

Deboleena Roy

Molecular Feminisms: Biology, Becomings, and Life in the Lab

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Lisa A. Mazzei is a Professor in the Department of Education Studies and an affiliated faculty member in the Department of Philosophy at the University of Oregon. She is a feminist qualitative methodologist and is interested in philosophically informed inquiry that produces research practices that emerge as a process methodology.

Quote: "Thinking about the connections and potential created between molecular biology and feminism, and philosophy and science, Roy thinks with philosophy, specifically with the work of Gilles Deleuze and Felix Guattari and their distinction between the molar and molecular; and with feminist science scholars including Donna Haraway, Isabelle Stengers, and Karen Barad, specifically Barad's concept of agential realism."

Dating to at least the early twenty-first century, scholars in the humanities and social sciences in what are referred to as the *new empiricisms* (Clough 2009), *new materialisms* (for example, Coole and Frost 2010; Dolphijn and van der Tuin 2012), *material feminisms* (for example, Alaimo and Hekman 2008), and *feminist new materialisms* (Truman 2019) have intensified their critique of the foundational assumptions of Western thought that enable and perpetuate binary oppositions such as Same/Other, human/nonhuman, mind/matter, culture/nature, and so on. A specific focus on the ontological grounds on which those distinctions continue to be made and the implications for inquiry is front and center in this work, as are other age-old distinctions such as those between philosophy and science; those philosophy has made between epistemology and ontology; and those epistemology has made between rationalism and empiricism.¹

A timely and welcome intervention is Deboleena Roy's book, *Molecular Feminisms: Biology, Becomings, and Life in the Lab*. Thinking about the connections and potential created between molecular biology and feminism, and philosophy and science, Roy thinks with philosophy, specifically with the work of Gilles Deleuze and Felix Guattari and their distinction between the molar and molecular; and with feminist science scholars including Donna Haraway, Isabelle Stengers, and Karen Barad, specifically Barad's concept of agential realism. Engaging these multiple insights, Roy situates her work, which she names *molecular feminisms*, in the ontological and ethical reorientations made possible by thinking matter, ethics, and knowledge-making practices together.

Keenly aware of the risk that such a project may be unintelligible, she proceeds headlong into this experiment, one with the potential to shift the conversation away from "counterclaims to essentializing or deterministic language, paradigms, and experimental designs in the biological sciences" (5) toward the development of "practice-oriented approaches for feminist science and technology studies (STS)" (6). Written to establish a conversation and shared vocabulary

between philosophy and science, the book continually emphasizes this aim and presents a series of questions that both feminist scientists and scientist feminists may have in common: How do we continue with science after the critiques of science? How do we work toward a biology that we desire? How are we to encounter matter? How can we bring questions of content with us when we do encounter this matter? How can we reconfigure the relationship between the scientific knower and what is to become the known?

The first few chapters of the book are indeed a conversation as Roy develops and explains this shared vocabulary, inviting readers to begin where they are, not from the starting point of justifying the urgency and necessity of this project, but instead from the point of explaining concepts that led to this shared vocabulary that can speak to both philosophers of science or STS scholars, humanities scholars, and scientists in the lab to get things moving. Part of the vocabulary development is a discussion that includes how desire is to be understood, given the writing of Deleuze and Guattari, the juxtaposition of the molar and molecular in the biological as well as philosophical sense, and Barad's concept of agential realism. There is also a glossary that, though by no means exhaustive, at least provides a foothold for readers unfamiliar with this shared vocabulary as they enter this experiment with Roy.

From my perspective as a feminist methodologist who works in the social sciences, the beginning chapters are more accessible and inviting, perhaps because I fall on the humanities side of the equation. In fact, I found myself bogged down in the clinical nature of much of the discussion in chapters 4 and 5 on my first reading, but upon reflection, this was my experience in my first (and early) readings of Barad's *Meeting the Universe Halfway* as I oriented myself to the scientific language of quantum physics (Barad 2007). Returning to those chapters, and reflecting on Roy's desire to produce practices for feminist scientists doing science, I developed a much deeper appreciation for the difficulty of her task and was able to attune myself, not to my own discomfort or lack of knowledge in biology, but to the methodological possibilities and their implications.

In order to commence this experiment, Roy lays out the terms of inquiry in chapter 2, deftly defining how she is working the relations between molar and molecular and agential realism. Laying out the assumptions of each, and returning to the example of how grass creeps in a process of stolon growth presented initially in the introduction, she uses this as a strategy throughout the book to work the connections and communications afforded. Her development of molecular feminisms and mobilization of concepts illustrates an extensive reading across disciplines (for example, feminist methodology, STS, new materialism, continental philosophy, biology, postcolonial theory, and so on). She continually engages the question of how to continue to do science after the critiques of science, offering examples from her own ontological rupture and noninnocent entry into lab spaces. As she states in the introduction, "*Molecular Feminisms* is written from the perspective of a feminist STS scholar who had the benefit of learning from feminist critiques of science," integrating knowledge and a series of questions that emerged from her doctoral training in molecular and reproductive biology alongside her exposure to crucial scholarship in feminist STS.

So, what is this thing called molecular feminisms and what are its implications for life in the lab? As reflected in the title, this is the major contribution of the book. Exploiting the double usage of

the molecular, chapter 2 develops a "cartography for molecular feminisms" (61). One of the driving questions in this development is "what does it mean to start from a place of a consideration of 'life in the lab?'" Whose life? What does it entail? And how does doing and thinking science change when one questions distinctions made in traditional Western scientific practices? As Roy states later in the text, "What is key here is *not to stop* theorizing once we have initiated our ontological, posthumanist, and material turns. We must keep theorizing our way through until we can connect these new insights to our role and contributions as humans within these turns. In addition, our ideas of social justice must apply to all forms of life--from humans to nonhumans, from the organic to the inorganic [living and nonliving]" (166-67). Although I am supportive and sympathetic to these sentiments, I urge Roy and others in this conversation to continue to seek ways to further disrupt the binaries and to think more carefully about how the way in which we use language to make such assertions also functions to maintain these distinctions that she and others are working so hard to rupture. If we are to take Barad's concept of *agential realism* seriously, what is to be gained from these distinctions? If all "matter" is agentic, then is not all matter "alive?" If the relations that we have with bacteria are as entangled as described, then is the distinction between natural and synthetic helpful to maintain? I am not suggesting that we erase difference, but that we consider how the distinctions that are made function as part of the making, or mattering, to use Barad's language.

Roy both defines and explains through example many concepts that she mobilizes in the book. For instance, she introduces Barad's concept of agential realism in chapter 2, citing Barad's discussion of Bohr's point about the nature of reality and that what exists is not merely our knowledge of it. In other words, what becomes known is a result of how things (for example, the knower, the tools of measurement, and discursive practices), intra-act through mutual entanglement and distributed agency. She provides a subsequent example of a famous case of indeterminacy in which Linda Buck, a Nobel Prize winner, retracted the findings from one of her own scientific studies (75-77). Roy goes on to "read" this event, not just from the perspective of how subsequent lab results might have been "fudged," but to ask questions about how this event might be read through Barad's concept of agential realism through a consideration of questions related to ontology, epistemology, ethics, and discursive practices. Roy writes:

From a traditional perspective of scientific method and objectivity, it is hard to say what happened, and perhaps pointing a finger at the postdoc seemed like the easiest thing to do at the time. From the perspective of Barad's practice of encounter, however, we might suggest that the apparatus (that is the combination of all the human, nonhuman, organic and inorganic actors and measuring devices that went into creating the examined phenomenon) changed and thus new agential cuts were enacted. (77)

What are these new cuts that produce a new/different ethical accountability? "What is on the other side of the agential cut is not separate from us" (87). Roy's project is not intended to be a translation of agential realism to lab experiments, but I would like to see more of this work in terms of how we as feminist scientists, both in the lab and in social contexts, account for these indeterminacies and intra-actions in our modes of inquiry.

The questions Roy poses throughout the book speak to the tension between the molar and molecular that she continues to develop in chapter 4, in which she puts the question of ethics

front and center by starting with the question, "should feminists clone?" and offers a model for practice that forces the feminist scientist to wrestle with the necessity to attend to the molar and molecular simultaneously. "It is imperative that the feminist scientist continues to have this relationship, though strained, with the very science and technology that they wish to transform" (157). She further elaborates:

Those who would answer my question regarding cloning with an immediate and resounding "no" may be doing so from a molar position that is bound to Truth. Molecular politics, however, can encourage us to engage with "a world that is technologically and globally mediated." The purpose of having feminists enter into the sciences is not simply to keep the "women in science pipeline" piping. The goal instead is to create new biological knowledge that feminists desire [in a Deleuzian sense]. (159)

What this book opens up in terms of a questioning of method begins before life in the lab. It begins with how we teach both those who will become scientists (feminist or not) and those who are the beneficiaries (or not) of science. And although Roy (and her readers) have benefited from this necessary dialog between philosophy and science, she states early in the book that what has been written into our textbooks is a view from the mythical norm and the subject position of positivity and neutrality from which current and dominant traditions of philosophy and science (molar/majoritarian) have developed their systems of seeing, naming, and defining the world. The questions askable and knowable then are determined by the ontological, epistemological, methodological, and ethical frameworks within this dominant metaphysical tradition. "These frameworks have provided the language, ideas, and experiments for how we can come to know the world and how we are to orient ourselves toward the multitude of others that inhabit this world" (37). Where I would like to see the book take me (and perhaps this is the next project) is to a sustained dialog about what curriculum and training in both the sciences and humanities would look like to provide more opportunities for ontological rupture in order to develop a generation of molecular feminist scientists capable of decolonizing and reframing dominant relations and modes of knowing in both feminism and science.

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¹ For more of this discussion, see St. Pierre, Jackson and, Mazzei 2016.