Vibrant Matter

a political ecology of things

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tive onto-story. The tale hazards an account of materiality, even though it is both too alien and too close to see clearly and even though linguistic means prove inadequate to the task. The story will highlight the extent to which human being and thinghood overlap, the extent to which the us and the it slip-slide into each other. One moral of the story is that we are also nonhuman and that things, too, are vital players in the world. The hope is that the story will enhance receptivity to the impersonal life that surrounds and infuses us, will generate a more subtle awareness of the complicated web of dissonant connections between bodies, and will enable wiser interventions into that ecology.

Thing-Power I: Debris

On a sunny Tuesday morning on 4 June in the grate over the storm drain to the Chesapeake Bay in front of Sam's Bagels on Cold Spring Lane in Baltimore, there was:

one large men's black plastic work glove
one dense mat of oak pollen
one unblemished dead rat
one white plastic bottle cap
one smooth stick of wood

Glove, pollen, rat, cap, stick. As I encountered these items, they shimmied back and forth between debris and thing—between, on the one hand, stuff to ignore, except insofar as it betokened human activity (the workman's efforts, the litterer's toss, the rat-poisoner's success), and, on the other hand, stuff that commanded attention in its own right, as existents in excess of their association with human meanings, habits, or projects. In the second moment, stuff exhibited its thing-power: it issued a call, even if I did not quite understand what it was saying. At the very least, it provoked affects in me: I was repelled by the dead (or was it merely sleeping?) rat and dismayed by the litter, but I also felt something else: a nameless awareness of the impossible singularity of *that* rat, *that* configuration of pollen, *that* otherwise utterly banal, mass-produced plastic water-bottle cap.

I was struck by what Stephen Jay Gould called the "excruciating complexity and intractability" of nonhuman bodies,[12] but, in being *struck*, I

realized that the capacity of these bodies was not restricted to a passive "intractability" but also included the ability to make things happen, to produce effects. When the materiality of the glove, the rat, the pollen, the bottle cap, and the stick started to shimmer and spark, it was in part because of the contingent tableau that they formed with each other, with the street, with the weather that morning, with me. For had the sun not glinted on the black glove, I might not have seen the rat; had the rat not been there, I might not have noted the bottle cap, and so on. But they *were* all there just as they were, and so I caught a glimpse of an energetic vitality inside each of these things, things that I generally conceived as inert. In this assemblage, *objects* appeared as *things*, that is, as vivid entities not entirely reducible to the contexts in which (human) subjects set them, never entirely exhausted by their semiotics. In my encounter with the gutter on Cold Spring Lane, I glimpsed a culture of things irreducible to the culture of objects.[13] I achieved, for a moment, what Thoreau had made his life's goal: to be able, as Thomas Dumm puts it, "to be surprised by what we see."[14]

This window onto an eccentric out-side was made possible by the fortuity of that particular assemblage, but also by a certain anticipatory readiness on my in-side, by a perceptual style open to the appearance of thing-power. For I came on the glove-pollen-rat-cap-stick with Thoreau in my head, who had encouraged me to practice "the discipline of looking always at what is to be seen"; with Spinoza's claim that all things are "animate, albeit in different degrees"; and with Maurice Merleau-Ponty, whose *Phenomenology of Perception* had disclosed for me "an immanent or incipient significance in the living body [which] extends, . . . to the whole sensible world" and which had shown me how "our gaze, prompted by the experience of our own body, will discover in all other 'objects' the miracle of expression."[15]

As I have already noted, the items on the ground that day were vibratory—at one moment disclosing themselves as dead stuff and at the next as live presence: junk, then claimant; inert matter, then live wire. It hit me then in a visceral way how American materialism, which requires buying ever-increasing numbers of products purchased in ever-shorter cycles, is *anti*materiality.[16] The sheer volume of commodities, and the hyperconsumptive necessity of junking them to make room for new ones, conceals the vitality of matter. In *The Meadowlands*, a late twentieth-century, Thoreauian travelogue of the New Jersey garbage

hills outside Manhattan, Robert Sullivan describes the vitality that persists even in trash:

> The . . . garbage hills are alive. . . . there are billions of microscopic organisms thriving underground in dark, oxygen-free communities. . . . After having ingested the tiniest portion of leftover New Jersey or New York, these cells then exhale huge underground plumes of carbon dioxide and of warm moist methane, giant stillborn tropical winds that seep through the ground to feed the Meadlowlands' fires, or creep up into the atmosphere, where they eat away at the . . . ozone. . . . One afternoon I . . . walked along the edge of a garbage hill, a forty-foot drumlin of compacted trash that owed its topography to the waste of the city of Newark. . . . There had been rain the night before, so it wasn't long before I found a little leachate seep, a black ooze trickling down the slope of the hill, an espresso of refuse. In a few hours, this stream would find its way down into the . . . groundwater of the Meadowlands; it would mingle with toxic streams. . . . But in this moment, here at its birth, . . . this little seep was pure pollution, a pristine stew of oil and grease, of cyanide and arsenic, of cadmium, chromium, copper, lead, nickel, silver, mercury, and zinc. I touched this fluid—my fingertip was a bluish caramel color—and it was warm and fresh. A few yards away, where the stream collected into a benzene-scented pool, a mallard swam alone.[17]

Sullivan reminds us that a vital materiality can never really be thrown "away," for it continues its activities even as a discarded or unwanted commodity. For Sullivan that day, as for me on that June morning, thing-power rose from a pile of trash. Not Flower Power, or Black Power, or Girl Power, but *Thing-Power*: the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle.

The Blackout

The *International Herald Tribune*, on the day after the blackout, reported that "the vast but shadowy web of transmission lines, power generating plants and substations known as the grid is the biggest gizmo ever built. . . . on Thursday [14 August 2003], the grid's heart fluttered. . . . complicated beyond full understanding, even by experts—[the grid] lives and occasionally dies by its own mysterious rules."[14] To say that the grid's "heart fluttered" or that it "lives and dies by its own rules" is to anthropomorphize. But anthropomorphizing has, as I shall argue in chapter 8, its virtues. Here it works to gesture toward the inadequacy of understanding the grid simply as a machine or a tool, as, that is, a series of fixed parts organized from without that serves an external purpose.

To the vital materialist, the electrical grid is better understood as a volatile mix of coal, sweat, electromagnetic fields, computer programs, electron streams, profit motives, heat, lifestyles, nuclear fuel, plastic, fantasies of mastery, static, legislation, water, economic theory, wire, and wood—to name just some of the actants. There is always some friction among the parts, but for several days in August 2003 in the United States and Canada the dissonance was so great that cooperation became impossible. The North American blackout was the end point of a cascade—of voltage collapses, self-protective withdrawals from the grid, and human decisions and omissions. The grid includes various valves and circuit breakers that disconnect parts from the assemblage whenever they are threatened by excessive heat. Generating plants, for example, shut down just before they are about to go into "full excitation,"[15] and they do the same when the "system voltage has become too low to provide power to the generator's own auxiliary equipment, such as fans, coal pulverizers, and pumps."[16] What seems to have happened on that August day was that several initially unrelated generator withdrawals in Ohio and Michigan caused the electron flow pattern to change over the transmission lines, which led, after a series of events including one brush fire that burnt a transmission line and then several wire-tree encounters, to a successive overloading of other lines and a vortex of disconnects. One generating plant after another separated from the grid, placing more and more stress on the remaining participants. In a one-minute period, "twenty generators (loaded to 2174 MW) tripped off line along Lake Erie."[17]

Investigators still do not understand why the cascade ever stopped itself, after affecting 50 million people over approximately twenty-four thousand square kilometers and shutting down over one hundred power plants, including twenty-two nuclear reactors.[18] The U.S.-Canada Power

Outage Task Force report was more confident about how the cascade began, insisting on a variety of agential loci.[19] These included *electricity*, with its internal differentiation into "active" and "reactive" power (more on this later); the *power plants*, understaffed by humans but overprotective in their mechanisms; *transmission wires*, which tolerate only so much heat before they refuse to transmit the electron flow; a *brush fire* in Ohio; Enron *FirstEnergy* and other energy-trading corporations, who, by legal and illegal means, had been milking the grid without maintaining its infrastructure; *consumers*, whose demand for electricity grows and is encouraged to grow by the government without concern for consequences; and the *Federal Energy Regulatory Commission*, whose Energy Policy Act of 1992 deregulated the grid, separated the generation of electricity from its transmission and distribution, and advanced the privatization of electricity. Let me say a bit more about the first and the last of these conative bodies in the assemblage.

First, the nonhuman: electricity. Electricity is a stream of electrons moving in a current, which is measured in amperes; the force of that current (the pressure pushing it through the wires) is measured in volts. In a system like the North American grid, electrical current and voltage are constantly oscillating like a pair of waves.[20] When the two waves are in phase with each other (rising and falling at exactly the same time), one has so-called active power, or the type of power used most heavily by lamps, blow-dryers, and other appliances. But some devices (such as the electric motors in refrigerators and air conditioners) rely also on so-called reactive power, where the waves are not in sync. Reactive power, though it lends no help in physically rotating a motor, is vital to the active power that accompanies it, for reactive power maintains the voltage (electricity pressure) needed to sustain the electromagnetic field required by the system as a whole. If too many devices demand reactive power, then a deficit is created. One of the causes of the blackout was a deficit of reactive power. To understand how the deficit occurred, we need to consider the other actants, including the Federal Energy Regulatory Commission.

In 1992 the commission gained U.S. congressional approval for legislation that separated the production of electricity from its distribution: companies could now buy electricity from a power plant in one part of the country and sell it to utilities in geographically distant locations.

This greatly increased the long-distance trading of electric power—and greatly increased the load on transmission wires. But here is the rub: "As transmission lines become more heavily loaded, they consume more of the reactive power needed to maintain proper transmission voltage."[21] Reactive power does not travel well, dissipating over distance, so it is best if generated close to where it will be used.[22] Power plants are technically quite capable of producing extra amounts of reactive power, but they lack the financial incentive to do so, for reactive-power production *reduces* the amount of salable power produced. What is more, under the new regulations, transmission companies cannot compel generating plants to produce the necessary amounts of reactive power.[23]

Reactive power, vital to the whole grid, proved a commodity without profit and thus came in short supply. Here emerged what Garrett Hardin has called a tragedy of the commons. Though rational for each user of reactive power to increase its demand for the free commodity, the aggregate effect is irrational in that it destroys the wellspring: in a world of finite resources, "freedom in a commons brings ruin to all."[24] The reactive power deficit was an effect unanticipated by human advocates of the regulations that created a huge, continent-wide market in energy trading. Their actions produced unintended consequences; or, to put the point in a vital materialist vocabulary, they were subject to the "slight surprise of action." The phrase is Bruno Latour's, and it refers to an effectivity proper to the action itself, arising only in the doing and thus in principle independent of any aim, tendency, or characteristic of the actants: "There is no object, no subject. . . . But there are events. I never *act*; I am always slightly surprised by what I do."[25]

Neither, says Latour, is the slight surprise of action confined to human action: "That which acts through me is also surprised by what I do, by the chance to mutate, to change, . . . to bifurcate."[26] In the case at hand, electricity was also an actant, and its strivings also produced aleatory effects. For example, "in the case of a power shipment from the Pacific Northwest to Utah, 33% of the shipment flows through Southern California and 30% flows through Arizona—far from any conceivable contract path."[27] And in August of 2003, after "the transmission lines along the southern shore of Lake Erie disconnected, the power that had been flowing along that path" dramatically and surprisingly changed its behavior: it "*immediately reversed direction and began flowing in a giant*

loop counterclockwise from Pennsylvania to New York to Ontario and into Michigan."[28] Seeking to minimize the company's role in the blackout, a spokesman for FirstEnergy, the Ohio-based company whose Eastlake power plant was an early actant in the cascade and an early target of blame, said that any analysis needed to "take into account large unplanned south-to-north power movements that were part of a phenomenon known as loop flows, which occur when power takes a route from producer to buyer different from the intended path."[29] Electricity, or the stream of vital materialities called electrons, is always on the move, always going somewhere, though where this will be is not entirely predictable. Electricity sometimes goes where we send it, and sometimes it chooses its path on the spot, in response to the other bodies it encounters and the surprising opportunities for actions and interactions that they afford.

In this selective account of the blackout, agency, conceived now as something distributed along a continuum, extrudes from multiple sites or many loci—from a quirky electron flow and a spontaneous fire to members of Congress who have a neoliberal faith in market self-regulation. How does this view compare to other conceptions of what an agent is and can do?