I think my problem and “our” problem is how to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own “semiotic technologies” for making meanings, and a no-nonsense commitment to faithful accounts of a “real” world, one that can be partially shared and friendly to earth-wide projects of finite freedom.

—Donna Haraway

At least since the time of Descartes and Newton, Western thought has understood matter, including the matter of living bodies, to be basically and primarily mechanistic in nature. But in recent years, philosophers and theorists have been explicitly challenging this ontology and seeking to put forth new, more dynamic theories of materiality. These theories, often grouped under the label “feminist materialisms” or “new materialisms,” offer illuminating accounts of the limits of mechanistic understandings of matter and give some excellent examples of the theoretical and practical benefits of this renewed understanding of matter’s vitality. Their work sets the stage for a revolution in how we conceive of the place of human beings, as creatures of embodied life, in nature and the material world.

Thinking about and theorizing the nature of matter and materiality as it relates to human life has been a central preoccupation of feminist theory for many decades. This is because historically women have been understood to be closer than men to the material aspect of existence. The assimilation of women to matter most frequently functions either as a way to denigrate them as being the more passive sex, or as an explanation for why their subservient roles are fixed in nature and cannot be changed. In both cases, the nature of matter itself becomes a problem for women, and thus for feminist theory. As feminists seek to fight oppression and patriarchy, they have strong motivation to question the nature of materiality itself.

Recent feminist work on the dynamism of matter begins by locating and challenging two key presuppositions of the mechanistic view of matter: that matter is “passive,” and that matter is “separable.” In Western thought, matter is passive in the sense that any impetus for change or dynamism must be given to it from without; it has no agency of its own. When matter moves or changes, it is only behaving according to fixed, universal, timeless laws, or as the product of accidental interactions with other matter also behaving according to these laws. Otherwise, any additional motion or change must come from the active input of an intentional (usually human) subject. Thus, as Diana Coole puts it, “matter is essentially passive stuff, set in motion by human agents who use it as a means of survival, modify it as a vehicle of aesthetic expression, and impose subjective meanings
upon it...Yet is it not possible to imagine matter quite differently: as perhaps a lively materiality that is self-transformative and already saturated with the agentic capacities and existential significance that are typically located in a separate, ideal, and subjective realm? Technological mastery of matter is an intended and logical consequence of the mechanistic view. Matter’s openness to being shaped at our will, its lack of agency, implies that we can safely consider its desire, will, or volition not to be an impediment to accomplishing what we will, if only because matter has neither desire, will, nor volition.

A related element of the mechanistic conception is that matter is separable. This conception entails two consequences. First, it presupposes a substantial divisibility between matter and mind. This mind-body separation has permeated our self-understanding of what it means to be thinking subjects and led many to the conclusion that cognition and thought are not activities of matter or material bodies. As Vicki Kirby writes, “It seems that the Cartesian subject has to admit that s/he has a body (that attaches to the self), and yet s/he is somehow able to sustain the belief that s/he is not this body. This denial is necessary because to contest the latter and all its possible consequences would at least suggest that it might be in the nature of the biological body to argue, to reinvent, and rewrite itself—to cogitate.”

Moreover, a notion of matter as separable also assumes that we can divide matter easily and unproblematically from other bits of matter because matter is made up of parts that are essentially isolable. The classical understanding of the atom is an instantiation of this view. One pervasive consequence of the atomistic understanding of matter is that because matter exists in isolable entities, wholes are nothing more than the sum of their parts. The mechanistic view of matter, therefore, would indicate that the functioning of parts is sufficient to explain the existence and the functioning of the whole. In fact, despite the non-mechanistic developments of quantum physics, modern biology and chemistry as a whole have continued to break material bodies into smaller and smaller constituent parts, assuming that if we do enough research on these parts, we will eventually be able to understand the whole of nature.

In Western thought, matter is passive in the sense that any impetus for change or dynamism must be given to it from without; it has no agency of its own. And nature have been used to delimit women’s roles in society, they have done so without questioning the mechanistic understanding of matter as inert, passive, or separable. The notions of nature and matter as being “fixed” were challenged by feminists because these notions were the ontological basis for essentialist and deterministic claims about women’s inferior abilities, natures, and inescapable roles in society. But feminists challenged this by refusing nature, not by reconceptualizing it. Some attempted to differentiate women from materiality and fixed definitions of their nature by demonstrating the non-natural essence of these definitions—the “social constructionist” approach—while others embraced women’s identification with the material aspect of existence, seeking ways to find empowerment within it. But on the whole the social constructionist approach has dominated feminist theory.

In practice, social constructionist theories of reality tend to subsume nature into culture. Karen Barad describes the problem thus: “Language has been granted too much power...it seems that at every turn lately every ‘thing’—even materiality—is turned into a matter of language or some other form of cultural representation.” The body—including the human body, to say nothing of the rest of the natural world—is a mere blank slate upon which discourse writes its stories, and biology itself has no agential force or dynamism. The body may be culturally or discursively shaped or determined, inscribed, politicized, or performed, but the biological body itself is simply a passive recipient of these activities. Elizabeth Wilson sums up the situation succinctly: “The body at the center of these projects is curiously abiological—its social, cultural, experiential, or psychical construction having been posited against or beyond any putative biological claims.”

This view is deeply impoverished. The lack of understanding of the agency of matter is a source of deep theoretical difficulty across the natural and human sciences. Social constructionist theories affirm the constitutive force that language possesses, but they have no way to explain what, if anything, could constrain this power of language to shape and form.
The time has come to think about another path to freedom from overly restrictive conceptions of nature and biology, to rethink the very reality of nature and of matter itself, and to move away from the deep theoretical divide between the cultural and the natural.

Against the tendency of both post-structuralist and social constructionist theorists to dismiss the active role matter plays in shaping our world, feminist materialists insist that we must reaffirm the ontological significance of materiality. These thinkers demonstrate that we cannot separate matter from mind or from other matter as if matter was an isolable, independently existing entity. Feminist materialism highlights the dynamic relation between mind and matter (including will, intention, intellect, and social and cultural forces), showing how these interact in important and dynamic ways. This relational, interactive matter is not and cannot be inert and passive. Instead, matter is dynamic and has its own kind of agency. Agency, in the most general sense, implies an ability to cause some kind of change. The agential view of matter put forth by feminist materialists in turn implies a renewed understanding of the relationships among ontology, epistemology, ethics, and politics. The work of two thinkers in particular, Karen Barad and Nancy Tuana, provide excellent examples of this perspective.

AGENTIAL REALISM

Karen Barad is co-founder of the Science and Justice Research Center at the University of California Santa Cruz. She offers an account of the dynamism and agency of matter and seeks to reinvigorate the theoretical links between ontology and epistemology. In Meeting the Universe Halfway, Barad puts forth a view that she calls “agential realism.” Her view is like scientific realism in that it accounts for a real material world. But unlike scientific realism, agential realism does not posit matter that is inert and exists separately from mind. Instead, she maintains that matter has agency and is interconnected with human knowers, shaped by them and shaping them as well:

In agential realism’s reconceptualization of materiality, matter is agentive and intra-active. Matter is a dynamic intra-active becoming that never sits still—an ongoing reconfiguring that exceeds any linear conception of dynamics in which effect follows cause end-on-end, and in which the global is a straightforward emanation of the local. Matter’s dynamism is generative not merely in the sense of bringing new things into the world but in the sense of bringing forth new worlds, of engaging in an ongoing reconfiguring of the world.5

She demonstrates this material agency by looking closely at some lessons to be drawn from Bohr’s work about the entanglement not only of material particles with one another, but also of the matter that scientists study with scientific concepts, methods, and laboratory practices. According to Barad, the lesson we should take from quantum physics is that matter does not come in discrete, separate, pre-existing packages that already have concrete properties. Instead, within particular interactions, certain properties become determinate while others are specifically excluded (Bohr’s concept of complementarity).7

This means that the material arrangements of the experimental situation are an important and constitutive component of the physical reality they measure. Indeed, the actual nature of the material world is constitutively underdetermined. The actual “nature” of any phenomenon being studied becomes determinate only within a particular context of engagement. Laboratory experiments designed to measure matter itself as a separate entity actually show that matter and mind (ideas, concepts, and social/scientific practices) are deeply interrelated. In fact, they are all part of the same physical reality. When we distinguish the material “objects” of our study, such as the “particle or wave” nature or “position or location” of particles that quantum physicists study, we can only delineate these objects by making intentional divisions in the world through experimental or other kinds of apparatuses. Our “cuts” help to constitute these objects as what they are.

Nonetheless, objectivity is preserved, according to Barad, because these cuts are reproducible and communicable. Not only this, but such measurements also have definite meaning because matter and material agency contribute to how reality comes to be configured (and perceived). This is true both in the lab and in the world. The shape, size, weight, and availability of materials, the behavior of the matter we are studying (i.e., electrons) and other contingent material conditions actively shape the world we live in.
and study. In fact, the role of matter is so significant that Barad labels the relationship between humans and other agents and material reality as being one of “intra-action,” as opposed to the traditional “interaction.” Agents, human and material, “intra-act” to create specific material phenomena. We are dynamically engaged with matter and it with us. Agency is not a feature of subjects or objects, since these do not pre-exist their active entanglement. Instead, agency is about making change through intra-activity.

Barad seeks to demonstrate the critical epistemological and ethical implications of the originary ontological relationality of matter. Western ontological conceptions of matter as inert and passive are deeply tied up with epistemological theories and assumptions about what can be known by whom and how knowledge is obtained. Traditionally Western epistemology operates on the basis of a subject/object divide in which the knowing subject looks out at a separate and independent material reality that corresponds to, or is represented by, the concepts and other epistemological data (beliefs, ideas, etc.) formed in his mind. In this schema, matter is construed simply as the inert “stuff” of which the known, non-cognitive world is formed.

Against this, Barad argues that: “The commonsense view of representationalism —the belief that representations serve a mediating function between knower and known...displays a deep mistrust of matter, holding it off at a distance, figuring it as passive, immutable, and mute, in need of the mark of an external force like culture or history to complete it.”8 Barad’s work shows that attending to the dynamic nature of material reality changes the possibilities of knowledge and certainty. She also insists that the ontological and epistemological relationality of matter means that we are always already engaged in a relationship of responsibility with the world. Our interactions with matter are ethically charged because of the mutually performative relationship between humans and matter. Responsibility is not something we commit to or choose, but an “incarnate relation that precedes the intentionality of consciousness... [it] entails an ongoing responsiveness to the entanglements of self and other...A delicate tissue of ethicality runs through the marrow of being. There is no getting away from ethics.”9 We are not outside observers, nor the only intentional agents in the world, but we are always interactively responsible for co-creating what is.

INTERACTIONIST ONTOLOGY

Nancy Tuana is the founding director of the Rock Ethics Institute at Penn State University. Her work is similarly oriented toward the epistemological and ethical implications of a more dynamic ontology. Tuana was one of the first feminist theorists to advocate a theoretical shift undermining the ontological and epistemological divide between the natural and the social or the cultural. She calls her view an “interactionist ontology.” Like Barad, Tuana’s call to “interactionism” involves the recognition that the social and the natural are not isolable, pre-existing entities. Instead, they are two forces that interact to bring about the world we know and are. Interactionism therefore requires that we take account of the agency of the material, even while we “rematerialize the social.”

The epistemology called forth by this ontology is both viscous and porous, according to Tuana. Viscosity refers to the resistance of matter to changing form, which makes it thus somewhat reliable as an object of knowledge, while porosity acknowledges the mutual influence of the material and the social.

The assumed ontological divide between matter and mind—between nature and culture—Tuana argues, has deeply impoverished our thinking. Understanding how these aspects interact can reinvigorate the stale debate between social constructionism and realism. As she states in her article “Viscous Porosity: Witnessing Katrina,”

“I have argued that feminists must avoid the divide of realism vs. social constructivism, for neither framework is adequate. Both are embedded in a problematic nature/culture schism that does not do justice to the complexity of interactions of phenomena. Interactionism enables us to dissolve the divisions between these two poles and transform the terms of the debate...Interactionism is a metaphysic that removes any hard-and-fast divide between nature and culture, while at the same time troubling the division between realism and social constructivism...Interactionism posits a world of complex phenomena in dynamic relationality.”10
This interactionist ontology also necessitates a revolution in how we think about the study of the world. As this ontology undermines traditional divisions between “nature” and “culture,” it also undermines the divide between the sciences and the humanities. This makes interdisciplinary work across the sciences and the humanities not merely an option, but a necessity. In Tuana’s words:

The separation of nature and culture has impoverished our knowledge practices. We posit a reasonably predictable natural world and a far less law-governed social realm. The natural sciences emerged from this model of the natural, divorced from the social. The humanities and the social sciences have focused on the social divorced from the natural—representations, meanings, institutions. But the world in which we live cannot be divided in this way into two neat and tidy piles…it is the interaction between them that is the world that we know and are of.¹¹

In “Viscous Porosity,” Tuana demonstrates how this multi-faceted accounting for the agency of matter is also deeply bound up with both ethics and politics. For one thing, our understanding of what is “natural” and what is “social” is really a matter of choice, and thus of ethics. Following Lorraine Code, she insists that these epistemological choices require the exercise of responsibility. In her words:

Interactionism acknowledges the robust porosity between phenomena that destabilizes any effort to finalize a nature/culture divide. We can, and often need, to make distinctions between such poles, but it is crucial not to see these distinctions as ‘natural kinds’ or to read them as reflecting a dualism. In other words, we do not simply ‘read’ such distinctions from nature, but take epistemic responsibility for the distinctions we employ. As Lorraine Code so persuasively argued, we cannot separate epistemological analysis from ethical analysis. To know well, we must be responsive to the differences articulating themselves in our experiences and practices, along with being attentive to how the distinctions we embrace, in part, construct our experiences, as well as how these distinctions are enacted in social practices, how they enable as well as limit possibilities and for whom, what they conceal as well as what they reveal, and so on. Knowledge practices themselves often involve articulations of differences, but with an interactionist understanding of these differences being fluid, unfolding, and situated, epistemic responsibility requires this enhanced responsiveness. Knowing well is a matter both of moral-political and of epistemic concern.¹²

This responsibility is not only epistemological and ethical, but it is also political. Using Katrina as a salient example of an “environmental” event, Tuana argues that we have urgent ethical and political motivations to reconfigure our understandings of materiality and how it is related to sociality and culture. According to Tuana, a “natural” disaster like what happened in Louisiana in the aftermath of Hurricane Katrina can only be properly understood and prevented if we account for the ways the social, political, and natural aspects of the situation interact historically. Not only the warm waters of the gulf, but also the geographical history of the region, the psychology of living below sea level, institutionalized racism and poverty, and the economics of the region and the nation are all part of what made Katrina what it was. She explains, “Witnessing the world through the eyes of Katrina reveals that the social and the natural, nature and culture, the real and the constructed, are not dualisms we can responsibly embrace...Nature/culture is a problematic ontology—not just for the human world, but for what is, as well as what might yet be.”¹³ The various aspects of the Katrina disaster are proof that we need a deeply interactionist ontology and epistemology if our ethics and politics are to be just and effective.

Katrina, herself, and interaction between what we have labeled the ‘social’ and the ‘natural,’ flooded us with thousands of interactions...Witnessing children and adults, the firm and the infirm, struggling to stay afloat, at first literally, and later regarding finding adequate food, water, shelter, we watched a complex interaction between social structures—class, governmental emergency reactions, and so forth—and thousands of human and non-human animals.¹⁴
The poverty, the toxic spills, the breaks in the levees, even the strength of the hurricane—these require interdisciplinary, integrated, interactionist lenses if we are to not only make sense of what happened, but also build a world where another Katrina does not happen. Tuana’s “witnessing” of Katrina is a call to leave behind entirely the ontology division between nature and culture and to understand anew our life and being in the world.

CONCLUSION

Feminist materialism is not simply an account of reality. It also entangles ontology with epistemology, politics, and ethics, showing how knowing the material world differently allows us to acknowledge its influence on experienced reality, thus enabling us to create new ways of doing politics and ethics that move beyond the dualism of biological determinism or unimpeded cultural determination. Reconstruing matter as having dynamic agency is therefore an ethical and political task, as well as an ontological and epistemological one.

NOTES

6. K. Barad, Meeting the Universe Halfway, 170.
7. Ibid., 19.
8. Ibid., 133.
11. Ibid., 209.