

**KAREN BARAD, *MEETING THE UNIVERSE HALFWAY: QUANTUM PHYSICS AND THE ENTANGLEMENT OF MATTER AND MEANING***

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By Vita Peacock

Barad raises the curtain with a play, the recently dramatized encounter between two German quantum physicists, Niels Bohr and Werner Heisenberg in 1941, an historical event of which little is known. The scientists discuss the possible development of a German atom bomb. Having previously been close, thereafter the two part company. Opening her substantial monograph with a lengthy critique of the play crystallizes Barad's intentions, and reveals her strongest card. Science, even, (perhaps especially) that of the most microscopic kind, quantum physics, which explores the world at the level of the atomic, may have geopolitical, ethical, and historical implications. The practice of science is shaped by what is deemed to *matter*, at any given time. Reaching willingly into another domain, in this case the world of art, foreshadows the greatest merit of the book, the ease with which Barad dances across disciplinary boundaries with a trickster-like fluidity. In style and content the introduction supports her two-pronged agenda, a novel theory of scientific objects, as well as a novel theory of science-as-object.

Barad calls her philosophy "agential realism". To define it first negatively, her nemesis is a "metaphysics of individualism", the approach which maintains an integrity and independent reality to discrete entities acting in isolation (eg. atoms, humans, apparatuses). Such a metaphysics was disseminated most powerfully by René Descartes' "cut", in which a boundary was erected between subject and object, giving both a mutual independence which enables the former to observe the latter "objectively". Barad invokes this notion of a "cut", but instead it is "agential" (enacted by an agent). Her ontology is predicated on the notion that we are part of the nature we seek to understand, thus carving out a role for subjectivity, and making us accountable for the "phenomena" produced.

This book is a paean to creative criticism. Barad draws heavily on the work of Niels Bohr, extending his insights on the inability to assess both the position and momentum of a particle simultaneously, that what we *know* is determined by the questions we ask and the apparatus used to ask it. She also borrows Haraway's concept of "diffraction", an optical metaphor which permits her to read Judith Butler through particle physics, among others, to add a scientific layer to influential social theories. Yet these are only the acknowledged debts. A notable omission is the philosophy of Alfred North Whitehead, whose "actual entities" are clearly synonymous with her "phenomena", shaped by an "exteriority-within". Furthermore the novelty and complexity of these "phenomena" are presupposed by the notions of substance Aristotle adumbrates in the *Metaphysics*. The pervasive use of the term "nonhuman" also betokens her dependence on Latour, although the latter is hardly mentioned.

Such derivations occlude a startling originality which is characteristic of great work. However Barad comes very close. Her background in theoretical physics enables her to open a much-needed dialogue the sciences and the humanities, one which is as happy discussing social theories of materiality, as the waves and particles which constitute it.

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