalizable reality of unique objects” (Morton 50). The infinite set of unique objects that make up reality do interact with each other. But when they do, something very strange occurs. Physically we can speak of objects interacting on at least two levels— the quantum level, and the level of unaided perception. At the quantum level, when two or more objects get close enough, they begin to fuse together, or blur into one another creating a kind of contradictory event where the objects are both themselves and not themselves. On the perspectival level, however, objects seem to bounce off of each other, or “resist” one another’s intrusion (Morton 72). In both cases the interaction of objects creates a causal event. For Morton, the disconnect between these two levels leads back to the idea that causality is aesthetic. In this framework, causality “is like a magical display—there is no physical reason why it is happening. Rather, the reason is aesthetic (magic, display)” (Morton 74).

Aesthetic causality reveals a deep and hidden mystery fundamental to all objects and their relations to other objects. It is only because objects are both themselves and not themselves that causality occurs at all. The paradoxical magic that leads to the dismissal of the law of noncontradiction, then, seems to stand as the engine that powers causality. Rather than

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2 There may be an infinite amount of levels that we can talk about in this way. However, I choose these two in order to clearly demonstrate that interaction occurs differently, even contradictorily, at alternate levels.
explain away the events of the world using mechanisms of cause and effect, causality as aesthetic demands that the mystery remain a mystery. If we negate the mystery, magic, and paradoxical nature of objects then we are left with a need for a single primordial cause that stands at the top of an ontological hierarchy. That is, if we eliminate the mystery of causality, then we fail to see that causality is nonlocal, and thus necessarily multiple. To quote Morton, “causality is…distributed. No one object is responsible for causality. The buck stops nowhere, because causality means that the buck is in several places at once” (Morton 121).

Aesthetic causality is not deterministic because it has no clear linear path from a primary cause to a specific effect and so on down the line. However, causality does seem to be narrative to a degree. We can tell stories about how an object moves another object to change. Objects become characters in a specific context that interact and bring about certain events. The events are often predictable but never fully determined or fully known. These stories and the events that are produced within these contexts can be called appearances. Thinking about events and causality in terms of narrative is another way of thinking about causality as aesthetic. The appearance of the event is seemingly different than what is occurring at the quantum level. This is not to say that the quantum level is more real than the appearance, but to articulate that the difference between the two cannot be sublimated by explanation. It is not the case that quantum level measurements can make sense of the appearances, as if the appearance is a mere fiction in the sense of being false. Rather the reality of the appearance—here the fiction—is exactly why causality is aesthetic.

Interestingly then, aesthetics is ontology and requires that we broaden the category of real objects to include fictions and fictitious objects. A major consequence of allowing such a
broad category of real objects is that objects must have value independent of human intention given that objects do not rely on human judgment for meaning, agency, or dignity. Beyond the estrangement that makes familiar objects unfamiliar, art is capable of dramatizing the entanglement and aesthetic qualities of causality. Art highlights the narrative aspects of causality and allows us the opportunity to retune our attention. This is surely seen in Kosky’s treatment of the lightning field at the convergence of magic and causality that produces an enchanted climate and extends beyond the utility of the enchanted object. But it can also be seen in the context of literary works of fiction and poetry.

Language and the Dramatization of Aesthetic Causality

To recall, Kenneth Schmitz main goal in *The Recovery of Wonder* is to resist the atomization of the world that occurs when the scientific perspective is taken as the only accurate view reality. We recover wonder about the world when we can attend to objects as more than mere assemblages of particles or wavelengths. There is a “luminous depth” about the object that exceeds atomization and awakens wonder in us (Schmitz 49). Instead of demanding knowledge from the experience of wonder, wonder transforms theory “into mystery, and knowledge into delight” (49). In order to motivate such wonder, Schmitz calls upon “those talented in the modern art forms, such as cinema, television, and the Internet, to dramatize the human possibilities awaiting a more open and respectful attitude toward things” (118). For Schmitz, things or objects awaken wonder in us and should therefore be attended to with respect and dignity. Art should draw our attention to the wonder motivated by objects, and thereby introduce new, fictional/real worlds. The tension between fiction and the real
mirrors the distinction between appearance and quantum level interaction given that neither negates the reality of the other. Objects described and created in fictional literature are real objects even though they offer a contrary account to “everyday” life. Objects in fictional narratives are not merely representations of objects in the physical world. When objects or even whole worlds in fictional narratives spark a sense of wonder, they call attention to themselves as objects and do not merely reflect how we ought to treat similar objects in the real world. Thus, even in fictional worlds objects have the capacity for self-organization. While it may be more difficult to attribute agency to objects explicitly authored by a human source, it remains the case that those objects can have effects, both politically and culturally, that are distinct from the author’s intentions.

In *The Prose of the World*, Merleau-Ponty offers a framework for understanding how objects in fictional worlds can be considered real and self-organizing. There Merleau-Ponty makes a distinction between “sedimented language and speech” (10). Accordingly, “we may say that there are two languages. First, there is language after the fact, or language as an institution, which effaces itself in order to yield the meaning which it conveys. Second, there is the language which creates itself in its expressive acts, which sweeps me on from the signs toward meaning” (10). The same distinction can apply to words that fill the page of a novel. There is a sense in which the sedimented language is available to everyone who understands that language. Anyone can pick up the book and encounter the same words. But there is also a sense in which each reading of the novel, despite the fact that the same words are present, is unique. In the same text Merleau-Ponty poetically describes the act of lighting a piece of paper with a match: “I bring the match near, I light a flimsy piece of paper, and, behold, my gesture
receives inspired help from the things around, as if the chimney and the dry wood has been waiting for me to set the light, or as though the match had been nothing but a magic incantation, a call of like to like answered beyond all imagination” (11). Just like the chimney and dry wood form an assemblage that calls for action, so do the words of a novel form an assemblage with the context in which it is read, the mood of the reader, the time of day, the surrounding objects, etc. There is an active component of the novel that participates in the performativity of the world. Merleau-Ponty calls this speech, claiming that “speech is the operation through which a certain arrangement of already available signs and significations alters and then transfigures each of them, so that in the end a new signification is secreted” (13). The words and the narrative are not owned by the reader, nor are they completely caused by the author. There is something that exceeds both the author and the reader as final cause, allowing the objects in the narrative, and even the words themselves as objects, to exhibit a kind of self-organization and performativity.

This performativity of words is not limited to the interaction between reader and narrative. Objects seem to call for other objects, or change their availability given the presence of specific objects or assemblage of objects. Haruki Murakami’s expansive novel, 1Q84 (most often pronounced Q-teen 84), begins with one of the main characters climbing down a stairwell on the side of an expressway. The act of walking down a stairwell is not overwhelmingly strange or significant, but because this particular stairwell is situated on the side of a freeway, a pedestrian exit amongst a fleet of semi-parked cars, it acts as an invitation to another, stranger world. As Aomame leaves the cab for the stairwell, the cab driver warns her that her journey down the stairwell may alter her perspective on reality, telling her that “after you do something
like that, the everyday look of things might seem to change a little. Things may look different to you than they did before…but don’t let appearances fool you. There’s always only one reality”” (Murakami 11). It is as if the stairwell is enchanted, not by a wizard or magical genie, but merely by being in an unfamiliar place. Like Fisher’s rainbow, the stairwell is a familiar object that is altogether unexpected, thereby sparking a reorientation of time and space.

Toward the end of the novel Aomame returns to the stairwell hoping to exit the strange world she has found herself in. However, by the time that she returns the stairwell has disappeared. There is no construction equipment, or any evidence that the municipality has removed the stairwell for fear of pedestrian danger. The stairwell simply vanishes, creating new interactions via its absence. It is here that the cab driver’s claim that there is only one reality becomes interesting. How can there only be one reality when something as significant as a stairwell just disappears? Is there really no cause? I argue that there is a kind of operative intentionality occurring here that is active among all objects.

For Merleau-Ponty operative intentionality is “that which produces the natural and antepredicative unity of the world and of our life, being apparent in our desires, our evaluations and in the landscape we see, more clearly than in objective knowledge, and furnishing the text which our knowledge tries to translate into precise language” (Phenomenology of Perception xx). Prior to the application of logic, reason, and language to events and actions of humans, there is a sense in which our bodies are motivated by the world and our ability to engage with it. Because operative intentionality is “antepredicative” and, in a sense, pre-rational, the distinction between human and non-human objects cannot be based on consciousness or
reason. As such, I argue that we can extend the concept of operative intentionality beyond human engagement to include objects of all kinds, even objects born in literary fiction.

In *Fear and Trembling*, Soren Kierkegaard, writing as Johannes de Silentio, argues for a teleological suspension of the ethical, establishing that the existence of the individual exceeds totalizing reason. There he writes, “as soon as the single individual asserts himself in his singularity before the universal, he sins, and only by acknowledging this can he be reconciled again with the universal” (Kierkegaard 54). Silentio offers Abraham as a counterexample to the negation of the singular to the universal, arguing that his willingness to sacrifice Isaac cannot be reconciled with the universal. Rather, Abraham’s faith places him in an absolute relation with God that exceeds the universal and thus sets him outside the realm of reason.

While I am not claiming that objects act by faith to establish an absolute relation with an overarching and absolute object like God, I am arguing that objects continually recede from and exceed the often universal claims of efficient or final causality placed on them. Rather than form an absolute relation to God, objects form an absolute relation to themselves, which in turn leads to their excessive existence that exceeds even their own grasp. Further, I am arguing that objects found in literary fiction exceed the intention of the author and, by being real objects, obtain an autonomy evidenced by their capacity to self-organize. Merleau-Ponty echoes this sentiment in *The Prose of the World* when he writes, “One can have no idea of the power of language until one has taken stock of that working or constitutive language which emerges when the constituted language, suddenly off center and out of equilibrium, reorganizes itself to teach the reader—and the author—what he never knew how to think or say” (14). Or again in *Sense and Nonsense*, he states, “the meaning of the work for the artist or
for the public cannot be stated except by the work itself: neither the thought which created it nor the thought which receives it is completely its own master” (3). Surely the author produces the words and puts them together to form a narrative. But, following the concept of operative intentionality, the words and the narrative are called forth by the previously established objects and actions. Thus the author is not simply the final or even efficient cause of the narrative, but is part of an assemblage that performs the becoming of a world and the world.

In the Phenomenology of Perception, Merleau-Ponty describes an operative reason, or “a raison d’être for a thing which guides the flow of phenomena without being explicitly laid down in any one of them” (57). I argue that this occurs in literary fiction with “fictional” objects, such that the objects call out for other objects. An operative reason is present in the constitution of the world as a mutual production of engagement between objects. But beyond the objects self-organization, literary fiction, like other art mediums, is capable of dramatizing the aesthetic causality and aesthetic wonder that I have been arguing for. Such dramatization is distinct, however, from mere representation so that fictional narratives do not represent the ongoing wonder of the world, but perform it so that the human component of narratives can provide a clue to the ontological constitution of wonder as an active power of objects.

1Q84: A world that bears a question

I am arguing that aesthetics is an important component of developing an ontological version of wonder. First, art calls attention to the fact that objects are capable of enchantment. This is not an enchantment that is based on the utility of objects, but one that recasts the world—or environment, or background, or horizon—as enchanted, thereby reintroducing
mystery into the world. Second, the discourse on aesthetics offers interesting insights to the notion of causality. This is especially true from the perspective of object-oriented ontology, where all objects maintain a sense of autonomy and are never exhausted by any relation to another object. Morton’s account of an object-oriented aesthetics collapses aesthetics and causality to formulate an aesthetic causality that relies on a resistance to the law of noncontradiction. I am also arguing that objects created in literary fiction follow the same rules as physical objects, and are thus capable of a kind of self-organization. Finally, art, and specifically literary fiction, has the ability to dramatize this kind of aesthetic causality, providing a unique insight and force to the activity of objects as quasi-agential.

A particularly clear example of such dramatization occurs in Haruki Murakami’s *1Q84*. The world of *1Q84* is remarkably strange. It is “about” two people (Aomame and Tengo) who spend a lifetime finding each other without ever explicitly looking for each other. But it is also about a novel that has real effects on the “real” world, an autistic girl who opens up passageways through alternate worlds, a staircase, an extra moon, a cult, and a dowager who seeks justice for abused women. All of these aspects of the novel work to dramatize some possible quality of objects. But Murakami does not simply anthropomorphize objects so that they obtain human qualities of speech or consciousness. Rather, *1Q84* highlights the interactions, relations, self-organization, and quasi-agency of objects through specific narrative arcs and activities.

Many of the events in *1Q84* revolve around the writing and publishing of a novel titled *Air Chrysalis*. Tengo, a math instructor and amateur novelist, is presented with an opportunity to rewrite *Air Chrysalis* after Fuka-Eri, a young autistic girl, submits it to a writing competition.
Because Fuka-Eri is autistic she is incapable of writing the story down herself. Tengo, therefore, must translate the novel in order to articulate what Fuka-Eri cannot. Tengo’s role as translator mirrors humanities continuing attempts to express the activity of the world in calculable and reasonable language. Instead of allowing Fuka-Eri to tell the story in her own words, Tengo takes her story and forms it into a readable narrative.

Like the rewriting of the novel, Tengo and Fuka-Eri’s relationship demands translation. Tengo continually translates what Fuka-Eri says into “reasonable speech,” even going so far as to mentally add punctuation to the end of her sentences. But it is clear that Tengo’s translation never fully captures what Fuka-Eri is trying to say. Fuka-Eri is honest with Tengo, yet remains a mystery to Tengo. She is a kind of walking contradiction whose enigma is more dramatic and more explicit than the usual limitations of language that keep us from knowing other humans. It is as if she cannot be adequately represented by a fictional version, which then reveals the quasi-fictional representations of other people and other objects that allow for everyday interaction. She makes others realize that something always recedes from access and thus reveals a crack in the ground of communication that, if dwelt on too long, will ultimately lead to the disintegration of casual interaction as such. Of course, such disintegration never occurs because we cannot dwell in the gap for too long. We always (re)translate the untranslatable in order to cover over the impossibility of total access. But just because we manage to ignore the gap does not occlude or negate the gap’s existence.

As with all translation, Tengo’s work with Fuka-Eri’s text changes the original story. But more than that, Tengo’s story changes the physical world of 1Q84. Tengo adds a second moon to the sky of Air Chrysalis, a second moon that then appears in Tengo’s sky. It is ultimately
unclear why the second moon appears, or even why Tengo thought to include it in the first place. Nor is it possible to attribute efficient causality to Tengo’s words. But Tengo’s addition to the story has caused some kind of change in the physical world given the presence of the second moon. It is as if Tengo’s words have acted as an accidental incantation, calling forth a change via the power of magic. But this magic is not directed by Tengo alone. The causal chain does not lead directly to Tengo’s mind such that he holds the primary position in a hierarchical latter. He has no explanation as to why he added the second moon. Rather the sky calls out for the inclusion of a second moon. Here we can see the dramatization of what Merleau-Ponty has called operative intentionality or operative reason. Air Chrysalis enchants the world, producing an unexplainable, completely unexpected event. Rather than operative reason, I argue that such a mutual enchantment (the calling of the world for a second moon and the “production” of the second moon through the publication of Air Chrysalis) demonstrates an operative wonder.

Wonder operates at a level that is distinct from both reason and intentionality. It is built into the relation between objects and in the relation of an object to itself. Objects always hold something back and are only available via their qualities. This leads Morton to claim that causality is fundamentally aesthetic given that causality is both real and always a matter of interacting qualities. Wonder often manifests in human subjects through encounters with the unknown or during unexpected experiences such as those described by Fisher. But wonder as ontological requires that it exceed the limits of epistemology and psychology. It is present in the everyday because it is present in every interaction and every causal event. 1Q84 dramatizes this operative wonder by allowing for enchanting power and agential activity to reside in the relation between Tengo and the sky. The sky’s seduction of Tengo does not merely produce a
romantic mood, as in the starry eyed lover gazing at the heavens, but gives birth to a second moon. Here, as in the “real” world, causality is strange, unlocalizable, and messy. The world of 1Q84 bears the weight of a question asked of it, while at the same time bearing a question in the sense of giving birth. 1Q84 therefore dramatizes the world as pregnant with possibilities, potentialities, and aporias not fully accessible to what Husserl might call the “natural attitude.”

We can say, following Barad, that the novel matters. It is an active member of a world that is full of self-organizing and quasi-agential objects. It performs and dramatizes the iterative becoming of the world, creating new contexts, activating new qualities, and organizing new assemblages that demand new agential cuts in the aesthetic display of causal reality. Beyond the appearance of another moon, we can look to the treatment of memory and temporality as an example of such dramatization.

Both Tengo and Aomame have significant, yet mysterious, memories that come to them uninvited or unintentionally. Both memories deal with the trauma and fecundity of birth. At one point Tengo is said to be floating in the “amniotic fluid of memory” (Murakami 118). He is fully enveloped in an experience that is paradoxically both now and in the past. The presence of his physical surroundings fades, including the temporal present, as he is immersed in the unsettling and ecstatic experience of memory. He floats in amniotic fluid, which both nourishes and prepares him for the birth back into the present. When he reenters the present, he is shaken, unsteady, and vulnerable.

Aomame’s memory comes to her as she initially enters the world of 1Q84. The Q in 1Q84 stands for question, in that it is “a world that bears a question” (138). Aomame enters into a new, strange world like a baby being born into the chaos beyond the womb. Her birth into
a world that “bears a question” dramatizes the birthing of objects and the birthing of questions. We can directly parallel this to the kind of wonder that motivates, or gives birth to philosophy since it is this strange experience of traveling down the staircase that initially introduces a world so full of questions. Aomame’s experience of the misplaced stairwell not only transports her to a new version of 1984, but she is given a new perspective on the everyday. She breaks from the “natural attitude” and begins to “philosophize” through the wonder induced by the stairwell.

The experience of memories dramatizes a kind of memory that non-human objects possess as well. We can, for instance, think about the uninvited and formative memory that is left by the interaction between fire and cotton. In this case, the interaction with fire exhausts cotton. Likewise, Tengo’s memory envelopes him so deeply that it exhausts his attention to the point that he is incapable of engaging with the present. Unlike the cotton, he is able to return to the present, reborn in a way from the womb of the past. Tengo’s memory delivers him, like the stairwell does for Aomame, into a world that is (re)filled with wonder. Both give birth to new attitudes, moods, and engagements. Even in the exhaustion of cotton, a new assemblage is formed, new activities are generated, the fire loses fuel and goes out, the atmosphere cools and the climate is again enchanted.

Objects wonder. The world of 1Q84 wonders. It is an object because it exceeds its qualities. It is distinct from the ink typed on physical pages, bound, and sold. It is a cohesive entity capable of effecting other objects yet irreducible to either its effects/relations or its qualities. The novel is more than its physical manifestation, more than its representations, and more than its words. Perhaps most importantly, it is capable of dramatizing the kind of operative wonder that I have described here. Wonder operates at a level distinct from reason
and therefore requires metaphor, representation, and translation to manifest in language and appear in the realm of reason. But wonder does not need human involvement to operate. Operative wonder works below the surface of language and meaning, swelling up and erupting into view when the fragile grasp of human knowledge is disrupted and the world is revealed as a contradictory mess of entangled matter. It requires a new framework for thinking about causality as fundamentally connected to and grounded on aesthetics. But such an aesthetics is deeply tied to ontology, requiring an explicit expansion of wonder into the ontological realm, a theme I take up in the next chapter.
I have so far been arguing for an ontological reorientation of wonder. A major motivation behind such a reorientation is the fact that, for the majority of its philosophical life, wonder has been thought of in terms of knowledge. Within this epistemological context, wonder has been at times extremely useful and at times derided as a mark of ignorance. While I side on viewing the experience of wonder as a positive rather than a mere lack, I argue that placing such epistemological limits on wonder is both too restrictive and too reliant upon an outdated anthropocentric position. An ontologically oriented wonder, on the other hand, is open to embracing the possibility that non-human objects are capable of a kind of wonder. That is, wonder plays a fundamental role in the way that objects orient, both to themselves and to other objects. This chapter deals explicitly with wonder as an ontological concept and moves to differentiate ontological wonder from epistemological wonder while maintaining a continuity with the historically rich relationship philosophy has with wonder. I will do this by again appealing to the phenomenological and ontological writings of Merleau-Ponty, the new materialism of Jane Bennett and Karen Barad, and the object-oriented ontology of Graham Harman, Ian Bogost, Levi Bryant, and Timothy Morton as guiding frameworks for developing an ontological wonder. Specifically I will argue for a broad form of realism that both extends and separates from the phenomenological tradition. I will use this discussion of realism to more explicitly connect phenomenology and the more recently developed new materialisms and
object-oriented ontologies. A major component of this argument will be to demonstrate that objects are both real and independent from human consciousness. As such, objects are never fully available to humans, or any other object for that matter. In Graham Harman’s terms, objects recede or withdraw from complete access. I want to reframe this discussion of access in terms of an operative wonder that is generative for the material becoming if the world.

The End of Phenomenology and the Case for Realism

In *The End of Phenomenology: Metaphysics and the New Realism*, Tom Sparrow argues that the end of phenomenology has been marked by two things: 1) its lack of a coherent and consistent method, and 2) its inability to escape the idealism that has plagued it since Husserl’s initial formulation. While I will not touch on the first claim about method other than to clarify the limits of phenomenology, the second claim about realism is extremely salient to my discussion of ontological wonder. If it is the case that phenomenology cannot produce a form of realism, or cannot confirm the existence of a world beyond consciousness, then we must call into question Husserl’s famous charge to get back “to the things themselves.” What does it mean to return to things if those things are limited to the immanence of consciousness? For Sparrow the real problem lies in the primacy of phenomena in phenomenology. Ever since Husserl’s epoché phenomenology has been limited to describing and analyzing that which appears to consciousness. Whether or not phenomenology wishes to affirm the existence of a mind independent reality, or if it merely wishes to escape the question altogether, it remains the case that any phenomenological analysis must limit its scope to phenomena. As such,
phenomenology “cannot be realist because its method prohibits the kind of speculation required for grounding realism in philosophical argument” (Sparrow 3).

I argue that realism is important for the project of ontological wonder for at least two reasons. First, I do not wish to dismiss the historical role wonder has played in philosophy, and therefore do not dismiss the epistemological claims about wonder. Wonder can rightly be connected to surprise and therefore speaks to a world independent of mind. We are surprised and wonder about that which is not us, or not our consciousness. To quote Sparrow, “This is not the feeling of anxiety or dread that accompanies our experience of the uncanny, but the shocking encounter with the absolutely other who makes contact with us” (Sparrow 57). Perhaps more importantly, a separation between thought and being allows surprise and wonder to account for the presence of mystery and withdrawal that occurs between any two objects. That is, realism demands that the gap between thought and being is real and thus enables wonder to be a fundamental ontological concept. If there is no gap between thought and being then it is difficult for wonder to survive the collection of knowledge, thereby limiting it to an epistemological tool. Second, and more broadly, realism breaks from the anthropocentric position that being can be reduced to the human thinker. The idea that we can access only that which we can think, or that anything that exists outside of consciousness is transformed into some component of consciousness, al la Husserl’s transcendental phenomenology, is fundamentally anthropocentric. I therefore adopt realism as a basic ontological framework, within which I find an operative ontological wonder.

Some accounts of phenomenology claim to have done away with the split between realism and idealism altogether. If this is the case, then ought we to worry about questions of
realism at all? Sparrow rightfully rejects this dismissal as unwarranted and generally unhelpful. At the basic level, phenomenology requires that we bracket the “natural attitude,” which in turn “drives a correlationist wedge between the world as it is represented in consciousness and the world as it stands outside of consciousness” (Sparrow 36). More basic to the phenomenological project is the reduction of objects to meaning. In phenomenological analysis, objects become intentional objects and are therefore limited to the realm of immanence. Even if in the case of Merleau-Ponty, this meaning emerges through a “dialogue“ between the subject and the object, this meaning can still only be disclosed by a conscious subject. Or, as Sparrow puts it, “[w]hether we are talking about Husserl, Heidegger, or Merleau-Ponty, phenomenology simply cannot get us to the real unless we are willing to concede that the real is nothing other than what appears as real to human consciousness” (Sparrow 50). Whether or not phenomenology can rightfully dismiss the distinction between idealism and realism, the phenomenological project is necessarily concerned with meaning that is disclosed to consciousness, thus firmly establishing it as a correlationist philosophy.

As a reminder, correlationism is the idea that philosophy is limited to the correlation between consciousness and the world. The contents of this correlation make up the stuff of philosophical analysis. Put another way, correlationism is the idea that once we attempt to think something outside of human thought, we are already thinking it, revealing an almost infinite grasp of thought that Graham Harman calls the “philosophy of human access.” It is the commitment to correlationism that demands either an acceptance or a rejection of a commitment to realism. For, according to Levi Bryant, “all realisms are committed to the thesis that it is possible to know something of beings independent of their being-for-thought, yet this
is precisely what is precluded by the correlationist gesture” (*Democracy of Objects* 37). To be clear, Bryant’s claim is not that we can know, with clarity, about beings independent of their “being-for-thought,” but just that we can know of them. While this may or may not commit the object-oriented ontologist to a Kantian noumena, it surely threatens the possibility that phenomenology can lay claim to anything other than idealism given the commitment to the epoché. That is, “if the epoché entails a suspension of ontological realism, then any phenomenology that takes the epoché seriously cannot subscribe to ontological realism without covertly importing a metaphysics into the heart of a metaphysically neutral methodology” (Sparrow 60).

To argue it another way, if phenomenology is a correlationist philosophy, which it undoubtedly is, then it is also an anthropocentric philosophy. The emergence of meaning is always meaning for consciousness. Objects encountered are always intentional objects for-consciousness. Even Merleau-Ponty’s phenomenology gives us the qualified version of an in-itself, rendering it an in-itself-for-us. To quote Bryant: “the anthropocentrism of correlationism is metaphysical through and through despite its protestations to the contrary or its characterization of itself as a critique of metaphysics. Correlationism is ontotheology with the human in the place of God (*Democracy of Objects* 40). Merleau-Ponty’s attempt to avoid this issue by appealing to the body-subject that is “always-already” in-the-world and which negates the subject-object dualism, remains trapped in the correlationist and anthropocentric snare.

But does this mean that we must abandon Merleau-Ponty altogether? I argue that we should not. Sparrow makes a simple, yet important distinction between phenomenology as a method and phenomenologists as those who employ the method. While it may seem trivial at
first, this distinction highlights the simple truth that not all of the philosophical claims made by phenomenologist (even self-described phenomenologists) are, in fact, phenomenology. As such, I argue that Merleau-Ponty’s later work in *The Visible and the Invisible* may not qualify as phenomenology, and at least hints at the possibility of a non-correlationist perspective. Further, I argue that the diffractive reading of Merleau-Ponty through Karen Barad’s philosophy-physics yields a fruitful bridge between phenomenology and the realist position of object-oriented ontology.

As I’ve argued, Barad’s commitment to phenomena and agential cuts sounds very much like Merleau-Ponty’s version of phenomenology. Yet Barad maintains a claim to realism not afforded to phenomenology. Following Bohr she is committed to the Copenhagen view of quantum physics which asserts that the reality of the event depends upon the act of quantum measurement (Lindley 73). However, because what is eligible to count as quantum measurement is so vaguely defined in this view, the possibility for measurement to occur beyond the bounds of human consciousness remains open. If we allow that nonhuman objects can conduct quantum measurement of some kind, then phenomena on Barad’s account can be constituted by objects and assemblages of objects that involve no human whatsoever. I will speak to this possibility in more detail later, but it is important to note that reading Merleau-Ponty’s later ontology through Barad’s physics-philosophy yields some strange insights and results that exceed the problems of phenomenology.

Realism, Ontological Wonder, and Quantum Physics
To return to the issue of wonder, introducing wonder into the context of object-oriented ontology and new materialism demands that we consider how a broad realism reorganizes our understanding of wonder. The historically rich philosophical engagement with wonder attests to the fact that the experience of wonder reveals something profound. It opens us up to the experience of otherness via surprise. But as Sparrow remarks, surprise “does not necessarily indicate an ontological rupture in immanence. It could just as well indicate a failure of our imagination about what will arrive in the future” (Sparrow 59). The experience of wonder, then, is not a sufficient grounds for accepting realism. But put the other way around, accepting a broad realism offers a space to think about wonder ontologically. That is, embracing ontological wonder does not negate the experience of wonder by humans or any other conscious entity, but radicalizes it. Rather than dissolving the grip of correlationism through an experience that exceeds categories and limitations of consciousness, ontological wonder supports the claim that objects recede, or withdraw from access. Wonder does not stop at the conscious observer’s uncanny experience of the other. It is also the other that wonders. Wonder is operative in any encounter, regardless of conscious capacity or noetic faculties, and accounts for a gap in access between objects that need not be limited to epistemological concepts.

In epistemological terms, wonder marks the gap between ignorance and knowledge. It calls us to investigate the world and to seek new techniques with which to unveil the truth of our reality. As an epistemological tool, wonder evolved from being the beginning of philosophy to being “a prelude to divine contemplation, a shaming admission of ignorance, a cowardly flight into fear of the unknown, or a plunge into energetic investigation” (Daston and Park 14).
It is almost as if wonder was the answer to Meno’s paradox; it provided a clue to what we were looking for without divulging the content of our inquiry. Philip Fisher echoes this sentiment when he claims that “[w]onder drives and sustains the defective rationality that gives us intelligibility under conditions where we will not even know that we have reached certain knowledge when and if we have” (Fisher 9). Fisher goes on to claim that, “wonder is a boundary line between the obvious, the ordinary, and the everyday, on the one hand, and the unknowable, the inexpressible, the unformulated, on the other” (Fisher 120). “Traditional” or epistemological wonder in the most ideal form marks the motivation behind philosophical and scientific inquiry, and is a wonder that is constantly renewed by the need to know more. Philosophical and scientific inquiry reveal a world filled with wonder that can never be fully conquered by the reach of reason, even if that is the ultimate goal of both disciplines. In this case wonder is not vanquished by the acquisition of knowledge but continually spurs on new investigations of the world around us.

However, it remains the case that even with this “ideal” form of wonder the only reason that we can continue to wonder about the world is because we do not have all of the information. If we were to someday gain access to every bit of information, if we were, so to speak, to finally find the last piece of the puzzle, step back and gaze at the full picture of the world and know it fully and completely, then wonder would vanish and we would reach the highest pinnacle of scientific glory. Epistemological wonder, then, still has its end in knowledge. Even Merleau-Ponty’s phenomenology of perception leaves room for absolute knowledge in this sense when he claims that “the house itself is not the house seen from nowhere, but the house seen from everywhere. The completed object is translucent, being shot through from all
sides by an infinite number of present scrutinies which intersect in its depths leaving nothing hidden” (Phenomenology of Perception 79). Surely Merleau-Ponty would agree that seeing any object from “everywhere” is an impossibility given our bodily limits. But the true nature and reality of the object remains rooted in a framework that would permit such a possibility more broadly construed.

Ontological wonder, on the other hand, survives knowledge, even the threat of absolute knowledge, because it is a fundamental aspect of the way that objects orient to both themselves and to others. Objects cannot be reduced to perception even given the possibility of perception from everywhere. Interestingly, quantum physics, on which, it is argued, all the others sciences rely, provides a story and a theoretical framework that supports the kind of ontological wonder I am arguing for.

Since its inception, quantum physics has called into question the orderly world we encounter on an everyday level. It invokes an “uncertainty principle” that claims that “at the most fundamental level, the world is not wholly knowable, and not wholly dependable” (Lindley xii). Einstein fought hard against this development in physics because the uncertainty principle undoes the claim science has on knowledge about the world. Prior to the development of quantum physics, it was assumed that the world was knowable and that the limitations we encountered were due to the lack of proper instrumentation or tools of measurement. That is, if we only had the right tools and mathematical equations, then we would be able to know the world absolutely. Like Merleau-Ponty’s house, an objective of science was to gain access to every possible viewpoint of reality in order to know it as intimately as possible, ultimately leading to absolute knowledge. While most scientists, Einstein included, may not have been
able to predict how or when such knowledge would come about, or even if it ever would come about, they had confidence that the world was knowable given the right circumstances.

Quantum physics blew this view apart and ushered in a strange unknowability about the world.

In *Where Does the Weirdness Go: Why Quantum Mechanics Is Strange, But Not as Strange as You Think*, David Lindley explains the fundamental difference between classical physics and quantum physics:

In classical physics, we are accustomed to thinking of physical properties as having definite values, which we can try to apprehend by measurement. But in quantum physics, it is only the process of measurement that yields any definite number for a physical quantity, and the nature of quantum measurements is such that it is no longer possible to think of the underlying physical property (magnetic orientation of atoms, for example) as having any definite or reliable reality before the measurement takes place (Lindley 14).

Lindley goes on to clarify that this uncertainty is “not a consequence of our technical limitations” but is a fundamental aspect of reality (Lindley 51). The indeterminacy of quantum physics is more than an epistemological claim; the uncertainty principle is an ontological claim about the basic stuff of reality.

While there are many variations and interpretations of quantum physics, a dominant theory holds that the act of measurement is a creative act that plays a fundamental role in the constitution of reality. This is the Copenhagen view previously mentioned in relation to Karen Barad’s philosophy-physics. On this view, two major points stand out. The first is that science is only concerned with what it can know. This is an important point because, again, for quantum physics not everything about reality can be known. So if we cannot know something, then we ought not be concerned about it.
That which is unknowable lies outside the realm of science and therefore should be ignored. The second point both qualifies and extends the first point, and claims that quantum action is real only when it is measured. Note this is not a claim about possibility so that a quantum particle or quantum action is real if it can be measured. Rather, this is solely concerned with *when* it is measured. Building off the first point, if something cannot be measured or known, then it is no concern of science. Further, if something can be known but has yet to be measured, then it cannot be said to be real. Because we cannot say anything definitive about that which has not yet been measured, then we cannot say anything at all about it, including giving it any positive claim to reality. The most radical scientists that hold to this position, such as Niels Bhor, would go so far as to claim that quantum action and quantum particles can only be said to exist once they have been measured (Lindley 15). To quote Lindley, “...in quantum mechanics, unlike classical physics, measurement is not simply the passive ascertainment of a preexisting property, but the production of a definite datum through the active involvement of measurer and thing measured” (Lindley 96).

This conclusion greatly concerned practitioners of classical physics. According to Lindley, “[t]he idea that physical quantities don’t take on any practical reality until someone measures them hugely offended Einstein’s sense of how physics ought to work” (Lindley 87). At stake is the fundamental knowability of the world, and the weirdness of quantum physics that renders the material world mysterious has been clearly demonstrated through scientific practice. What is particularly striking about this new direction of physics, and consequently science in general, is how closely the development of scientific knowledge resembles the development of wonder in an ontological context.
As we have seen, wonder has often been considered to be a mark of ignorance. According to Lorraine Daston and Katharine Park even Aristotle’s claim that philosophy begins in wonder relies on a wonder “which arose from ignorance about the causes of natural phenomena” and ultimately “led people to search for those causes and was therefore essential to the process of philosophical inquiry” (Daston and Park 111). Likewise, in the world of classical physics, “indeterminacy always means ignorance” (Lindley 111). When an experiment fails to provide adequate answers or results, the experiment must be adjusted to produce better data. The problem is located in the one asking the questions and/or the tools with which those questions are asked. Quantum physics rejects the idea that indeterminacy is ignorance, and instead fully accepts the idea that the problem is not with the scientist nor is it with the tools. The problem is not a problem at all. It is rather a fact of reality that we cannot fully know all aspects of quantum activity at the same time. This is most famously demonstrated in the concept of wave/particle duality discovered in the famous double slit experiment.3

In regard to this duality, Lindley claims that “[a]sking whether objects are really particles or really waves is simply not a meaningful inquiry” (Lindley 55). Lindley’s insights are enlightening here. Even though quantum physics has made indeterminacy a fundamental part of reality, it remains the case that science has no use for what it cannot say with certainty. Quantum physics demonstrates that the world is, in part, unknowable. Again this is not a matter of our lack of information, rather it is a product of measurement as such. Or as Lindley has put it, it is a part of nature. However, scientists do not want to dwell on this aspect of

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3 For more on the double slit experiment see Lindley 2003.
“nature” (51) but are content (or even dutifully driven by their discipline) to seek out other research questions and experiments that can yield more “meaningful” results. It is therefore easy to tuck away the wonder that constitutes the orientation of being to focus our attention only on the knowable even when the weirdness of the world has been clearly demonstrated.

Barad’s philosophy-physics is one attempt to embrace the uncertainty principle as both ontologically important and politically motivating. As previously mentioned, Barad offers a theory of matter that is supported by the Copenhagen view of quantum physics that she labels agential realism. For Barad, matter is more verb than noun. Matter is not a static substance or thing that can be located in traditional space-time, but “is a substance in its intra-active becoming—not a thing but a doing, a congealing of agency. Matter is a stabilizing and destabilizing process of iterative intra-activity” (Barad 151). Barad pushes quantum physics in a post-human direction with the specific goal of recognizing that “nonhumans play an important role in naturalcultural practices, including everyday social practices, scientific practices, and practices that do not include humans” (32). Even with the explicit desire to formulate a posthumanist framework by imparting agency to matter, the question remains whether Barad escapes the correlationism found in phenomenology. That is, her analysis remains focused on apparatuses and the ability of those apparatuses to create new phenomena, much like quantum physics relies on measurement as a mark of reality. Barad makes this connection explicit when discussing the influence of Bohr on her own thinking. To quote Barad at length:

The lesson that Bohr takes from quantum physics is very deep and profound: there aren’t little things wandering aimlessly in the void that possess the complete set of properties that Newtonian physics assumes (e.g., position and momentum); rather, there is something fundamental about the nature of measurement interactions such that, given a particular measuring apparatus, certain properties become determinate,
while others are specifically excluded. Which properties become determinate is not governed by the desires or will of the experimenter but rather by the specificity of the experimental apparatus (19).

Barad clarifies two things here. First she separates the results of the experiment from the will or desire of the scientist. What things exist or what counts as real are not dependent on the will of humans. Second, measurement makes that which is indeterminate determinate. This a notion in quantum physics called superposition. The basic idea is that prior to measurement the particle cannot be said to be in any determinate position. Rather, it contains all possible positions or outcomes (Lindley 170-171). It is in a state of superposition and cannot be reduced to any determinate state. Once a measurement is made, all possible positions collapse into the position that is determined by the measurement. In Barad’s terms, the properties of the particle become determined, and are thus constituted by the act of measurement.

In some sense this claim by Barad can be seen as a radicalization of Merleau-Ponty’s claim about the house viewed from everywhere. When Merleau-Ponty claims that the house in itself is the house seen from everywhere, he seems to contradict the idea that phenomena are ontologically primary. The house is not determined in any way by the observation from a single perspective. It is only the perceiver who is determined. Or, more accurately, it is only the relation between the perceiver and the perceived that is determined. When we are viewing a house, only a single perspective can be determined as the perspective from which we are currently viewing the house. So although it is inaccurate to say that the specific perspective from which we view a house determines a quality about the observer, we do have to ask for whom this relation changes. The answer, it seems is that it is only for the conscious observer. As such, the issue is limited to epistemology, and therefore consciousness. All that is determined
for Merleau-Ponty is a quality of consciousness, thereby maintaining a correlationist stance. Barad, on the other hand, maintains the ontological primacy of phenomena, but moves beyond the realm of consciousness and epistemology by appealing to the realism of quantum physics.

In quantum physics, and especially the Copenhagen view of quantum physics, reality is constituted by the act of measurement. Yet quantum measurement is shrouded in ambiguity regarding what kinds of things are allowed to act as measurer. The problem is so tricky that David Lindley goes so far as to claim that “[m]easurement, in the Copenhagen interpretation, is...a magical, unexplained happening, if not an act of God then certainly an act of Niels Bohr” (Lindley 167). Barad never explicitly attends to this question but she does open the possibility for non-conscious subjects to take on the role of measurer. According to Barad, apparatuses “are not merely assemblages that include nonhumans as well as humans. Rather, apparatuses are specific material reconfigurings of the world that do not merely emerge in time but iteratively reconfigure space-time-matter as part of the ongoing dynamism of becoming” (142).

If, as Barad seems to hold, apparatuses can be made up of nonhuman objects, then nonhuman objects configure or constitute reality. That is, nonhuman objects seem to be capable of something like quantum measurement.

The idea that apparatuses are “material reconfigurings of the world” is not a radical claim in the context of quantum physics. In David Lindley’s more conservative language, in quantum physics “measurement is not simply the passive ascertainment of a preexisting property, but the production of a definite datum through the active involvement of measurer and thing measured” (Lindley 96). What, then, differentiates Barad from the correlationism of both phenomenology and quantum physics? While Barad may not provide an adequate or
satisfying answer, her theory of agential realism and intra-action provide a way forward that both relies on material realism and enables measurement to occur apart from human consciousness. She mirrors Merleau-Ponty’s desire to weaken the border between the human who observes and that which is observed by focusing on the entanglement of all matter, including human consciousness. She rightly points out that “[t]he point is not simply to put the observer or knower back in the world (as if the world were a container and we needed merely to acknowledge our situatedness in it) but to understand and take account of the fact that we too are part of the world’s differential becoming” (91). The entanglement of observer and observed constitutes “differential becomings” or what Lindley would call “definite datum.” Like objects lined by Merleau-Ponty’s flesh they are made of the same stuff and are thus ontologically equals. Yet the tension remains between observer and observed, and the results of Barad’s radicalization of quantum physics and phenomenology continue to be results for-us. While I think Barad’s insights have more to offer, I want to detour through Levi Bryant’s most recent iteration of object-oriented ontology in order to find a firmer ontological footing.

Onto-Cartography and Operative Wonder

Bryant’s Onto-Cartography aims to reframe object-oriented ontology in terms of machines rather than objects. Bryant’s project takes into consideration the critique that object-oriented ontology’s focus on objects immediately invokes thoughts of a subject, thus continuing a tradition of both correlationism and anthropocentrism. According to Bryant, shifting attention toward machines allows him to develop a philosophical framework that concentrates on the fluctuation of inputs and outputs rather than on the tension between subject and object (Onto-
Thinking in terms of machines requires that we think in more active terms. As such “far from being a static lump that just sits there, machines are processual through and through” (Ibid).

This is particularly salient to Barad’s analysis given her concern for the way apparatuses propel us toward posthuman conclusions. Further, Barad wants to push the limits of what counts as measurement in the context of quantum physics. Bryant’s exploration of machines explicitly frames this conversation in ontological, rather than epistemological, terms. Like Barad, Bryant begins with a concern about the anthropocentric limits placed on our ontologies. That is, Bryant’s goal in developing a machine oriented ontology is to broaden our ontological theories to include the nonhuman in radical and speculative ways. Echoing Barad’s discussion of our intimate entanglement with matter as a part of the “differential becoming of the world,” Bryant claims that we must attend to how “we are both embedded in a broader natural world and how non-human things have power and efficacy of their own” (Ibid 4). Thinking about the basic units of reality as machines accomplishes this goal by highlighting both the productive nature of relations and the fact that distinct entities both constitute and are constituted by other distinct entities. Complex machines are made of simpler machines, which in turn both make up more complex machines and are made of up even simpler machines. Thus, Bryant “begins with the premise that worlds are composed of units or individual entities existing at a variety of different levels of scale, and that are themselves composed of other entities.” He calls “these entities “machines” to emphasize the manner in which entities dynamically operate on inputs producing outputs” (Ibid 6).

Much like earlier iterations of object-oriented ontology, Bryant contends that reality is
made up of autonomous individual units. Thinking about these units as machines enables Bryant to explain how these autonomous units interact with, relate to, and “cause” change in other autonomous units. Distinct from Graham Harman’s concept of vicarious causation, which is causation that occurs on a surface level of perception but not on the deeper level of real objects, Bryant claims that “being is an ensemble or assemblage of machines” (15). Like Barad’s apparatuses, Bryant’s machines are unhinged from human desire or will and work together to bear change, motion, and what Barad calls the “differential becoming of the world.”

It is easy to imagine that Bryant’s machines are like gears in a clock, grinding together to maintain the workings of the material world. However, Bryant makes clear that his use of machines should invoke thoughts of agency rather than some predetermined cycle of clockwork. Like Barad, Bryant wants to extend agency beyond the confines of consciousness. Machines have agency because they are independently capable of working on other machines. More explicitly, a machine has agency when it is “able to initiate action from within itself,” and when it has “the capacity to act otherwise than they do in initiating an action or in response to a stimulus” (220). These criteria are important to distinguish agential machines from other theories of efficient causality. Agential machines receive inputs from external machines which in turn leads to an output of influence and adjustment to other machines, all of which is contingent upon the machine to allow both the input and the output. But it is not enough to merely claim that individual machines have agency. Rather, Bryant argues for what he calls “distributed agency.” Distributed agency is the manifestation of “qualities,” “properties,” and “actions” that result from “many machines interacting with one another” (180).

Distributed agency is only possible when we allow multiple objects to unite in a new
object. Barad would call these phenomena produced by agential cuts. New objects arise from
the union of two objects resulting in qualities or actions that cannot be attributed to either
object alone. Bryant gives the example of a car-person assemblage (223). Neither the car alone
nor the person alone can drive across the city bridge. Only the car-person assemblage has the
capacity or power to perform this action. As such, “the person plus the car is a distinct agent
from either the person or car taken alone, leading to distinct forms of action that would not be
found in either taken alone” (223). The concept of distributed agency can be applied to much
more and much less complex assemblages from government institutions to little league baseball
teams to a giant pyrosome, a sea creature literally made of thousands of other creatures.
Pyrosomes, strange worm like sea creatures, are a striking example of distributed agency. A
single entity is made of thousands of other entities. The smaller individual zooids are not
attached to a larger creature like a parasite or cleaner fish, but combine together to constitute a
larger entity. Together they perform actions and have qualities or powers that the individuals do
not have. They can initiate action and act otherwise in ways not available to the single zooids.
Irene Klaver, in an article on “Accidental Wildness,” describes fire ants banding together to
make a raft in order to float across a flooded detention pond. The ant-raft becomes a new
object with distinct qualities from the singular ants. Likewise, government institutions are
assemblages of tables, chairs, employees, internet connections, paper forms, websites and
many more individual objects. While they have specific qualities and actions of their own,
together they are capable of performing new actions and effecting external objects in new
ways.

The concept of distributed agency brings us back to both Merleau-Ponty and Barad.
Merleau-Ponty’s formulation of habit in the phenomenal body speaks to the kind of assemblage that Bryant describes. For Merleau-Ponty, the car becomes an extension of the phenomenal body through habit so that I can “enter a narrow opening and see that I can ‘get through’ without comparing the width of the opening with that of the wings, just as I go through a doorway without checking the width of the doorway against that of my body” (PhP 165). Likewise, Barad’s apparatuses perform agential cuts and constitute new phenomena that are embedded in larger and smaller layers of other phenomena. Instruments, scientists, and universities work together to produce insights, knowledge, and objects that they would not be able to produce alone. While Barad does attribute agency beyond human consciousness, Bryant’s concept of distributed agency organizes and clarifies how agency emerges through interactions and relations. Specific inputs can only be processed by certain assemblages that are, in turn, constituted by a multitude of relations and entities. Some of these machines are agential and some of them are not.

This is an important point. Bryant is not arguing for any kind of panpsychism and does not attribute agency to all machines. Rather, and as previously mentioned, agential machines must be able to both initiate action and act otherwise than it did. The result of this limitation is that there are millions of actions and events that do not directly result from agents. But if we do not want to rely on a crude form of Cartesian efficient causality whereby objects merely clunk together and spin off in random directions, then we must attend to these accidental actions. Bryant’s answer is to appeal to the machinic nature of objects. Objects are machines that receive inputs and excrete outputs. Attending to objects as machines provides us a clue for finding another type of causality and reveals how and why surprise continues to be an
important component of reality.

Klaver’s article on accidental wildness can be helpful here. Klaver describes a flooded detention pond as naturally hypernatural (45). The detention pond was built for a specific purpose (to relieve flooding), but has since exceeded that explicit use and become a home for animals, religious festivals, and floating fire ants (47). The detention pond has become another object, capable of acting in new and unpredictable ways, activating new cuts in the “material, environmental, and cultural world” by leading to “an intensification of engagements” and creating “a realm of affordances” (47). It is not just the fire ants that showcase distributed agency, it is the detention pond as a whole. Klaver goes on to argue that the “naturally hypernatural” pond illustrates a kind of “operative intentionality” whereby intentionality emerges through the interaction of objects in a given situation (50). As I will argue, the idea of an operative intentionality that is located in a situation (rather than either a subject or an object) closely resembles what I will call operative wonder.

Returning to Bryant, even when machines do not meet the criteria for agency, it remains possible for them to act as subjects. For Bryant, subjectivity means the ability to organize the actions of other objects around them. Subjectivity, then, is “a functional role that a machine plays in an assemblage under particular conditions” (Onto-Cartography 225). Subjects, thus, act as “catalysts that assemble other machines into relations with one another in assemblages” (Ibid). This means that for most of a soccer match, the ball is the subject and the players are objects (Ibid). Or, the people in line at the DMV are objects in relation to the forms and procedures that organize them into the line. Institutional procedures become subjects around which both humans and nonhumans organize. But how is it that certain actions are performed
or certain formations of organization are enacted without appeal to either some greater organizing principle (which, it should be noted, would be considered an iteration of ontotheology) or absolute randomness via efficient (clunk) causality? I argue that at the base of such interactions and organization is what I will call “operative wonder.”

I have argued that the world is fundamentally stranger than it initially seems. Phenomenology asks that we bracket the natural attitude in order to analyze the structure of experience and to slacken our absolute hold on the world so that we may watch “the forms of transcendence fly up like sparks from a fire” (Merleau-Ponty, PhP xv). But this talk of transcendence belies the idealist scope of phenomenology so that the world that appears to us through phenomenological analysis is a world secretly trapped inside the realm of immanence. Even so, the gap between the two objects ensnared in this correlationist prison (consciousness and intentional object) is ripe with wonder activated by the epoché. The gap is not confined to phenomenology nor to the epoché. Rather, the gap is operative in every relation between two objects. Object-oriented ontology and new materialism characterize this gap by claiming autonomy for each object so that no object can be reduced to its relations (OOO) and by extending agency to matter so that matter is active in the becoming of the world (new materialism). This gap is supported not only by philosophical arguments but by quantum physics as well. The world is deeply unknowable and the activity of nonhuman or even non-agential objects cannot be explained by appealing to efficient causality. If we could appeal to efficient causality, then the world would be absolutely knowable, like Einstein wished it to be, if only we had the right tools and theoretical framework. The gap that creates this fundamental uncertainty is where I wish to place operative wonder.
This gap, though, is not a physical gap like the gap between a London underground train and the station platform, or the gap between skewed teeth. Nor is it a gap in knowledge or understanding, such as a gap between two philosophers locked in argument, the gap between representation of a person and the “actual” person, or a gap in a child’s grasp of mathematics that disallows them from solving for x in an algebra problem. This gap is ontological and concerns the orientation of objects to both each other and to other objects. Though it is not a transcendental or ontotheological explanation for the why of being, it is a way of describing the orientation of being. There is a gap between objects, which is to say, that objects wonder.

Object-oriented ontology, in all its various forms, relies on the idea that objects are independent and autonomous. No single object, be it God, Higgs-Boson particles, or some anthropomorphized Being determines the ontological status of all other objects. Surely there are more active objects that, like Bryant’s subjects, work to organize other objects. But this is dependent upon a certain context and a certain relation. Regardless of the current activity of any given object, or any intensity of subjectivity that object displays at any given time, the ontological status of that object remains the same. Graham Harman refers to this as a flat ontology while Levi Bryant describes this as a democracy of objects. Regardless of what we call it, the basic claim is that objects are ontologically equal no matter how they manifest or how actively they organize other objects. Or, as Ian Bogost puts it, “all things equally exist, yet they do not exist equally” (Bogost 11). Because all objects are independent from each other, no object can be reduced to another object. Beyond claims about ontotheology that would place a single object above or in some way determinate of all other objects, the claim that no object can be reduced to any other object also means that no object can be reduced to any
representation of the object. Put another way, no object can be reduced to its qualities.

If it is the case, as I argued in chapter 2, that objects are distinct from their qualities, then objects cannot be reduced to their qualities. For Graham Harman, this fact leads him to claim that objects necessarily recede from access, leaving a “rift in the cosmos [that] lies between objects and relations in general: between their autonomous reality outside all relations, and their caricatured form in the sensual life of other objects” (*Quadruple Object* 119). This creates problems for causality given that objects never seem to touch but only relate via qualities. In Harman’s case, this means that relations between real objects never actually occur and we are left with his theory of vicarious causation. Qualities orbit around real objects, relating and impacting other objects via their own qualities. Harman’s objects seem more like ontological bumper cars than a clear basis for realism. For Bryant, vicarious causation is dissatisfying because it evaporates the materiality of the real (*Onto-Cartography* 2). This is partly why Bryant focuses on machines. Machines engage with other machines materially through communication of inputs and outputs. Machines touch other machines generating what Bryant calls gravity.

Bryant explains that in terms of classical physics, gravity “is not a force that *attracts* and *repels* other objects, but rather is an *effect* of how the mass of objects curves space-time” (186). Bryant appeals to gravity in order to explain how non-human machines “capture human lives in their gravity” (255). That is, machines create a curvature in space-time, which effects the way that other machines encounter and process inputs. What is unclear is how gravity differs significantly from Bryant’s previous use of the word subject. Subjects, as mentioned, are machines that organize other machines around them, be they human or otherwise. Gravity
seems to do the same thing, though with an added rhetoric that alludes to materiality. While gravity may help to avoid Harman’s vicarious causation, it also seems to suck the life out of non-human subjects.

While I appreciate Bryant’s attempt to find language that applies equally to humans and nonhumans, I argue that wonder may be a more appropriate concept to explain the activity of the world in its material becoming. Both object-oriented ontology and new materialism argue for an understanding of matter that is more active. Further, both attempt to explain how the gap between objects can help to demonstrate this activity. Ontological wonder, or operative wonder as I will call it, fulfills both of these goals. Objects wonder, which makes them active participants in the ongoing material becoming of the world. Such activity is motivated by the gap between presence and absence such that the way objects relate is directly proportional to the ratio of presence and absence between two objects.

Objects wonder. This manifests in human consciousness when we encounter something surprising, or something for which we do not have a rational category, and it pulls us to investigate, to realize a gap between us and the world. Throughout the history of philosophy we have attended to wonder by closing this gap. This gap was considered a mark of naïveté or stupidity that needed to be overcome. The problem, as we have found most explicitly in quantum physics, is that this gap can never be fully closed. Rather than calling us to investigate, or igniting the passions of the soul (as in Descartes), wonder motivates us to action we would otherwise not take. It promotes activity in objects through limitation and negativity, absence and presence.

The generative possibilities of wonder have been alluded to as far back as Socrates.
Socrates’ initial discussion of wonder occurs within the context of knowledge, thus leading to wonder’s epistemological categorization and limitation. But as Mary-Jane Rubenstein points out, the problem with knowledge is “that that which stands under every investigation is precisely what investigation cannot understand. Knowledge is presupposed by every philosophical examination, yet, as Socrates and [Theaetetus] repeatedly discover, it recedes like a ghost when confronted directly” (Strange Wonder 2). Here, at the very beginning, knowledge is motivated by wonder, not in order to negate wonder, but as a way of attending to the gap in access to knowledge itself. Wonder generates the desire for knowledge, but is not itself satisfied by knowledge, especially given recent insights that the world is fundamentally unknowable. But more than concerns about knowledge, I argue that our experience of wonder translates to other types of experience. Namely, nonhuman objects actively wonder, which in turn generates the movement described by Bryant in terms of machines.

Bryant labels his project onto-cartography. According to Bryant, “onto-cartography is the investigation of structural couplings between machines and how they modify the becomings, activities, movements, and ways in which the coupled machines relate to the world about them” (35). Machines receive inputs and excrete outputs, which in turn accounts for the movement of the material world. Machines attest to Timothy Morton’s challenge to the law of noncontradiction – that is, they seem to both be single units and assemblages of other units. They are both A and –A. Because no single object determines all other objects, there is no ontological top or bottom, no single machine that can be said to be absolutely singular. Every machine is always already within the context of, and part of an assemblage built on other machines. Some machines work to amplify other machines so that it becomes a medium for
another machine. According to Bryant, “[a] machine functions as a medium for another machine not only when it amplifies or extends a sense-organ, but also whenever it modifies the activity or becoming of any other machine” (Onto-Cartography 33). I would argue that this modification happens in every relation, including relations of objects to other objects and objects to themselves. We could relate this to quantum measurement without human consciousness. The important point here, though, is that each interaction or relation contributes to the becoming of the world. But as argued, no object can be reduced to any other object, so even in these relations, a formative and generative gap remains. Knowledge does not close the gap of wonder, but may require a reorientation toward a new balance between presence and absence, which in turn motivates activity.

Such activity recalibrates agency across a distributed plain. Agency is not merely granted at the “birth” of an object, nor is it something that is consistently manifest throughout the duration of an object. While humans have been said to possess agency, it is something that can fluctuate in levels or even leave altogether. A sleeping person has less agency than someone who is wide awake. Or a person in a coma may be said to lack agency altogether given that they cannot seem to either initiate action or act otherwise than they are, which are two criteria for agency given by Bryant. Bryant uses the example of company scrip to demonstrate how agency is a matter of circumstance and context. Company scrip was tender paid to employees that could only be used at the company store. It was not transferrable to other forms of currency and therefore disallowed employees from shopping wherever they wanted. It is easy to see in this instance how “[a] person paid in company scrip seems to have less agency than a person paid in federal tender” (Onto-Cartography 222). Here a human’s degree of agency is
deliberately constrained by another object, which interestingly is nonhuman. Not only can we see that agency manifests in degrees, but that nonhumans often demonstrate greater degrees of agency than humans. This is, perhaps, most clearly seen when we appeal to powerful assemblages such as a government agency. Governments are capable of awarding citizenship to certain people who meet specific criteria, thus limiting or delimiting them from manifesting smaller or greater degrees of agency. Such agencies are capable of initiating action (granting citizenship) or acting otherwise (denying citizenship) based not on a single person’s will, but upon the agency of the institution itself.

The agency of a government institution or corporation demonstrates that agency can be distributed across multiple objects and need not be limited to human agents. This kind of distributed agency occurs at larger and smaller scales, from quantum entanglement to global political action. What I hope to demonstrate with this discussion of agency is how it motivates change and contributes to the material becoming of the world. If agency is distributed, then it depends, in varying degrees, on relations between objects. Objects interact and become entangled in new objects (e.g. car-person assemblage). But even as new objects emerge the smaller units (the car and the person) remain independent and autonomous. Further, each object never gains full access (in terms of presence) to any other object, but is connected based on a tension between presence and absence. The car person assemblage performs differently as the car-person assemblage than either object independently. Yet, the assemblage demands that both objects remain independent so that neither object exhausts the other, or that the assemblage exhausts either. The DMV as a government agency only works because the woman taking identification photos at the window remains mother, or spouse, or friend independently
of her role in the agency. She would not function properly within the assemblage if she was absolutely present in any role. Each set of qualities required by each specific role is activated depending on the machinic milieu in which she finds herself.

Like the experience of wonder that fades with the collection of knowledge, wonder is manifest differently in firmly established assemblages or complex machines. The DMV, as a government agency, leaves little room to investigate gaps that produce activity. This is not to say that these gaps are not there, but that they are more easily seen during the formation of assemblages and in unfamiliar interactions between unfamiliar objects. Through habit, the gaps become invisible, like the gap between railway station and train becomes invisible to the seasoned underground traveler. Further, when we talk about established assemblages, we are always referring to what things are rather than what they are not. It would be extremely difficult to talk about the DMV in terms of everything that is not. But, I argue, the single possibility enacted is less generative than the multiple possible scenarios that could have occurred. Surely in experimentation we see the positive results and the productive effects those positive results can have. Medicines are developed, predictive equations are discovered, and microprocessors are made on ever smaller scales. This is, for the human object, knowledge that attempts to close the gap of wonder. But if we remember that for quantum physics (and more specifically the Copenhagen interpretation of quantum physics) what is unknowable is beyond the bounds of experimentation, then we light on the possibility that the unknown is the generative component in experimentation. All that we fail to have access to generates, by limitation that which we do have access to.

Operative wonder, then, is the idea that the closure of one object to another is just as
generative, if not more generative, than the opening of one object to another. Karen Barad argues that the scientists and their equipment *together* make up an apparatus. Further, Barad claims, following Bohr and other quantum physicists, that what you get out of an experiment is what you put into it. I argue that the connections that are rejected and the qualities that are inaccessible, what Harman calls withdrawal, is the generative mechanism of material becoming. If we look at quantum superposition as an example, we can see how such generativity is not based solely on the negative outcome of interactions, or a denial of access by objects, but a wonder that is operative prior to determination.

As stated previously, quantum superposition occurs when the state of a particular object or assemblage of objects is undetermined prior to measurement. Once measurement occurs, all the potential states collapse into the actual state. Again, this is not to say that the particle *was* in a particular state and we didn’t know it. Rather, the particle was in no particular state prior to measurement. JohnJoe McFadden extends the concept of superposition to language in order to demonstrate how quantum superposition works. McFadden asks us to think about the word ‘note’. Without knowing its context or the way it is being used, the meaning of the word note can mean anything from something musical to a kind of currency. For McFadden, what is interesting about this is that “before you have time to decide which meaning is more appropriate, ‘note’ has something of each meaning. In a sense they are all there as a kind of superposition: musical note + written note + banknote” (175). Once you understand what kind of note is being discussed, all meanings collapse into the intended meaning, knowledge is obtained, and we respond appropriately to the decided meaning. But just prior to the collapse, when the “true” meaning is undetermined and all possible meanings swirl around the object in
question, there is an operative wonder that orients the objects involved.

In the *Phenomenology of Perception*, Merleau-Ponty describes operative intentionality as that which makes Husserl’s “intentionality of act” possible (486). More specifically, operative intentionality is intentionality that is “at work before any positing or any judgment” (498). In terms of understanding, operative intentionality allows Merleau-Ponty to break the transcendental framework provided by Kant that describes our interaction with the world as one of synthesis. According to Merleau-Ponty, “when I understand a thing, a picture for example, I do not here and now effect its synthesis, I come to it bringing my sensory fields and my perceptual field with me, and in the last resort I bring a schema of all possible being, a universal setting in relation to the world” (Ibid). The last sentence in this quotation bears a striking resemblance to McFaddden’s description of superposition. Here the subject brings “a schema of all possible being,” that collapses into knowledge allowing active intentionality to take over for operative intentionality. Operative intentionality underlies active intentionality as the foundation for all possible actions available and works to orient the conscious object (or subject in Merleau-Ponty’s terms) toward possible intentional acts. But operative intentionality is a phenomenological concept and therefore deals with the production of phenomena in consciousness. It orients the relation between the two poles of correlationism. While I grant that operative intentionality may offer a bridge beyond the pure immanence of phenomenology, it remains guided by the strict relation between consciousness and the world. Operative wonder, on the other hand, need not rely on consciousness at all but is an ontological orientation of all objects to both other objects and to themselves.

Operative wonder resembles operative intentionality by underlying other more explicit
activity. It occurs in the relation between objects while in the state of superposition so that all possible relations between two objects are suspended before any definite state or relation becomes locked in. When an object encounters another object, it orients itself based on the qualities activated by the relation it enters into. Each object expresses itself differently when presented with another object. If we think in terms of machines, a printer can only receive specific types of inputs in order to produce the desired output of a printed manuscript. Surely a rock and a printer can relate to one another, but the output of that relation would be very different than the way computer software relates to the printer. In the moment when superposition collapses into a relation with a specific set of qualities activated on either side of that relation, the outputs of that relation begin to manifest. What allows for this relation, for the opening up to a relation with another object that results in manifest qualities and powers, is operative wonder. If it is the case that no object is ever absolutely present to any other object, if it withdraws from total access, then no object can have all of its qualities activated in any given relation. The gap between two objects closes, though not totally, when specific qualities appropriate to that relation are activated and specific qualities inappropriate to that relation are made dormant. Prior to this partial closing both objects exhibit a kind of superposition, what I am calling operative wonder.

A problem with describing operative wonder in terms of quantum superposition is that quantum physics occurs at the smallest of scales. We rarely see superposition as it occurs. That is, dogs, houses, big screen TVs, and even Schrodinger’s cat are not encountered while in undetermined states of superposition. Quantum physics, then, must deal with questions about why superposition works at quantum scales but not at macro scales. Likewise, the description I
have offered of operative wonder is rarely if ever witnessed at macro scales. Is it the case that
operative wonder only functions at certain scales of size or temporality? I argue that like
operative intentionality, operative wonder underlies and grounds the explicit experience of
wonder. That is, operative wonder is implicit in the explicit experience of wonder and is often
hidden by habit, tradition, or other more practical concerns. But, like quantum superposition,
operative wonder does affect the workings of everyday life.

One way that physicists have attempted to explain the lack of superposition on macro
scales is through the concept of decoherence. According to David Lindley, “Decoherence is
essentially a process of randomization, and in any kind of a large system with complicated inner
workings, the sort of randomization needed to make decoherence work tends to occur of its
own accord, whereas maintaining coherence takes special care and careful setup” (207). The
experiments that have discovered and confirmed quantum superposition occur in very
controlled environments where coherence is maintained through simplicity and linearity. When
causality, motion, or action occurs at macro scales, coherence decreases as complexity and
randomization increases. So while “constant shuffling among internal quantum states” (Lindley
208) occurs in macro level objects, we cannot experience superposition because measurement
occurs when linearity and coherence is lost. That is, there are other objects that constitute
measurement and thereby collapse superposition states into actual concrete states. Like the
effect of decoherence, I argue that operative wonder is not experienced at a macro scale
because relations between objects are always already collapsing that operative wonder into
concrete relations built on the ratio of presence to absence, between two or more objects.
When objects relate, their relation is in some way motivated by operative wonder, or an
ontological gap that object-oriented ontology calls withdrawal.

Why recast withdrawal in terms of wonder? The experience of wonder in humans is most often felt through a specific lack of knowledge or category of reason. It stuns us, immobilizes us, and renders our intentional activity dumb. If, when we are struck by wonder we lose our rational groundings, then why wouldn’t this “experience” apply to other “non-rational” objects? Wonder arrests our reason, makes us gasp for breath because the ground of our rational outlook has been challenged. Our knowledge has failed us, which results in a desire to overcome such failing. But during the moment of wonder, when we are immobilized in awe, we engage the world in a way that is similar to any other object’s engagement with the world. We are met with a moment of superposition where possibilities are yet to be defined and where relation is marked by confusion. We are then required to choose a path of relation, which, at least most often, ends the experience of wonder. Every relation to every object begins the same way. Objects encounter other objects and must choose, in the slightest moment, how to make themselves present, or if they can make themselves present, to the other. Objects wonder by generating sparks of resistance and attraction. Note that such resistance and attraction occurs after the moment of wonder. Wonder is an orientation of being, it is ontological through and through even though we have only been able to experience it, or at least describe it, in terms of our consciousness and noetic faculties. There is an operative wonder that grounds our experience of epistemological wonder, an orienting gap that is covered over by habit but never closed completely.

Admittedly, this sounds very similar to ideas born in the phenomenology of both Heidegger and Merleau-Ponty. Habit or tradition has closed us off to the possibility of thinking
Being, which in turn requires a new orientation of our thought and action. I argue that operative wonder is a non-phenomenological concept, albeit one that is aided by phenomenological analysis. As such, operative wonder may help salvage phenomenological inquiry from the trap of idealism. I have argued that phenomenology is necessarily an idealism. Operative wonder deliberately extends our discussion beyond the interactions between the two poles of correlationism – consciousness (thought) and world (being). Thinking in terms of what Ian Bogost has called “alien phenomenology” can help to bridge the gap between phenomenology and realism while also providing another way of describing operative wonder. For Bogost, the goal of “alien phenomenology” is to describe how objects experience other objects, or how objects are able to appear to objects that lack consciousness. Bogost appeals to Thomas Nagel’s article, “What Is It Like to Be a Bat?” as a way to describe that which we do not have immediate access to. Bogost’s analysis helps us to save phenomenology by demonstrating how it can be helpful as a tool within a larger theoretical framework. Returning to Sparrow’s distinction between phenomenology and phenomenologists, we can say that phenomenologists do phenomenology while maintaining the freedom to make non-phenomenological claims. This is because these claims are reliant upon another philosophical framework, be it expressed or unexpressed. The question becomes, then, how to transition between doing phenomenology and making non-phenomenological claims based on that phenomenological “data.”

Following other object-oriented ontologies, one of Bogost’s most basic goals is to establish that human consciousness is not the only way of accessing or relating to the world. As such, he claims that “[i]f we take seriously the idea that all objects recede interminably into themselves, then human perception becomes just one among many ways that objects might
relate. To put things at the center of a new metaphysics also requires us to admit that they do not exist just for us” (Bogost 9). Bogost’s approach is to extend phenomenology beyond human consciousness, which goes against Sparrow’s argument that phenomenology is necessarily an idealism. Bogost attempts to accomplish this task by embedding phenomenology within a larger ontological setting – namely, object-oriented ontology. We can gain valuable insights from phenomenology even though this may not describe the whole of reality. That is, phenomenology is a descriptive tool that also enables an allusion to the world beyond the limits of thought, a bridge between phenomena and real objects. We must take this allusion, take these insights drawn from our own experience, and apply them elsewhere. We can say that we engage with or relate to other objects via our own set of logics – be they perception, reason, or categories of consciousness. Likewise, “Objects try to make sense of each other through the qualities and logics they possess” (Bogost 66), even though such logics are distinct from our own. In any case, wonder perplexes logics and opens objects up to the logics of other objects. Such operative wonder creates a kind of generative superposition, which collapses into concrete actions and causality.

In the *Phenomenology of Perception* Merleau-Ponty develops the idea of optimum distance. According to Merleau-Ponty, “For each object, as for each picture in an art gallery, there is an optimum distance from which it requires to be seen” (351). Merleau-Ponty is specifically talking about the optimum distance for a human, but the concept can be extended beyond human experience. Optimum distance occurs between two non-conscious objects when the superposition of operative wonder collapses, and the two objects enter into a relation. Operative wonder orients objects in their relation by suspending their individual logics,
thereby opening them up to form a new logic based on their relation or based on the constitution of a new assemblage. Merleau-Ponty articulates his concept of optimum distance in the context of the museum, describing the way an art-object calls to be seen by the art patron. I now turn to this context in order to provide an extended case study demonstrating the generativity of operative wonder.
Like philosophy, museums have a deep and historically rich connection to wonder. This has been true since the sixteenth century where cabinets of curiosities, or, as they were also known, cabinets of wonder, provided patrons with the chance to experience an entire world of strange objects at a single glance. This chapter explores and develops this connection between museums and wonder. Specifically, I will argue that since the time of cabinets of curiosities museums have been committed to provoking an experience of wonder. While the definition of wonder and the way that museums evoke wonder have changed, there has been a common tension between reason and mystery. This tension between reason and mystery both displaces the art piece as material object and promotes a traditional Platonic/Cartesian dualism by favoring the reality of ideas over the reality of objects. Looking to Merleau-Ponty, I will argue that an ontology based on the reversibility of flesh, found most prominently in the unfinished work *The Visible and the Invisible*, can orient the museum experience towards an interaction of mutual constitution between museum patron and art-object. I will then read the concept of flesh through the philosophy-physics of Karen Barad and recent work in object-oriented ontology and explicitly apply the concept of operative wonder within the context of the museum. I will end this chapter with a discussion of gardens, specifically looking to Robert Harrison's book, *Gardens: an essay on the human condition*, as a way of rethinking and reorienting the institution of the museum toward an attitude of care and operative wonder.
The Living Museum

In Dearborn, Michigan there is a place called Greenfield Village. It is the outdoor component to the Henry Ford Museum, and is often referred to as a “living museum.” The term “living museum,” at least as it applies to Greenfield Village, indicates that the exhibition of a certain historical period is not merely represented in pictures or stories, but is re-enacted by employees such that people are used as living exhibits. The living status of the museum also refers to the fact that Greenfield Village is a working farm. The workers tend the crops using farming techniques popular in the early part of the 20th century. The vegetables from the farm are cooked on coal burning stoves by women in historical costumes for the employees of the museum. At first I thought calling Greenfield Village a living museum was strange or corny because, even though there are people dressed in old clothes, using old farming techniques, and playing baseball with arcane rules and old timey uniforms, the fact remains that there is an available Wi-Fi signal, paved roads, and an overly expensive gift shop. But recently I have realized that the living status of Greenfield Village need not be limited to the employees dressed in 1920s fashion or outdated farming techniques used to grown corn, peas, and carrots. Rather, Greenfield Village is a living museum because all museums are living museums.

At Greenfield Village, the lived aspect of the museum is explicitly accessible because people act as living exhibits. Some of them act like specific characters, telling stories and demonstrating habits from a specific time, place, or historical figure. Others are able to maintain their own personas, cooking food for others or detailing the creation of certain
technologies like the printing press or domestic electricity. Interestingly, the production of Greenfield Village is dependent upon the interaction between people. Because these people have their own personalities, habits, and psychological makeup, the result is an extremely dynamic sort of museum that can change from day to day, hour to hour, or even minute to minute depending on who is working. But as already stated, I want to draw attention to the fact that all museums are, in a sense, alive. Every new object in any exhibit and every new exhibit as a whole, creates new tensions, new relations, and new objects that closely resembles the dynamic that makes Greenfield Village a “living museum.”

In her book on *Cabinets of Wonder*, Christine Davenne describes a modern day cabinet of curiosities in East London called the Malplaquet House. The collectors and keepers of the house, Todd Longstaffe-Gowan and Tim Knox, confess that the house is so full they can only buy what the can live with (80). As such, the house is “constantly shifting” to the degree that “the home nearly imposes itself on its owners, who devote all their time to it and respect its every whim, like the vine branch that has been permitted to enter a window and grow up to the ceiling of one of the sitting rooms” (Ibid). Each new item is added to the collection and placed according to “the overall aesthetic” of the house (75). The collection calls to the collectors, requesting that certain objects be placed here, while other objects be placed there. It is as if the collection is alive, requiring new objects as nourishment for growth.

Henri Cueco, another contemporary artist and collector, claims that his collection of “small, sharpened pencils” are tiny marvels, unique in size, shape, and density though born of the same sharpening process (Davenne, 200). While it may seem strange to think of tiny pencils as marvels, their utter singularity makes them perfectly appropriate for cabinets of wonders. It
is not the case that objects need to be strange or particularly rare to be included in modern day cabinets of curiosities. Rather, it is a matter of attending to objects as intimately and fundamentally wonderful. It is in this sense that museums are alive. Objects enter a new space and, almost immediately, properties that were once ignored or concealed are now able to manifest, constituting not only a change in the singular object, but in the objects already found in the collection. Like new branches on the tree that grows in the Malplaquet house, each new object in a museum reorganizes the internal structure of both time and space in its newfound context. This continual reorientation perfectly demonstrates the operative wonder described in the previous chapter, expanding into superposition and collapsing back into determinacy.

**Cabinets of Curiosities**

Cabinets of curiosities became popular in Europe around the 16th century (Davenne, 13). Private collectors meticulously gathered seemingly heterogeneous stuff in private homes and displayed them to visitors and guests in hopes of motivating feelings of wonder. Each item was categorized and catalogued to build a comprehensive view of the world in a single room. Collectors allowed visitors access to their cabinets and provided them detailed “tours” of the objects that made up their collection. In these collections, there was a clear tension between the rareness and singularity of the object that justified its inclusion in the cabinet and the way it was folded into a larger story.

Cabinets worked to produce wonder in two distinct, though seemingly paradoxical, ways. First, the individual objects, being rare and singular, caused the observer to wonder at
the strange marvels of the world. Second, the cabinet as a whole opened up a miniaturized representation of the universe, prompting the observer to wonder at the elegant connectedness of the world. It should be noted here that the first kind of wonder, wonder at the singularity of objects, involves surprise, curiosity, and, perhaps, naivety. Once the object is explained in terms of the rest of the world, or given a category by which to understand its existence, this kind of wonder fades and the object is flattened and rolled into the a broader story, losing its importance as a singular object. I argue that this type of wonder has been found in philosophical discourse since at least Aristotle. The second kind of wonder, wonder at the mysterious connectedness of the world, is much more complicated and allows for the possibility of wonder that can remain open to the ongoing unknowability of the world.

In the early cabinets of curiosities there is a tension between the mystery of the world and knowledge about the world. According to Patrick Mauries, this tension stems from the fact that cabinets of curiosities were direct descendants of the relics found in medieval churches (7). The focus of these early cabinets was geared toward developing a grand narrative that involved a creator and designer of a world filled with secret meaning. The collectors of cabinets attempted to reveal the mystery of creation and the connections between each object by providing them with “a special setting which would” reveal the “secret that lay at the heart of all things: that reality is all one and that within it everything has its allotted place, answering to everything else in an unbroken chain” (Mauries 34).

While the influence of Christianity on these cabinets faded, the mysterious quality of the objects found in them did not. Rather than reveal a unified design by a single creator, the goal of these cabinets of curiosities began to align with the progression of natural science, offering
not “monsters” and strange creatures (Davenne 145) but a methodical categorization of objects. This focus on categorization also demanded a separation between objects of art and objects of science that led to the contemporary division between types of museums (e.g. natural history, scientific, contemporary art, modern art, etc.) (Davenne 195, 203). In cabinets of curiosities we begin to see the scientific treatment of objects as things to be known, the explicit separation between nature (natural objects) and culture (artifacts), and the modern demand for certainty. In fact, it was this demand for certainty that ultimately led to the mockery of collectors and their cabinets by scientists and scientific institutions. According to Mauries, “there was no place for the inexplicable or the bizarre in a culture that demanded, then as now, a reality that was on the way to being explained, a reality with no parts left over or superfluities” (193). Thus there was no longer any “room for exceptions, just as the 'mediocrity' demanded by society left no room for gratuitous excess” or wonder in the face of singularly strange objects (Ibid). The reduction of the world to scientific observation and measurement led to a disenchantment with the world of objects.

Enchantment in the Museum

The moment we step into a museum the call of the artworks for your attention is muted and muffled by introductions, pamphlets, and placards. Before we see the object on display we are offered information about the object so that we can know it, anticipate its prominent features, and grasp the historical or cultural context in which it was created. This information generates a gap between knowledge and experience and leads, some argue, to a noticeable
disenchantment within the museum. Didier Maleuvre, writing on silence in the museum, laments that because we have become a culture accustomed to instantaneous knowledge we no longer take the time necessary to appreciate art. Maleuvre claims that the art museum has become complicit in the speedy disbursement of knowledge (167) and that the use of headsets and audio guides has given the museum patron too much knowledge too soon, thus stealing the possibility of surprise. To quote Maleuvre:

Surprise is the opposite of the theoretic, knowing, confidently expert attitude sibilating in the headset of the audioguide. Surprise comes to whomever does not shy away from bewilderment, which means anyone unafraid to walk without prejudo. This open disposition assumes the silencing of the inner and outer voices that warn about the encounter even as it is happening. The art museum fulfills its duty by making clear that some objects are important; it does not need to expatiate upon how to verbalize their importance (that is the business of universities) (Maleuvre 174).

While I agree that this lack of surprise is exacerbated by the speed with which we acquire information, I do not think that the dissemination of knowledge is new to the museum. In fact, we can trace this kind of knowledge guide back to the cabinets of curiosities of the sixteenth century where private tours were given by the collectors themselves. I argue that the tension between knowledge and mystery and between narrative context and enchanted engagement is fundamentally and ontologically rooted in the way that we understand and interact with objects. Further, it seems that surprise only delays the inevitable accrual of knowledge about the piece of art being observed. Even if it were possible to bracket all “prejudgment” while viewing a piece of art—a very remote possibility, if at all—surprise at an artwork is a fleeting experience that eventually gives way to familiarity. While education remains a central concern for most museums, focusing on surprise fails to allow the tension
between mystery and knowledge to remain a tension. Mystery soon loses its grip and the tension is lost. Rather than emphasize the need for surprise, I argue that the museum ought to promote a kind of wonder that is not displaced by knowledge, regardless of whether it comes before or after the initial encounter with the work of art.

But how can the museum accomplish this goal? A major hindrancce to the museum as a catalyst for a re-enchantment of the world is the fact that it is often undercut by economic pressures and the demand for economic efficiency. According to Corrine Kratz and Ivan Karp, museums find themselves competing with theme parks to the degree that museums now design exhibitions to emulate their competition. As such, many museums have adopted to mix goals of education and entertainment (edutainment) (Kratz and Karp 32). On the one hand, the push for edutainment stems from simple economic need on behalf of the museum. They need to bring in more patrons in order to remain economically viable. On the other hand, strategies of edutainment are used to produce a feeling of enchantment in hopes of raising interest from a younger population.

Thinking again about Greenfield Village, I have often felt a startling similarity between my experience there and my experience at Disneyland. What is it that separates Greenfield Village as a museum from Disneyland as an amusement park? Both offer a kind of entertainment, with train rides and elaborate costumes, but there is a sense that Greenfield Village is offering a more “real” or “truthful” version of the past. A major concern with this trend, however, is that the “authenticity” of experience and the educational value gained by these strategies is overshadowed by introducing a general consumptive attitude into the space of the museum. That is, once the lines are blurred between museum and amusement park, it
becomes difficult to distinguish between consuming entertainment and appreciating art. In this light, museums become something closer to what George Ritzer has called “cathedrals of consumption” (6).

The connection between institutions of consumption and museums is not completely one sided. Institutions explicitly aimed at generating greater consumption of products have deliberately worked to create a feeling of enchantment. According to Ritzer, “cathedrals of consumption” increasingly attempt to generate “magical, fantastic, and enchanted settings in which to consume” (7). But as is expected, the feeling of enchantment gained in consumptive practices is often followed closely by a feeling of disenchantment. This is because “cathedrals of consumption” are required to produce a feeling of enchantment on demand, and thus require “rationalization” (Ibid 9). Rationalization works to counteract enchantment because, as Ritzer points out, “it is difficult to reduce magic to corporate formulas that can be routinely employed at any time, in any place, and by anybody” (8). The demand to combine the education of museums and the entertainment of amusement parks results in a demand to produce a repeatable, but short lived, sense of enchantment that ultimately leads to a greater disenchantment. As such, I argue that the kind of enchantment promoted by the goals of edutainment reduce works of art in museums to consumable commodities leading to an experience of wonder that is too quickly exhausted. I therefore look to other modes of enchantment in the museum that are more appropriate to the kind of ontologically oriented wonder that I have been arguing for.

In Arts of Wonder, Joseph Kosky details five exhibitions that evoke a sense of wonder and break through our inherited disenchantment. For Kosky, much of the disenchantment that
we still deal with stems from a scientific attitude toward the world and a demand for absolute knowledge. According to Kosky,

The world of modern disenchantment is founded on the exclusion of clouds, fog, mist—anything that, by resisting the clarity afforded by light, would result in blurred edges and hazy borders, indistinct places and insubstantial things. Seen in the clearing made by such light, the world of modern disenchantment includes only objects of a particular character. More specifically, objects seen in the clear light will be distinct and well-defined such that they appear solid and stable (Kosky 64).

Interestingly, four of the five exhibitions that he discusses occur outside of the conventional museum in some sort of “natural” space. This fact introduces two very interesting ideas to the discourse on art and wonder. First, in order for art to truly motivate a sense of wonder that eludes the grasp of absolute knowledge, it may need to be situated outside the context of the museum. Second there ought to be little or no distinction between natural objects and artificial, or human made, objects.

The last chapter of Kosky’s book is dedicated to the work of Andy Goldsworthy. Goldsworthy is known for creating art in natural spaces using objects he finds around a chosen space of work. He then leaves the artwork to melt, fall apart or float away, highlighting the creative and destructive qualities of the world. According to Kosky, “in Goldsworthy’s world, we dwell not on solid ground but nevertheless profoundly in a place, alongside things that do not stay permanently and are often far from stable, in flux and fluctuating because engendered or created with the waters and the winds” (Kosky 133). Goldsworthy leaves no opportunity to get to intimately know the works he produces, nor does he allow for the kind of surprise that Maleuvre desires because he must complete each work in a short timeframe. Rather than
surprise, there is a slow realization of the beauty that Goldsworthy generates from sticks, ice, leaves, rocks, wind and the rushing waters of a river. His work challenges the conventional understanding of how to view and appreciate works of art because knowledge is not a part of the encounter. As Kosky tells us, “we dwell there with created things that are not secure but adrift; we abide with things-made that do not stay but float; we reside with thingly works that come to be by scattering themselves in the world with which they are created” (Kosky 133). Without the opportunity for knowledge, there is little to cover up or conceal the wonder that is motivated by Goldsworthy’s work. We are left haunted by the swift loss of the work and explicitly confronted by the way that objects withdraw from our full possession of them. But, as I have argued, this withdrawal need not be limited to instances where objects literally float away or dissolve in front of our eyes. Rather, such withdrawal happens with every object, even works of art that hang in museums.

Light and Optimum Distance

Throughout the text, Kosky uses light as a metaphor for absolute knowledge and scientific inquiry. Continuing with that theme, he praises James Turrell’s three permanent exhibitions in a Pittsburgh museum called The Mattress Factory. These “viewing chambers,” as Kosky calls them, “present themselves to us as light that is itself a revelation or presentation; in this sense, they embody a movement of drawing near. But this revelation or presenting does not ensure their ultimate availability for the eye, mind, or hand that seeks to lay hold of what is revealed or presented before it” (Kosky 104). Unlike objects hung under spotlights to offer
quick and total access, Turrell’s work draws you in slowly but never fully. Light in Turrell’s work does not make another object available, but plays on a similar tension between revelation and mystery that was found in the early cabinets of curiosities.

For Kosky, the “viewing chambers” present a challenge to the rule of reason by refusing to offer a clearly defined and distinctly available object for investigation. Clarity and distinctness, at least since Descartes, have been the measure of human access to the world to the degree that “the opening of a world in which objects appear distinctly...becomes the correlative of a way of human being that can advance with certainty” (Kosky 91). By closing this world of clear and distinct boundaries between viewer and object, Turrell’s work reintroduces a wonder and awe that is not dependent on surprise, but rather dizzying confusion, as if the ground on which one usually stands in relation to art objects (or any object for that matter) is removed. It is as if Turrell’s viewing chamber exhibits the tension between fascination and repulsion, astonishment and horror that Mary-Jane Rubenstein sees as the defining characteristics of wonder (“Politics” 13). It is not possible to claim absolute access to an object if the object has no clear boundaries that distinguish it from the rest of the world.

A particularly interesting aspect of Turrell’s exhibit is that it calls into question what Merleau-Ponty labels optimum distance. According to Merleau-Ponty, “For each object, as for each picture in an art gallery, there is an optimum distance from which it requires to be seen, a direction viewed from which it vouchsafes most of itself: at a shorter or greater distance we have merely a perception blurred through excess or deficiency” (351). But if light is the object, as in Turrell’s viewing chambers, is there still an optimum distance from which to view it? Further, does the description of optimum distance commit Merleau-Ponty to a position of
absolute access that betrays his phenomenological commitments? I answer no to both questions. Although it may seem contradictory at first, I argue that Merleau-Ponty’s notion of optimum distance can help to reframe the discourse on museums and the art that is found there.

To do so requires that we accept that the concept of optimum distance is necessarily contextual and thus dependent upon a matrix of relations among objects. In the *Phenomenology of Perception*, Merleau-Ponty claims that the optimum distance for any object is determined by the context in which that object is found and the motivation behind our engagement with the object (351-352). Thus the optimum distance will be different depending on whether we are trying to determine the cellular structure of a given specimen, or if we are watching a football game on television. Likewise, the optimum distance will vary if we are looking at an impressionist painting or a Duchamp readymade. While this may seem like an algorithm for establishing clarity and certainty for specific objects, reading this insight through Merleau-Ponty’s ontological concept of flesh and recent insights from object-oriented ontology reveals that objects can (and should) be understood in terms of withdrawal. That is, the object presents itself and withdraws itself from the gaze of the observer depending on other contextual components such as lighting, moisture levels in the air, the mood of the observer, the texture of the paint on the walls, etc.

One of the major claims made by object-oriented ontology is that there is a distinction between merely sensual objects and real objects (*Quadruple Object* 139). Further, object-oriented ontology positions itself as a realist philosophy, albeit one that promotes “a weird realism” that vehemently argues against the limitations of the “human-world circle” of
correlationism (Ibid 62). Reading Merleau-Ponty through object-oriented ontology, I want to offer an analysis of optimum distance that considers objects under observation as real rather than as merely sensual. What this does is shift the ontological status of the object as a for-me object to an in-itself object, and takes insights gained from phenomenological analysis beyond the limits of phenomenology. While we may not have full access to the real object as it is in-itself, it is not the case that we are dealing with a Kantian in-itself. Rather, we engage with the qualities that are available to us using our senses (remembering Bryant's claim that qualities are more like powers, we can say that senses are qualities as powers; we see as the mug blues). Given that our senses are limited and certainly not identical to the qualities of non-human objects, our access to the object does not exhaust the possible access to the object. Just as fire interacts or relates to cotton differently than I relate to cotton, so the security guard's uniform interacts with a painting differently than I do.

While it is true that we can never “know” what optimum distance might be between any two objects, this does not negate the possibility that there is an optimum distance for objects. Reducing all access to human access commits what Bryant calls the “epistemic fallacy” and thereby translates ontological claims into epistemological ones. According to object-oriented ontology, real objects exist and “difference, deferral, absence, and so on are not idiosyncrasies of our being preventing us from ever reaching being, but are, rather, ontological characteristics of being as such” (Bryant, Democracy of Objects 61). If this is the case, then all objects that can be said to “be” participate in a context, relate to other objects, allow access to other objects, but fail to ever provide full access or gain full access to other objects. As such, there is an optimum distance for objects in order to activate specific qualities. This can be seen as the
equivalent to Merleau-Ponty’s claim that optimum distance is really about the context in which we find an object and the actualization of determinate states that occurs after the superposition of operative wonder.

Further separating Merleau-Ponty from a position of absolute access is the idea that the boundaries that often separate objects are less concrete than they seem to be. By reading the concept of flesh from Merleau-Ponty through Karen Barad’s philosophy-physics we begin to see how boundaries between objects are not set prior to their interaction, but emerge from their interaction, or what Barad calls intra-action. Both lines of reasoning will ultimately intersect, resulting in an argument for an operative wonder that exceeds the bounds of knowledge.

The Reversibility of the Flesh

There are two basic insights that I want to draw on from Merleau-Ponty’s ontological concept of flesh. The first is that we are intimately embedded and intertwined with the world we live in to the degree that we must radically call into question any separation between humans and the world. Second is that the world is not available to us as outside observers, but that our relationship to other objects mirrors closely the way that other objects relate to each other.

It is clear that Merleau-Ponty wants to question the privileged place of humans when he claims that “when we speak of the flesh of the visible, we do not mean to do anthropology, to describe a world covered over with all our own projections, leaving aside what it can be under
the human mask” (*The Visible and the Invisible* 136). It has been well documented that Merleau-Ponty was unsatisfied with the work in the *Phenomenology of Perception* and wanted to escape the perspective of human consciousness. As such, the concept of flesh is built on a reversibility that demands an ontological equality among objects. Humans can no longer claim absolute knowledge, or even the right to control or dominate other objects because humans no longer stands outside or above nonhuman objects. For Merleau-Ponty, the reversibility of flesh not only allows for communication between object, but requires a sustained mystery between objects. That is, the reversibility of flesh is “always imminent and never realized” (147) and “as soon as we examine and express its absolute proximity, it also becomes, inexplicably, irremediable distance” (8).

This tension between access and withdrawal mirrors the tension found in the cabinets of curiosities between mystery and knowledge. Merleau-Ponty explicitly addresses art, and specifically painting, in *Sense and Non-Sense*. There he praises Cezanne for “giving up the outline” and “abandoning himself to the chaos of sensations” (13). According to Merleau-Ponty, Cezanne made a “basic distinction not between “the senses” and “the understanding” but rather between the spontaneous organization of the things we perceive and the human organization of ideas and sciences” (13). The human organization of ideas wraps around objects, often concealing the object and rendering it as mere representation. It here that Maleuvre’s worry about our technologically driven access to knowledge prior to engagement with art can be addressed via Merleau-Ponty’s notion of flesh.

I argue that this spontaneous organization of things described by Cezanne ought to be extended to include the human observer. The borders between the art-object and the art-
observer are dissolved and a new object appears which includes both as a new art-observer assemblage. We can see this at work when Kosky describes his encounter with Turrel’s “viewing chambers.” There the goal is not to find the optimum distance by which to gain access to the art object. Rather, it is to be enveloped by the light and the mystery, to relieve the boundaries between body and light so that it is unclear when one ends and the other begins. Similarly, we can see this on a broader scale in Merleau-Ponty’s concept of flesh, whereby the body and the world are described as exhibiting a chiasmic relationship. The human body is treated as a sentient-sensible, able to perceive objects only because it can be perceived by objects. For Merleau-Ponty this relationship is not one of mere closeness, but is one of mutual interiority to the degree that it is only possible to make sense of the world by being of the same stuff that constitutes the world. In the *Nature Lecture Notes*, Merleau-Ponty describes this mutually constitutive relationship as *Ineinander* (in-one-another). The relationship between the body and the world can no longer be described as a body in-the-world (as it is in *Phenomenology of Perception*), but must also entail a world that is in the body. The mutual constitution of the body in the world demands that they are intimately in one another, not like “that of a thing in a thing…but rather one ratified by our lived, perceived *Ineinander*” (*Nature Lecture* 208).

Looking to Karen Barad we can extend the concept of flesh further, finding support in the realm of quantum physics. In *Meeting the Universe Halfway*, Barad argues for something called intra-action. According to Barad, “in contrast to the usual “interaction,” which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action” (33). As such, Barad holds that objects do not bring inherent boundaries to their interactions
with other objects. Rather, boundaries are produced within the “differential becoming” of intra-acting. On her account, “matter is produced and productive, generated and generative” (137). There is a kind of agency attributed to matter because the constitution of phenomena that mark the boundaries present in any given context do not rely solely on human agency. Matter itself, as generative, motivates the emergence of properties and boundaries in phenomena, independent of human involvement. Most important here is the idea that “things” do not have determinate boundaries, properties, or meanings apart from their mutual intra-actions” (147).

Barad’s insights regarding the lack of boundaries between objects plays out not only in the physical work of art, but in the relation between observer and observed. Taking a painting as an example, we can say that the art object, when approached as art, is no longer limited by the frame or the lines of the drawing that mark the borders between figures. Rather, we enter into the painting and take up the space of its existence, not as a representation, but as an ontological coupling. The observer and the art-object become unified in a new object. But this is not merely an insight regarding the imaginative engagement with the painting. We must continue to attend to the art as object. Further, the analysis of this coupling must attend to the way that surrounding objects affect and, in a sense determine, the presentation of the work of art.

It is here, just as the human observer becomes ported into a new object that is not completely human, that the second aspect of Merleau-Ponty’s flesh becomes apparent. As stated earlier, one consequence of the reversibility of flesh is that we as humans no longer have an ontologically privileged position by which to observe, manipulate, and engage with other objects. We are object just as much as every other object. The light of Turrell’s “viewing
chambers” invites me in, reflects off my skin, and wraps around my body, negating the boundaries that separate me from it. We become a singular phenomenon, intra-acting and generating small movements in the differential becoming of matter. But this is not limited to Turrel’s “viewing chambers,” nor is it limited human involvement. Rather, the emergence of new objects occurs when we encounter paintings, sculptures, light fixtures, entryways and gift shops. It occurs when a light fixture encounters a sculpture, when the uniform of a security guard encounters a paintings, or when the flowers of a garden encounters a gust of wind.

Bruno Latour offers a simple and extremely helpful analysis of the way objects display their agency in situations that are often considered to be fully determined by social relations. According to Latour, “if action is limited a priori to what 'intentional', 'meaningful' humans do, it is hard to see how a hammer, a basket, a door closer, a cat, a rug, a mug, a list, or a tag could act” (Latour 71). For Latour, what determines something as an agent or as displaying agency, is that it affect the action of some other agent (Ibid). Following Latour, then, we might ask how the frame of the painting, the direction and intensity of the lighting, and the texture of the floor all affect the ability of the work of art in a museum to act on us or to affect us. Put another way, if we imagine the same piece of art on display in a grocery store, surrounded by packages of toilet paper, cereal boxes, deli meats, and the dull glow of florescent lights, we begin to realize how important these often invisible objects are to the artwork, and we begin to feel the agency of these seemingly insignificant objects.

Latour’s view complements Barad's agential realism by providing concrete and everyday instances of how non-human objects can generate agential-cuts without requiring human involvement. As an example, Latour challenges the idea that
you can, with a straight face, maintain that hitting a nail with and without a hammer, boiling water with and without a kettle, fetching provisions with or without a basket, walking in the street with or without clothes, zapping a TV with or without a remote, slowing down a car with or without a speed-bump, keeping track of your inventory with or without a list, running a company with or without bookkeeping, are exactly the same activities (71).

On Barad’s view, “agential cuts...produce determinate boundaries and properties of “entities” within phenomena” (148). So when the museum is closed, and no human-patron is left to observe or view the work of art, phenomenal objects are still constituted by the relations between objects. Cold light fixtures, smooth floors, and dusty air continue to matter because they perform the ongoing iteration of the world. For Barad, “matter is a dynamic expression/articulation of the world in its intra-active becoming. All bodies, including but not limited to human bodies, come to matter through the world’s iterative intra-activity, its performativity” (New Materialism: Interviews and Cartographies, 69). This does not level off every object to a lowest common denominator, but maintains an ontological equality (what Levi Bryant calls a democracy of objects), while allowing for performative difference. All objects interact differently with other objects so that the effect of light on canvas can be measured by human instruments, but this measurement reveals little of the relation between the light and the painting. Again we see the tension between access and withdrawal, knowledge and mystery that was present in the cabinets of curiosities, developed in Merleau-Ponty’s concept of flesh, and extended by the physics-philosophy of Karen Barad.

In the Theaetetus Plato has Socrates claim that philosophy begins in wonder. In The Visible and the Invisible Merleau-Ponty claims that philosophy not only begins in wonder, but also leads to wonder (105). When the ontological privilege and absolute access to the world
that we once thought we had is lost and the world is revealed as one that is built on mystery and withdrawal, not only are we able to regain our sense of wonder at the unknown, we can no longer maintain that we are the only kinds of objects that wonder. Rather, all objects wonder because no object is ever afforded complete access to any other object. Wonder is no longer a human capacity, a human property, or exclusive to humans in any way. The world is an open wondering, a swell of self-organization independent of any single causal agent.

To be sure, the ontological framework that I have developed is not limited to the context of the museum. But the museum plays an important role as an institution that is built on the cultivation of wonder. There are concerns that the museum’s ability to motivate wonder has been negatively affected by economic pressures and the dulling of experience by the projection of knowledge over the art object. In an article on wonder and museum organization Kaulingfreks, Sverre, and ten Bos lament that “The modern museum shows how much our view of the world has changed and how much series, plan and order have formed our worldview. Only in the series does everything have its place and that is how we find safety and order...wonders are banned to a place outside the series, a place that is considered to be less sophisticated, confused and even infantile” (324). Kaulingfreks, Sverre, and ten Bos go on to argue that what we need is a re-introduction to the dangers of the singular object over the calming organization of the series. In a similar vein, Jean-Paul Martinon mourns the fact that, unlike cabinets of curiosities, “the museum follows a dialectical model that sees its collections either organized chronologically (narrative) or thematically (image)...in order to make sense of the art or the objects it houses” (62). While I do not have organizational or administrative answers regarding how to change the current situation, I argue that if the museum is going to
continue to promote wonder, it ought to promote an ontologically oriented wonder rather than an epistemically oriented wonder. The wonder that is motivated by the contents of the museum should not be negated by the organization found in the museum as if we could distinguish “wild” being merely by its location. Wild being full of wonder is found everywhere, but surely it is found within the museum. If the museum hopes to display such wonder, then the museum must emphasize the tension between knowledge and mystery in its presentation and exhibition as an instance of the active wondering of the world in general.

Wonder in the Garden

In the final section of this chapter, I turn to gardens as a possible model for how museums can invoke an ontologically oriented wonder. Gardens explicitly demonstrate the living aspect of museums that I have described and work to incorporate a necessary sense of rootedness that is often missing in museum exhibitions. This sense of rootedness highlights the ambiguity of boundaries and calls into question the ability to fully know when one object ends and another begins.

In Gardens: an essay on the human condition, Robert Pogue Harrison offers an extended conversation about gardens. Following Heidegger, Harrison begins his treatment of gardens by recounting the myth of care and points out that the embodied life of humans is constituted by care (6). In the myth, death marks the return of the soul to Jupiter and the return of the body to Earth, but during life, “the ensouled matter of homo belongs to Cura, who “holds” him for as long as he lives” (6). While Harrison focuses explicitly on humans and human access, a position I
have attempted to move away from, his concept of care as it relates to cultivation offers an interesting perspective on wonder that directly relates to objects and their exhibition in museums.

The kind of wonder that I have described requires a cultivation of engagement. It is not an easy task to maintain a sense of wonder about the world given that, as Kaulingfreks, Sverre, and ten Bos, and Martinon attest, objects in museums often fail to evoke any kind of lasting sense of wonder. Thus wonder needs to be tended to and cared for, like a garden, if it is expected to grow. Thinking about wonder in this way allows the institution of museums to offer a wonderful experience while inviting others to take up the activity of cultivating wonder.

According to Harrison, the act of gardening “brings about a transformation of perception, a fundamental change in one's way of seeing the world” (30). He calls this change a “phenomenological conversion” (Ibid). The care required in tending a successful garden demands that the gardener pay attention to more than the surface. Rather, she must experience the garden in its paradoxical existence as both unified object and as constituted by a number of separate objects. Each plant or flower blooms both separately and altogether. The logic of the world must recede as the mystery of life and growth takes root. If we can call tiny sharpened pencils “little marvels,” then what can we say about soil? Each granular of soil is singular by itself and works to construct a larger object. The soil of the garden is already a cabinet of curiosities.

The museum also acts as an agent of “phenomenological conversion” to the degree that patrons, if care-fully attending to the objects present, begin to see the world differently, and
begin to look “to the depths in which they stake their claims on life and from which they grow into the realm of presence and appearance” (Harrison 30). If the political, spiritual, and material existence in which the patron exists becomes explicit, the world can begin to unfold and reveal, like the garden, “an opening of worlds—of worlds within worlds—beginning with the world at one’s feet” (Harrison 30).

Thinking about museums in terms of gardens also requires that we turn to the elements and to the elemental. In *The Visible and the Invisible*, Merleau-Ponty refers to the flesh as an element and “as the concrete emblem of a general manner of being” (147). Here, Merleau-Ponty reminds us that we ought “not think the flesh starting from substances, from body and spirit,” but that we must first attend to its non-coincidental reversibility (Ibid). The garden is not the product of the gardener, nor is it a random assortment of plants, flowers, or rocks. Rather, the garden emerges through the relation of the gardener to the elements. As such the gardener is never gardener outside the garden, but is always already constituted by the garden. Likewise, the garden is constituted by the gardener so that it never fully exists apart from the relation. The garden/gardener relation is one of mutual constitution and reversibility that speaks to the generative mattering of the world that Barad describes. Prior to the gardener, the world was already a garden of sorts, but not so named. The arrival of the gardener merely continues, in a new set of practices, the differential becoming of the world and the generativity of flesh that was already active. Or, to quote Harrison: “the human gardener with rump in the air is a latecoming participant in, as well as a beneficiary of, this chemistry of vitalization” (Harrison 32).
Irene Klaver comments on an elemental wildness that can easily be located in the garden. According to Klaver, “the silent and the wild leave open a space for wandering and wondering; it is where our clear and distinct grasp transcends into impermeability, where our knowledge and being appear in the mode of dis-appearing” (“Wild Rhythm” 492). The wild is not only found in deep jungles, shadowy forests, and dusty plains. It is found “in the grass of our backyard, even in the semipermeable asphalt of our parking lots and interstates” (486). The wild is that aspect of things that exceeds our grasp, in the blooming of flowers, in the pedogenesis of soil, in the process of photosynthesis. Klaver deliberately invokes the Cartesian incantation of “clear and distinct” ideas in order to dispel their hold over our experience with the world. I argue that in the garden, the reversibility of flesh renders us wild in relation to the flowers. We (humans) are wild in that we exceed the grasp of the flowers, the soil, the sunshine, and even ourselves.

It is clear that Harrison would be a bit uneasy with my treatment of his garden analysis for two reasons. First, he considers care to be a specifically human characteristic, and would not “ascribe care, in the human sense, to primitive organisms” (33). Second, he does not want to treat gardens as works of art because they do not—or should not—act as memorials nor do they “immortalize their makers” (39). While he does go so far as to say that “care, in its self-transcending character, is an expansive projection of the intrinsic ecstasy of life,” thereby including non-human life-forms, he also claims that life is distinguished from “inanimate matter” by its continuous self-excessiveness. That is, life “ecstatically maintains itself in being through expenditures that increase rather than deplete the reserves of vitality” (33). I have argued that this is true of non-living matter as much as it is true of living matter. In fact, it is
difficult to differentiate in a living organism where “living matter” might end and “non-living” might start. Further, describing the ways that non-living objects perform as quasi-agents and enter into the political realm as actors, demands that we allow matter that is not directly connected to living organisms to maintain themselves “through expenditures that increase...the reserves of vitality.”

According to Harrison gardens should not be considered art because they do not memorialize their makers. Instead of pointing directly to an artist, Harrison claims that gardens work to “reenchant the present” (39). While it may be difficult to separate the art from the artist, this is not necessarily the case with museums. Surely there are instances of museums with specific names attached. The Getty museum, for example, brings to mind J. Paul Getty, the founder and benefactor of the museum. But the Getty, like other similarly named museums, is not the work of a single author or artist. It has been constructed and constituted by the hands of thousands. Individual artists, like the species of plants, flowers, or stones in gardens, provide the content of the museum, but are not the museum. If an exhibit leaves the Getty, it does not become any less Getty but shifts and changes to reveal new qualities activated by new relations. New exhibits, pieces of art, or even animals promote new wrinkles in conversations and open new cuts in material-discursive phenomena. Like objects embedded in other objects, the museum is never the artwork it houses but always exceeds—and recedes from—its constitutive parts. So while individual art-objects may not “reenchant the present,” I argue that museums do.

Not all would agree with this notion. Jean-Paul Martinon believes that “everything ends in the museum” (61). He goes on to compare the museum to a mausoleum, claiming that
museums are now where “carcasses of bodies that were once alive” are sent to memorialize past cultures and cults (Martinon 61). Thinking about museums in this way turns the objects found there into ghosts, undead monuments that haunt the present and deaden the possibility of wonder. The silence of the museum becomes the silence of the graveyard, holding vigils for the dead rather than celebrating the vitality of life. Thinking about museums in terms of gardens, however, reinserts life into exhibition and calls for participation. Doing so transforms the silence of the museum from a requiem to the hum and vibration of the world becoming in wonder.

If museums are thought about in terms of gardens, then they require a special kind of care. Curators—involving the cura or care in their name—become gardeners displaying exhibits in a way that orients attention toward the life and quasi-agency of objects and assemblages. Something that often takes away from the liveliness of exhibits is the fact that they are abstracted from their native setting. Portraits from sixteenth century France often feel old and dead, stripped of their vitality with brief descriptions to stand in for their rich history. In both ontological and practical terms, the lion in the cage at a zoo is drastically different from the lion on the African plains. Is there a more terrifying or vivid example of how objects determine a situations active qualities than the removal of the lion’s cage in a crowded zoo? Not only does the removal of the cage re-empower the lion to evoke both terror and wonder, it also transforms the previously unnoticed objects—including people—into obstacles to safety. Curators as gardeners would not only arrange objects in exhibits, but would attend to the roots of those objects. Like the hidden roots of the garden, curators would be called to play on the tension between revelation and mystery that was found in the cabinets of curiosity, caring not
only to organize objects in terms of a unifying narrative (be it science, time, or ideology), but to also plant deep roots in the space provided, adopting the kind of uncertainty that comes with the “soil, weather, and elements” of a garden (Harrison 39).

If the botanical garden seems too abstract an example for museums, we can look to non-conventional gardens as inspiration. Harrison takes time to describe gardens that are found on the streets of New York City, carefully organized yet allowed to grow in a semi-wild manner. To quote Harrison: “The gardens in question are made of diverse, largely random materials: toys, stuffed animals, flags, found objects, milk cartons, recycled trash, piles of leaves, at times a simple row of flowers” (Harrison 41). What makes these gardens so special is that they motivate dialogue where “the interlocutor is whoever takes the time to notice and wonder at them. That is why the transitory gardens evoke even more starkly and more poignantly than do community gardens the distinctly human need that went into their making, namely the need to hold converse with one's fellow humans” (Harrison 46). Harrison goes on to claim that these gardens are like speech acts. Although he limits language and conversation to the humans involved, I argue that the conversation should be expanded to include the objects and context of the gardens themselves. Appropriating Merleau-Ponty's description of reversibility it is possible to say that we can only speak because we are capable of being spoken to. We can only offer up our part of the dialogue because we are engaged in a larger conversation that involves more than human speech.

This is not to say that objects, assemblages, or gardens speak to us like other humans speak to us. This speech is a result of the self-organization that occurs as a result of the quasi-agency of objects. Harrison explores something like self-organization when speaking about
Kingscote garden on the Stanford Campus. Kingscote, a garden that Harrison calls his own because of his affinity for it, both “opens itself up to full view” and holds something back (53). The garden is never fully available at any given time because it wears various “guises” depending on the time of day, the strength of the wind, or the force of the weather. To quote Harrison again: “The garden's potential for appearance is never realized all at once, any more than a lyric's meaning and sentiment are exhausted by a single reading” (53). The intimate description that Harrison provides of “his own garden” speaks to a kind of self-organization that originates in the garden itself as an object. The garden's qualities shift and actualize differently given different weather patterns, times of day, or even moods of human observers. The fact that the garden gives itself differently, or organizes itself differently given varying surrounding objects, indicates that the garden never gives itself fully to any object. It always recedes, always holds something back and is never available as something to be accessed or known completely. The mysterious aspect of gardens does not work to close the garden off. Instead, “gardens like Kingscote seem like gateways to other worlds or other orders of being: not gateways for you to pass through but through which you may be called upon or visited, without moving from where you stand” (Harrison 54).

If museums are capable of some kind of transformative wonder, such that wonder is understood differently and separately from the attainment of knowledge, then it must embrace the possibility that it create what Harrison has called a “phenomenological conversion.” Museums must be capable of being a vehicle for change by opening up a new and strange world without requiring you to move from where you stand. Some may argue that museums and individual pieces of art already do this, and that there exist places and objects that
motivate the kind of wonder that I am describing. However, a major problem with the institution of the museum is that it is clearly defined as an institution. One knows when they are entering a museum, crossing over into an intricately organized presentation of objects. As I have argued, the very inclusion of an object into a museum changes the value of that object. The strangeness of the world is abstracted so that the world outside the museum remains a bland landscape of everyday habitual activity. The museum even works to make the “outside” world seem more boring.

In direct contrast, the boundaries of the garden are almost always unclear. The hidden roots of the plants often make it impossible to tell where the garden begins and the “outside” world ends. Surely, gardens do have boundaries, but they are not rigid ones. According to Harrison, “Almost all the words for “garden” in world languages have etymons linked to the idea of fence or boundary. A garden is literally defined by its boundaries” (Harrison 56). Rather than closing off, the boundaries that define the garden are boundaries that open up new worlds and, like quantum physics for Barad, question the rigidity of boundaries as such. Harrison goes on to claim that the boundaries of a garden “are for the most part relative. By that I mean they keep the garden intrinsically related to the world that they keep at a certain remove” (Harrison 56-57). As Irene Klaver notes, boundaries mark a passage between (objects, things, properties, bodies, etc.), not a distinct and independent occlusion. “Boundaries,” according to Klaver “are places where different entities, different modes of being, different ontological domains, meet, interact with each other, given and take from each other—places of heterogeneity and diversity that call for negotiation, or translation” (“Stone Worlds” 355). Because the boundaries that define the garden are “vehicles of translation” (Ibid) rather than
mechanisms of exclusion, the environing world becomes involved in the gardens effective power. The position of the sun and the weather are included in the garden’s anatomy. To an extent, the whole world becomes a part of the ongoing growth of the garden as the wind bends the branches of the plants and disperses seeds that will literally impregnate the earth.

Harrison recalls Eden as a garden that was supposed to have encompassed the whole world for its inhabitants. Rather than praise the possibility of returning to the earth as an Edenic paradise through gardening, he worries that the drive for such a paradise leads to what Jane Bennett has called our “earth-destroying fantasies of conquest and consumption” (Vibrant Matter ix). According to Harrison, “One of the paradoxes of the present age is that our craving for more life is precisely what is driving us to re-Edenize the earth, to turn it into a consumerist paradise where everything is given spontaneously, without labor, suffering, or husbandry” (Harrison 164). The garden cannot properly motivate a “phenomenological conversion” in a context where labor and care are not needed. The garden, then, is not a symbol of paradise or a sign of hope for a carefree and leisurely existence. The garden is a means by which to view the world differently, an opening for an actively wondering world that requires work from human and non-human, living and non-living objects alike.

Harrison views the garden as a way to “relearn the art of seeing and reaccess the deep time folded within their forms. The visible world, after all, has not vanished. It has merely become temporarily invisible” (124). Like Martinon, Harrison argues that in order for the garden to “help us rescue its visibility,” we must provide “them ample space and time to show themselves” (Harrison 124). Unlike the critiques of the museum, the garden has very little history of technological mediation. There are no audio guides or historical blurbs about who put
this flower here or pruned that plant over there—the garden is not a monument, memorial, or mausoleum but a vibrant example of the active becoming of the world. The desire for “ample space and time” that Harrison articulates is not driven by a respect for famous works or artists but is actuated by care. The care required from the gardener allows the garden “to become fully visible in space” (Harrison 117). This is true on the basic level that without care the garden would not grow. Because “gardens” grow without any intervention by humans, at this basic level we can speak of the care of the world such that earth worms, weather patterns, and sunshine all tend to the care of the Earth's garden. But for Harrison, the “phenomenological” conversion motivated by gardens requires a different temporal engagement with the garden.

According to Harrison, “time in its subjective and objective correlates is the invisible element in which gardens come to bloom” (Harrison 117). Harrison uses the garden as a way to discuss the human condition because gardens require care, which is a temporally invested means of engagement. I argue that this emphasis on care needs to be expanded to include the museum. Rather than think of the garden as a special type of museum where flowers are on display, we should think of the museum as a species of the garden, where works of art, animals, or other narratively connected objects are cultivated and cared for. Certainly there is a sense in which curators of museums are charged with caring for their collections. The real challenge, however, is getting the patrons of museums to care in the sense that they too participate in the cultivation of the museum collection in particular and in the world's differential becoming in general.

The kind of wonder that I have described does not spontaneously pop into the habits of a community based on theoretical concepts. Like a garden it takes careful preparation and
ongoing cultivation. For Harrison, care is restricted to human activity and “is constantly being thrown back upon the limitations of its powers of action” and “reminded of its own inefficacy and essential passivity when it comes to phenomena like weather, blight, parasites, and rodents” (Harrison 28). The non-human world, however, is not without care. Although it lacks a certain intentional activity or deliberateness that is found in the care of human actions, the active wondering of objects provides care for the becoming of the world by powering cycles of life and decay. Wonder as an active quality of objects extends the work of care to all objects—the wonder of objects cultivates the mattering of the world. Museums can—and should—play an important role in promoting an attention to the wonder of the world. By looking to the garden as an example, it is possible to think of the museum as an institution that not only guards and amplifies the treasures of a culture but also encourages the care of objects within and without its walls. The claim that objects actively wonder means that different qualities manifest in different contexts and therefore manifest a continually changing world of differential becoming. The cycles of life and decay motivated by this active wondering mark the world as a garden, teeming with more life below the surface than can be witnessed by any given perspective at any given time. The museum, if allowed the opportunity, can activate an attitude of care that would allow us humans to fully recognize both the mystery and the beauty of this world, so full of wonders, that always eludes our grasp.
CONCLUSION

I have argued for an operative wonder that reorients the philosophical concept of wonder away from the limitations of epistemology and into the realm of ontology. Operative wonder, by my account, is located between objects, not as an object itself but as a kind of superposition that generates the iterative, intra-active, becoming of the world. I have argued that such an operative wonder supports the “weird” realism and aesthetic causality of object-oriented ontology as well as the quasi-agency that new materialism has extended to nonliving matter. Further, operative wonder expands the phenomenological concepts of operative intentionality and optimum distance, and the ontological concept of flesh, that are found in the work of French philosopher Maurice Merleau-Ponty. We can now locate these concepts in situations and relations that do not involve human consciousness, thereby taking insights gained from the phenomenological method and extending them beyond the limits of phenomenology.

I have offered the museum as an extended account of how operative wonder might work. Granted, the museum, as an explicitly built environment, is a place that intimately involves humans and human consciousness. More than demonstrate how operative wonder interacts with nonhuman objects, the museum allows us to see how epistemological wonder can transition to operative, or ontological, wonder. If we take operative wonder seriously, then we can no longer think of knowledge as a boundary or capture of any particular object. Our knowledge does not bind objects ontologically. Rather, it articulates only one possible relation between objects that is born out of the superposition that precedes interaction with the
contents of the museum. As such, we can see how objects themselves are generated by the particular context of relations in which they are found. Nonhuman objects in the museum are just as active, if not more active, than human objects in the museum, and even help to constitute the ontological orientation of new human-object assemblages.

My argument for operative wonder does not rely on social constructivism. That is, objects are not determined or constituted by human knowledge, language, or any particular relation. Objects, be they human or not, manifest various powers or qualities given their context and relations, and no object is ever exhausted by any particular relation or set of relations. Operative wonder acts like a kind of superposition that generates the material becoming of the world. Operative wonder, then, is a material concept that both supports and is supported by material realism. I have argued that there is a certain mystery to the world that cannot be overcome by developments in science, epistemology, or any other knowledge based discipline. The unknowability of the world, as argued by quantum physics, phenomenology, object-oriented ontologies, and new materialisms, provides a clue to the workings of operative wonder such that the wonder of the world is a fundamental orientation of the objects found in the world. That is, operative wonder plays an important role in the orientation of being.

One aspect of operative wonder that I have left implicit is the connection to the more politically oriented movements of new materialism. Surely we have seen how the project of re-enchantment is ethically motivated. Both Jane Bennett and Kenneth Schmitz have argued that re-enchantment allows us to treat the world around us in a more ethically rounded way. It is only when we find the world enchanting that we will want to care for it. For Schmitz, this leads him to claim that re-enchantment and wonder expand the scope of our freedom so that re-
enchantment and wonder enable us to break from the sedimentation of habit and expand our
ethical consideration both politically and environmentally.

New materialism, perhaps most properly understood as a feminism, is deeply invested
in the political effects that re-enchantment can have on our political and philosophical
communities. As I have mentioned, Jane Bennett draws an explicit relationship between re-
enchantment and ethics. She deplores our “earth destroying fantasies” that have resulted from
a distinct sense of disenchantment. Science has provided us with an ability to know the world
absolutely, which has in turn locked us into a disenchanted attitude toward the world. The
thesis she develops in *Vibrant Matter* is explicitly focused on articulating a quasi-agency of
matter that challenges such disenchanted versions of scientific realism. For Bennett, like for
Schmitz, when we re-enchant the material world, we are more likely to attend to that world
ethically and respectfully. But beyond the re-enchantment of the world, Bennett also works to
challenge and disrupt the anthropocentric hierarchies of traditional western philosophy. By
demonstrating the liveliness and agential potential in matter, Bennett flips the antiquated
binary that places women on the inactive and oppressed side of form and matter. Karen Barad,
too, takes up and challenges the very concept of boundaries, arguing that objects are
constituted by contextual relations. More specifically, Barad is concerned with showing that
objects do not exist prior to interaction with its context or state of affairs. Rather, the material
becoming of the world is generated via intra-action, whereby objects emerge as phenomena in
a given state of affairs and do not precede those interactions. Objects, thus, are generated by a
material agency of the mattering world. Barad uses her concept of intra-activity to argue for
feminist notions of embodiment that challenge traditional gender roles and classifications.
While operative wonder is not explicitly a feminist concept, I do see a political potential similar to those presented by new materialism. That is to say, beyond the possible applications in the institution of the museum, reorienting our concept of wonder can and, I argue, should have practical and political implications. As I have argued, our experience of wonder leaves us immobilized, in a state of physical stupor and awe. It reorganizes our conceptual understanding of a given situation or context. As such, wonder lacks the kind of domination that we usually think of when we consider our relation to nature. When we experience wonder, our relation to animals, built environments, “natural” environments, other people, or any possible object that we take to generate wonder, is one that is open to a possible reorientation. That, is, wonder activates a kind of superposition of activities that allows us to reconsider or to consider for the first time, our relation to a given state of affairs.

While I do not want to end the conversation at our own experience of wonder, it is a starting point for applying operative wonder in a more politically oriented way. We can think of feminist projects, environmental projects, concerns about race, class, or age in terms of operative wonder. We can redistribute agency, attend to the mystery and generativity of matter, or restructure our understanding of causality in order to reframe our politically motivated endeavors. Our own experience of wonder provides insight into the ongoing wondering of the world that is active in all objects and relations of objects. This is what I intended to demonstrate via the extended example of the museum and its relation to the garden.

While the applications of operative wonder are broad, my hope is that operative wonder is specifically taken up by environmental philosophy. My claims about operative
wonder fit into some more recent developments in environmental philosophy. For example, Steven Vogel asks us to “think like a mall,” given that our concepts of nature have become nullified. Vogel wants to get beyond the distinction between “natural” environments and built environments, and moves the question toward, in Ian Bogost’s words, a kind of “alien phenomenology” or “carpentry” (Vogel 4). Likewise, John Durham Peters argues that we must rethink environments to include media as environments. His “philosophy of elemental media” argues that media are environments that act as “containers of possibility that anchor our existence and make what we are doing possible” (Peters 2). Both Vogel and Peters call for a radical rethinking of environments as such that open new ontological and ethical questions regarding our relation to the environment. Operative wonder is reliant upon a realism that questions the legitimacy of correlationism. As such, operative wonder assumes an eco-centric perspective that aligns with concerns voiced by both traditional environmental philosophy and recent developments in environmental philosophy that call us to rethink what we mean by “environment” before we determine our relationship to that “environment.” I would go so far as to claim that in developing operative wonder, attending to the ontological primacy of objects (be they human or nonhuman), and extending agency beyond the bounds of humans and animals, I am already engaging in an environmental philosophy. Following Bruno Latour, at least as his work is expressed in object-oriented ontology and new materialism, we can say that all objects are actants in a given ecological milieu. Operative wonder, then, is a radical form of ecologically oriented philosophy, or as I have more broadly named it, environmental philosophy.
While many attempts have been made to incorporate re-enchantment as a means to a broader ethical position, we have seen that tools of enchantment can lead us to conclusions contrary to the ones we intended. Museums, shopping malls, and even grocery stores seek to provide an experience of enchantment that often leads to attitudes of consumption.

Enchantment by itself is not enough to reposition our ethical stance toward the environment (broadly construed) because enchantment too quickly gives way to boredom. Enchantment, here, mirrors epistemological versions of wonder by too easily succumbing to knowledge, habit, or tradition. Operative wonder, on the other hand, is continually renewed by the material becoming of the world, by the constitution of new objects, and by the inability to be overcome by claims to absolute knowledge. Recent insights from physicists Nicolai Perunov, Robert Marsland, and Jeremy England even suggest that life emerges from the self-organization of matter through “absorption and dissipation of energy” (Perunov, Marsland and England).

England’s claims reinforce the idea that matter is much more complex than has been traditionally thought, that it displays a tendency toward self-organization and, thus, at least a quasi-agential capacity. The world is mysterious, fundamentally unknowable, and self-organizing. Operative wonder gathers these claims together and articulates an ontological reorientation of wonder that, I argue, can have both epistemological and ethical consequences, especially in terms of our relation to the environment and nature (broadly construed).
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