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☞ What Flashes Up:
Theological-Political-Scientific
Fragments

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Nature is Messianic by reason of its eternal and total passing away.

—WALTER BENJAMIN, "Theological-Political Fragments"

I set forth how this project—as in the method of smashing an atom—releases the enormous energy of history that lies bound in the "once upon a time" of classical historical narrative.

—WALTER BENJAMIN

THEOLOGY-POLITICS-SCIENCE

Even if the profound economic, social, and ecological crises of the twenty-first century are not the same as those of the first half of the previous century, the global political atmosphere is highly charged and fascism is on the rise once again. Conditions of gross economic disparity, war, loss of habitat and homeland, demonization and racialization of the dispossessed and most precariously positioned, and the militarization of national police forces designed to crush the seeds of revolutionary change that persist in pushing up through the cracks in the seeming **totality of neoliberal capitalism**, are at hand. At this moment, Walter Benjamin's electrifying insights intensify in relevance, crackle with energy, with the potential to break down the ambient ideology of perceived progress and break through the continuum of history, forming conducting paths arcing across spacetimes, constellations of glowing images condensed and crystallized inside the thick-now of the present. For Benjamin, questions of time and justice are inseparable. If the messianic played a role in Benjamin's later thinking, perhaps it was *because* of his political commitment to justice. A key insight of Benjamin's that continues to flash up before us is that the potential for justice exists in the thick-now of the present moment—what Benjamin calls "now-time" (*Jetztzeit*)—and not in pinning political hope on some future time.¹ How can we understand this thick-now that is shot

through with the eternal—time outside of time, other times that are not the this-time of the present—flashing up in each moment? What is the nature of the relationship between the eternal and transitory, the infinite and the finite? Benjamin contends that “a revolutionary chance in the fight for the oppressed past” exists in this very structure of the thick-now, which the historical materialist “recognizes as a sign of a messianic cessation of happening”—a rupture in the continuum of time—a break from the unilinear conception of temporality as the continuous unfolding of the past into the future.² The radical political potential that exists in the thick-now of this moment requires thinking time anew—diffracting the past through the present moment, like the play of light inside a crystal.

This is an essay on theology, politics, and science. It engages with the work of the twentieth-century German Jewish philosopher Walter Benjamin and the philosopher Judith Butler in her writings on Benjamin. And rather than offering a straight narrative, a linear unfolding of a particular storyline, it experiments with montage and fragmentary writing, diffractively reading insights through one another, allowing the reader to explore various crystalline structures that solidify, if only momentarily in the breaking of continuity.

If the combination of Kabbalah and Marxism in Benjamin's work has already been a source of consternation for a number of scholars of his work, then adding quantum physics to the mixture is no doubt to risk an explosion, to say nothing of compounding the misunderstandings. But perhaps this is appropriate, not only because risk is unavoidable in the pursuit of justice, but also because Benjamin makes considered use of the metaphor of explosion, indicative of something essential about his methodology and his politics. On this point Butler writes:

Something flashes up, but something also flashes through a historical continuum, understood as the “historical progress of mankind” that has instituted and even naturalized time as “homogenous and empty.” Sometimes it seems that this flash comes from an explosive device, as when he remarks upon “the awareness [of the revolutionary classes at the moment of their action] that they are about to make the continuum of history explode.”³

Indeed, Benjamin speaks of the need to “blast open the continuum of history.”⁴ How are we to understand Benjamin's reliance on the metaphor of explosion, particularly given its destructive connotations? And if there is in Benjamin's thought the acknowledgment of a certain kind of “destruction” as the condition of the possibility of “construction”—the latter being an essential ingredient in his notion of critique—what is the nature of this “destruction”?⁵

“Benjamin,” writes Susan Buck-Morss, “compares his own activity in ‘constructing’ dialectical images to that of an engineer, who ‘blasts’ things in the process of building them.”⁶ In addition to being a crucial methodological step, for Benjamin, “destruction”—the breaking open of the continuum of history—is a political act, a material de(con)struction of the continuum of history that is the condition of possibility for bringing the energetics of the past into the present and vice versa.⁷

Judith Butler's insightful reading of the nature of what Benjamin calls “divine violence” as a disruption of ongoing state-sanctioned violence is helpful in understanding what is at stake for Benjamin in positing “destruction” as construction's condition of possibility. In Butler's reading of Benjamin's famous Thesis IX on the Paul Klee painting *Angelus Novus*, she wrestles with a perplexing phrase in the thesis that indicates the origins of the famous storm holding the Angel of History back from acting on its desire to redeem the wreckage of the past: The “storm is blowing from Paradise.”⁸ In addition to this specification of the storm's origins—in Paradise—we know something else about it that seems to fly in the face of such an innocent seeming origin: the fact that “this storm is what we call progress,”⁹ which is explicitly identified by Benjamin as a destructive force that leaves much ruin in its wake. How can these seemingly contradictory facts about the storm be reconciled?

Before proceeding further with Butler's analysis, let's recall this famous scene in Benjamin's “Theses on the Philosophy of History” in which he describes the Angel of History with his face “turned toward the past”:

Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing from Paradise; it has got caught in his wings with such violence that the angel can no longer close them. This storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress.¹⁰

Benjamin here offers us two different conceptions of history: The historicist sees a set of events connected by linear causality moving progressively forward into the future in the unfolding of events in “homogeneous, empty time,” whereas, the Angel of History (the historical materialist) “blasts open the continuum of history” enabling a vision of history outside of the temporality of progress.¹¹ As such, the piling up of the wreckage of history appears as a single catastrophe—a past that must be confronted—rather than a chain of events in which time keeps moving on. The angel would like to redeem the past,

awaken the dead, much like the legendary Messiah of traditional Judaism, but a storm called “progress” propels him into the future, preventing him from making reparations. (Benjamin’s story is reminiscent of the Talmudic story about the baby messiah—who was born immediately after the Temple was destroyed and it lay in ruins—being blown away in a storm.)¹² The ruins of the past, what progress leaves in its wake, pile up in this crystallization of history into *now-time*—a “Messianic cessation of happening” that has “a revolutionary chance in the fight for the oppressed past.”¹³ The storm that is propelling the angel into the future is so violent the angel can’t close its wings and stay where it is and attend to the past. But the angel, even as it is driven into the future, nonetheless continues to face the past, which continues to lay claim on the present: “The past carries with it a temporal index by which it is referred to redemption.”¹⁴ But where is redemption—a term traditionally associated with the messianic endpoint, reflecting the beginning point labeled “Paradise”—to be found in this scene of the past’s wreckage?

Butler begins her explanation of the destructive nature of the storm with a question—“If something is being destroyed, is it perhaps forward movement itself?”—that she ultimately answers in the affirmative. “Indeed, if the figure of the storm is the means through which Benjamin introduces a particular notion of the messianic, we will be right to think that the *messianic is not the same as progress*, and whatever destruction it wreaks will be of *something that is itself destruction*.”¹⁵ A critique of the notion of progress is a central theme of Benjamin’s “Theses,” including a certain faith in progress among those on the Left who would invoke it in the fight against fascism. But for Benjamin, progress is powerless to act against the destructive force of fascism: “No unfolding historical development will overcome fascism, only a state of emergency that breaks with a certain faith in historical development.”¹⁶ As Benjamin says, “*One reason why fascism has a chance is that in the name of progress its opponents treat it as a historical norm*.”¹⁷ If both fascism and protests against it function not according to some exceptional mode of operation, but through the usual way things get done, through “democratic” elections and state-sanctioned forms of violence, then resistance to fascism requires a rupture of the continuum of history, the bringing about of a “real state of emergency.”¹⁸ Butler writes: “It is this belief [in progress] that is now wrecked, and that wreckage is what the angel clearly sees.”¹⁹ Crucially then, as Butler reads it, redemption for Benjamin is “a disruption of teleological history and an opening to a convergent and interruptive set of temporalities. This is a messianism, perhaps secularized, that affirms the scattering of light, the exilic condition, as the nonteleological form that redemption now takes. This is a redemption *from* teleological history.”²⁰ Similarly, when Benjamin urges: “It is our task to bring about a real state of emergency” in the face of the perpetua-

tion of state-sanctioned violence, it is not that he is advocating violence, a kind of violence that perpetrates bodily harm, but on the contrary, he is calling for *a disruption of the ongoing violence of the state*.²¹ The messianic is therefore not figured in human form, as Butler compellingly argues, but rather, *the messianic is a break in the continuum of history*.

Importantly, this break in the continuum of history is a highly energetic event. As Benjamin writes in describing the *Arcades Project* to Ernst Bloch in 1935: “I set forth how this project—as in the method of smashing an atom—releases the enormous energy of history that lies bound in the ‘once upon a time’ of classical historical narrative.”²² The enormous energy released from the core of the atom, its nucleus, a mere speck of matter, made headlines around the globe in 1933, based on discoveries by the physicist Ernest Rutherford and his students at the Cavendish Laboratory: From a transformation of elements to the transformation of the world, the highly energetic possibilities were described by Rutherford as an “explosive violence” unleashed from a mere “fragment of an atom” leaving in its wake a profound transformation—the transformation of that very nature of nature that was believed to be fixed and given. From such events new elements are born out of old ones.²³ Little did the world know in 1935, when Benjamin wrote this line, the magnitude of the explosive force that would be unleashed from these discoveries a decade later. But even before the world would be shaken off its axis by the massive destructive forces unleashed on the cities of Hiroshima and Nagasaki, something about immensity or even infinity being contained in the smallest bits had spoken to Benjamin, one might say that this point was at the very core of his theological-political theory, if not his being or, for that matter, all being. Bound up in this tiniest bit of matter, this mere fragment of an atom, is a material force so enormous that its release could reconfigure the material conditions of possibility, the very fabric of *spacetime*, producing a revolutionary chance in the present, in this moment of *now-time*.²⁴

As Benjamin writes in the “Theses on the Philosophy of History”: “Thus [the historical materialist] establishes a conception of the present as the ‘time of the now’ which is shot through with chips of Messianic time.”²⁵ The “time of now” is not an infinitely thin slice of time called the present moment, but *rather a thick-now that is a crystallization of the past diffracted through the present*. Hence, reading against the grain of a historicist account of history in homogeneous empty time, Benjamin’s historical materialist account entails a break in the continuum of history in specific material forms that are *exothermic*—that is, entail the release of energy, whether in the form of the reconfiguring of the nucleus of an atom, the discharge of a massive buildup of electrical potential through lightning flashes, or the reconfiguring of a constellation of atoms through a sudden process of crystallization. References

to these kinds of physical phenomena occur at key moments in Benjamin's writing, and the release of energy sufficient to effect transformation marks the enormous revolutionary potential condensed into a single point: the thick-now of the present.

In an important sense, then, Benjamin's work is already shot through with the scientific, and the conjunction theological-political-scientific does not mark the addition of the third term so much as give it an explicit place in the conversation. In any case, questions of the nature of nature, time, and causality, are surely scientific, as well as political, ones. The point of making science an explicit part of the conversation is not to provide a scientific foundation that validates political and theological frameworks; on the contrary, the point is: to explode the temporality of the modernist conception of science, understood as a progressive process of knowledge accumulation, one embraced not only as the epitome of progress but as its very ideal; to blast apart the notion that science is an independent field of thought driven only by empirical findings devoid of any metaphysical, theological, or political commitments; and to destabilize the high authority accorded to science over all other ways of knowing. The point is also to understand how science deconstructs its own authority: how its own findings undermine the very modernist conceptions on which this progressive narrative rests, such as the scientific belief in the immutability of matter, the Newtonian conception of time as an external parameter that marches forward without interruption, determinism, the nature/culture dualism, and human exceptionalism. (The deconstruction of human exceptionalism is not about not caring about humans but rather about including within the analysis an understanding of how the "human" is constituted and against what constitutive outside.)²⁶ What is at stake, among other things, is a political commitment to undo the inflated authority of Western science, to put science explicitly in the loop of Benjamin's critique of progress and state-sanctioned violence, to rework the practices of technosciences in ways that hold them accountable and responsible for thinking about questions of justice "at the lab bench" (that is, within the very practices of science) while leaving open questions about what constitutes justice and for whom, to decolonize mainstream technoscientific practices while acknowledging and granting authority to alternative and indigenous practices for their scientific contributions, to understand the specific nature of the entanglements of political, economic, technoscientific, and ecological displacements and injustices, to think more carefully about the meta/physical understandings of nature that are always already built into our thinking about the theological-political, and, like Benjamin, to allow critique its constructive element.²⁷ In this essay, I highlight an important Benjaminian feature of critique (that is structurally reflexive or,

rather, diffractive, of his ontoepistemology), by attending to (or at least hinting at) not only the "destructive" and "constructive" dimensions of quantum physics, one of the sciences featured herein, but also the very dynamics of annihilation-creation written into the core of the theory itself. In particular, what is at stake is blasting open the continuum of history, making evident state-sanctioned forms of violence that quantum theory—especially (but not exclusively) in its specific entanglements with the making of the atom bomb—has been a part of, while also breaking open its core to release the energy of its radical political potential.²⁸ This is not to say that all these issues will be fully addressed in this essay, far from it (indeed, this is but a fragment of my ongoing work on this larger project), but rather, the modest contribution here is to begin to open up for further investigation some of the important elements of Benjamin's work in relation to science.²⁹

Making the scientific explicit in the conjunction "theological-political" also provides an opportunity for asking questions about whether new insights might thus be gained concerning long-standing questions regarding the nature of the relationship between the political and the theological. In other words, does working with this theological-political-scientific "mixture" open up thinking not only about the scientific in (intra-active) relationship to the political and theological but also the other elements—political and theological and their conjunction—in new ways? We might ask, for example, given the ongoing debate among Benjamin scholars as to whether the Kabbalistic and Marxist elements of his theory do, or could even possibly, cohere, whether highlighting the scientific dimensions of Benjamin's work lends any further insights. To take one specific tack, we might ask about the following: Given the profound troubling of the traditional notion of time and causality that quantum theory offers, do these shifts in thinking produce a reconstellating of theological-political-cosmological patternings that enable a reassessment of the configurations as previously understood? Which also raises questions of methodology and whether the scientific terms Benjamin calls on might be reconstellated and diffracted back through his methodology.³⁰

Furthermore, in alliance with Butler's radical reclamation and resituating of the Jewish tradition in a way that provides resources from within Judaism for opposing Israeli state-sanctioned violence against Palestinians in all its various forms, while refusing claims of exceptionalism (that only Judaism can provide the ethical and political theory needed to interrupt such violence), this essay seeks to open up further possibilities for rethinking Judaism and in particular realigning it with its stated commitment to justice.³¹ Scientific issues are surely relevant here as well, not only with respect to metaphysical questions but also practical issues, including those of ecological injustice (for example,

water injustice—including issues of differential access, pollution, and diversion of water sources in the region), and other issues, which are not separable from political, economic, and social forms of injustice.³²

ON METHODOLOGY: CRYSTALS, CONSTELLATIONS, AND LIGHTNING

Walter Benjamin was a philosopher of fragments and constellations. Discontinuity and juxtaposition played strongly in his works, over and against continuity and linear succession. This was not an arbitrary, nor particularly aesthetic, choice. As Benjamin understood it, crucial to the pursuit of justice is the disruption of the temporality of progress—the continuous flow of time that leaves the past behind while moving inexorably toward the future. In other words, it is the very notion of time itself as a progression—as a continuous flow of homogeneous, empty moments—that must be interrupted. In Thesis XIII of “Theses on the Philosophy of History” he makes this point directly:

The concept of historical progress of mankind cannot be sundered from the concept of its progression through homogeneous, empty time. A critique of the concept of such a progression must be the basis of any criticism of the concept of progress itself.³³

According to Benjamin, it is the “stubborn faith in progress” (Thesis X) that is undermining Marxism’s revolutionary potential: “Nothing has corrupted the German working class so much as the notion that it was moving with the current” (Thesis XI). For Benjamin, the notion of *progress, together with its affiliates—determinism, teleology, development, evolution, and positivism*—stands in the way of urgently needed historical materialist analyses that “brush history against the grain” of historicist accounts (Thesis VII), which have written into them a certain faith in a brighter future that has yet to unfold. In the “Theses,” Benjamin’s passionate plea to the political Left is to purge itself of the idea of progress and the developmental conception of history that was inherent in German Idealism and interpolated into Marxism through Marx’s “inversion of Hegel.”

In the “Theses,” Benjamin identifies this progressivist temporality as “homogeneous, empty time,” the continuous flow of time as it marches forward without regard to any external forces. Or as Newton wrote in the *Principia*: “Absolute, true and mathematical time, of itself, and from its own nature flows equably without regard to anything external, and by another name is called duration.”³⁴ *“Homogeneous, empty time” is clock time, the time of modernity, capitalism, colonialism, imperialism, industrialism, militarism.*

Train lines, assembly lines, communication lines, time lines. “Now” is the thinnest slice of time: an empty speck. Each moment is the same as all others. Moments lined up like so many beads of a rosary (Thesis XVIII A), forming an unbroken continuous chain of bits of momentariness—an infinitely long chain of infinitesimals. On the assembly line of moments each now is the same as all others, too thin to be of any substance. History is what happens in time, but time itself is independent of history. *Time is universal, continuous, and unstoppable, moving relentlessly into the future.* The past has passed, the future has yet to arrive, and all we have before us is the thinnest slice of a continuum, an ungraspable undifferentiated empty tick of the clock. There is no break; there are no breaks in this continuum of time. Moments slip through our fingers, but progress—the unilinear advance of time—is our insurance, assurance: The next moment, a new moment, will always arrive (just in time) to replace the last. Inevitability drives the assembly line of time. The passage of time unhaltingly moves into the future. Time advances; it progresses; it is what progress is.

Benjamin’s efforts to inspire and contribute to forming a robust historical materialism are directly tied to a reconceptualization of the notion of history, not as something that happens in (the passive flow of) time, but rather as something the materialist is charged to *do* in *making time itself materialize* in ways that have “a revolutionary chance in the fight for the oppressed past.”³⁵ It is worth quoting Benjamin at length on this important point:

Historicism rightly culminates in universal history. Materialistic historiography differs from it as to method more clearly than any other kind. Universal history has no theoretical armature. Its method is additive; it musters a mass of data to fill the homogeneous, empty time. Materialistic historiography, on the other hand, is based on a constructive principle. Thinking involves not only the flow of thoughts, but their arrest as well. *Where thinking suddenly stops in a configuration pregnant with tensions, it gives that configuration a shock, by which it crystallizes into a monad.* A historical materialist approaches a historical subject only where he encounters it as a monad. *In this structure he recognizes the sign of a Messianic cessation of happening, or, put differently, a revolutionary chance in the fight for the oppressed past. He takes cognizance of it in order to blast a specific era out of the homogeneous course of history—blasting a specific life out of the era or a specific work out of the lifework.* As a result of this method the lifework is preserved in this work and at the same time canceled; in the lifework, the era; and in the era, the entire course of history. The nourishing fruit of the historically understood contains *time as a precious but tasteless seed.*³⁶

In this passage on methodology, Benjamin's materialist ontoepistemology shines through. The task of the historical materialist—much like a bench scientist—is not merely to rewrite history, but rather to do something material to history and time itself. The imagery here is packed with laboratory effects like crystallization, explosions, structures, configurations, extractions, and condensations.

Let's unpack some of what is going on in this dense thesis. There is, first of all, the matter of shocking a configuration pregnant with tensions by which it crystallizes into a monad. It is this very structure of the crystal/monad in which the historical materialist can recognize a revolutionary chance in the fight for the oppressed past. Hence, something of the past seems to be immanent in the crystal. Indeed, at the core of "the nourishing fruit of the historically understood" is *time* "as a precious but tasteless seed"—that is, revolutionary potential is immanent in this crystallization of time, blasted out of the continuum of history. As Benjamin repeatedly conjures monads and crystals as primary facets of his materialist methodology, two more quotes could be usefully juxtaposed here as we delve into this further:

If the object of history is to be blasted out of the continuum of historical succession, that is because its monadological structure demands it. *This structure first comes to light in the extracted object itself.* And it does so in the form of the historical confrontation that makes up the interior . . . of the historical object, and *into which all the forces and interests of history enter on a reduced scale.*³⁷

In what way is it possible to conjoin a heightened graphicness [*Anschaulichkeit*] to the realization of the Marxist method? The first stage in this undertaking will be to carry over the principle of montage into history. That is, to assemble large-scale constructions out of the smallest and most precisely cut components. Indeed, to discover in the analysis of the small individual moment *the crystal of the total event.* And therefore, to break with vulgar historical naturalism. To grasp the construction of history as such.³⁸

Here Benjamin speaks of historical forces being condensed on a reduced scale, making up the interior of the object. How is this crystal-like? Is there something of a monadological structure to crystals? How are we to understand this "crystal of the total event"?

Objects are not mere metaphors for Benjamin. They are instances of sensuous materiality. As such, let us take this object in hand and see if we can glimpse something about its structure. First let's recall some basic features of

crystallization. Crystal formation can happen rapidly, or it can take hundreds or even thousands of years. Snowflakes form quickly during their descent to earth, whereas the enormous crystals (one as large as 39 feet in length and 13 feet in diameter, weighing 55 tons) in the Caves of Crystals in Naica, Chihuahua, Mexico, have been growing for half a million years. Whatever the scale, crystals are condensations of history, the frozen traces of forces acting through time.

Crystallization can also happen almost instantaneously, under the right circumstances. That is, there is a way to condense the duration of the crystallization process into a moment, as it were. In particular, crystallization can occur rapidly out of a "supersaturated solution"—a solution that contains more of a dissolved substance (e.g., a mineral) than the solution would normally hold. (For example, while at a higher temperature a solution can hold more of a dissolved substance, as the temperature is lowered the solution can become supersaturated if crystallization has yet to begin.) A supersaturated solution is an unstable configuration in which the crystallization is stalled. One way to get the process going is to "seed" the solution with a "seed crystal." A seed crystal is a small bit of the crystal that has the same structure as the crystal that is to result from the process of **crystallization**. Adding a seed crystal to a supersaturated solution initiates the process of precipitating out the crystals from solution. Once seeded, the crystallization process can proceed very rapidly; in some cases, the crystal forms (precipitates out of solution) in the blink of an eye. The entire "configuration pregnant with tensions" freezes into a crystal in a mere instant. (The seed crystal—the arrest of thinking—is that which "shocks" the configuration, crystallizing it into a monad, much like seeding a supersaturated solution.) The flow—the continuous movement of atoms in a fluid—is arrested at once, leaving a crystal—the condensation of historical forces—in its place. Crystallization is a discontinuous process. There are in fact multiple discontinuities that characterize this process, including the discontinuous change in structure and volume at the point of crystallization.

What else do we know about crystals? Crystallization is a process whereby atoms—parts of which are positively charged and parts of which are negatively charged—are slowed down as the temperature decreases and find very specific ways of configuring themselves according to the interatomic forces based on the specific polarization of the charged configuration. External forces also contribute to the shapes that form out of this "configuration pregnant with tensions." Crystals are patterned repetitions of specific organizations of atoms—they are specific patternings in (of) spacetime. Crystal structures can be discerned through a form of analysis called crystallography.

Imagine taking hold of a crystal and shining light through it. You would see the ray of light being dispersed by the crystal structure. The light rays bend

when hitting the atoms of the crystal, and the deflected rays overlap with one another producing *diffraction patterns*. Diffraction is the physical phenomenon that is the basis of *crystallography*—the technique of using different kinds of waves to map the structure of crystals or even of molecules (Rosalind Franklin discovered the structure of DNA this way).³⁹ A range of different forces acting over time are condensed into this frozen configuration. Shining light on the crystal projects its internal structure outward, producing an image of this structure. In other words, “this structure comes to light in the extracted object itself,” and shining light on the crystal makes a constellation of lights that illuminate the overall structural pattern. Some crystallographic images look just like a constellation of lights dotting the night sky (see Figure 1).⁴⁰

Crystals are distinctive spatial structures, specific patternings, condensations of forces acting *through* time. And yet we are expecting from this, as per Benjamin’s invocation, a disruption of process, a disjuncture not merely *in* but *of* time. The temptation is to read crystals metaphorically, switching spatial patterns for temporal patterns. But it is in fact possible to read the crystal-

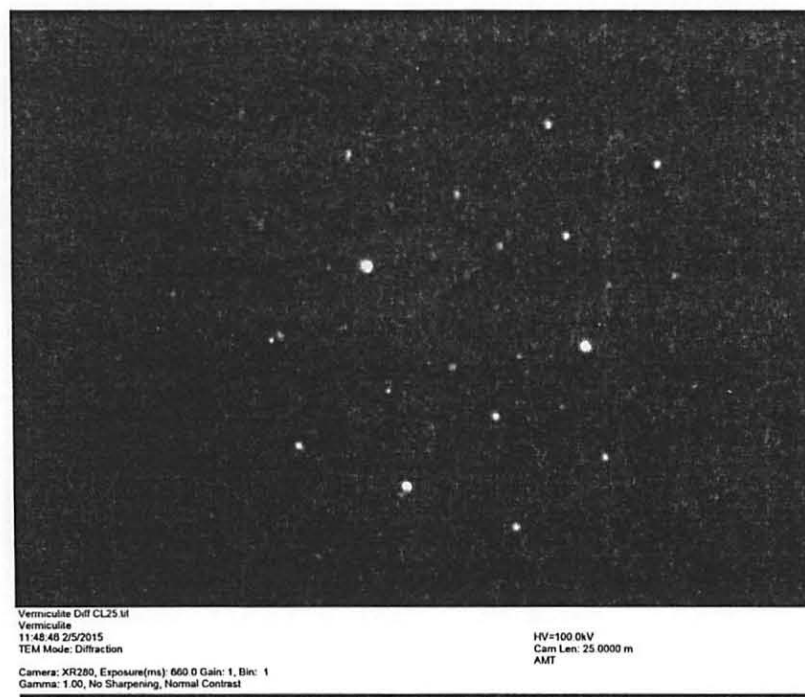


Figure 1. Electron diffraction pattern. (Used with the permission of Materials & Chemistry Laboratory, Inc.)

lization of time—the temporal patternings interior to this monad—from the material crystal we are already holding in our hands.

There’s a marvelous way to think about crystals and the kinds of temporal patternings, condensations, and superpositions that Benjamin invokes by drawing on quantum physics’ radical rethinking of time. One might object that this move would be anachronistic and couldn’t possibly have been what Benjamin had in mind, but that would be to yoke time back into its usual formation, just when its disruption is precisely at issue here. If you’ll permit me to turn the crystal in this way to examine some fascinating patterns for a bit, we can return shortly to an analysis that might seem closer to his text (how do we measure such a distance in any case when discontinuity is at issue?).

It was in the early years of the development of quantum theory, in 1927, in the process of investigating the properties of a material by bombarding it with electrons, that Clinton Davisson and Lester Germer found that the target the electrons had been impinging upon had changed its structure into a crystalline form, which had not been part of the plan of the experiment. The end result, steered as much by serendipity as human know-how, was that the physicists were able to demonstrate the wave nature of electrons by observing that an electron diffraction pattern was produced. The fact that electrons (small bits of matter) can (under the right circumstances) exhibit wave behavior is a well-known feature of quantum theory. Electron diffraction is evidence of the fact that an electron can be in a *superposition of states*—that is, an *electron* is not just in one place at a given time (like a particle), but in fact has an ontologically (*hauntologically*) indeterminate position, and exhibits a material ghostly non/presence in *multiple places at the same time*. It is a much lesser known fact that diffraction can happen not just in space but also in *time*. *Temporal diffraction* is indicative of a *superposition of times*—that is, a *single electron* can be in a *superposition of different times*, that is, materially coexist (*hauntologically* speaking) at multiple times (at once?).⁴¹ *Temporal diffraction* would be a really rich way to think of Benjamin’s notion of *Jetztzeit*, or now-time. *Jetztzeit* is a crystallization of times, of multiple temporalities, blasted out of the continuum of history: a superposition of times—moments from the past—existing in the *thick-now of the present moment*. And in fact, according to quantum physics the past is always open and can be reconfigured, but never in a way that loses track of (i.e., erases the trace of) all that has happened (all the various reconfigurings).⁴² This seems key to the kind of intervention Benjamin would have the historical materialist make: *a reconfiguring of time (spacetime mattering) itself*. Quantum physics has flashed up in our discussion and will now quickly disappear, but only for the time being. Let’s come back to Benjamin’s discussion of a key temporal element in his methodology: *the arrest of time or “dialectical standstill.”*

Benjamin writes about crystallization as coinciding with, or being precipitated out from, an arresting of time, a disruption of the flow of history, what he calls a "dialectical standstill." And in that standstill a crystalline constellation forms.

Within the enlightened consciousness, political-theological categories arise. . . . And it is only within the purview of [political-theological] categories, which bring the flow of events to a standstill, that history forms, at the interior of this flow, as crystalline constellation.⁴³

Constellations, like crystals, seem to be purely spatial arrangements, but Benjamin uses them in a temporal modality: In particular, if "standstill" indicates the arrest of time, the crystallization of history in that configuration indicates an array of times. How can we understand this? When we gaze up into the night sky and see specific spatial configurations of stars we call "constellations," the stars are not all the same distance from us. Some stars are farther away than others. And since the speed of light is a constant,⁴⁴ when we look at more distant objects we are looking deeper into the past. For example, when we look at our closest star, the sun, we are seeing the way it looked eight minutes ago—that is, we are watching in the present something that happened in the past. Staring at a constellation, we are witnessing multiple different pasts in the present, some more distant than others. Constellations are then images of a specific array of past events, a configuration of multiple temporalities, "a constellation in being."⁴⁵

Now, in Benjamin's account, constellations aren't simply evident; rather, they are awakenings:

It's not that the past casts its light on what is present, or what is present its light on what is past; rather, image is that wherein *what has been comes together in a flash with the now to form a constellation*. In other words, image is dialectics at a standstill. For while the relation of the present to the past is a purely temporal, continuous one, the relation of *what-has-been to the now is dialectical: is not progression but image, suddenly emergent*.—Only dialectical images are genuine images (that is, not archaic); and the place where one encounters them is language. □ Awakening □.⁴⁶

In the fields with which we are concerned, knowledge comes only in lightning flashes.⁴⁷

According to Benjamin, an image is something that flashes up: "Image is that wherein what has been comes together in a flash with the now to form a con-

stellation." Hence, Benjamin's lightning flash is not between spatial points but across times.

Let's stop here and touch on the phenomenon of lightning. Lightning is an energizing response to a highly charged and polarized field. Contrary to popular belief, lightning does not proceed in a continuous path from sky to ground. We know that lightning is prone to strike some objects, such as tall buildings, more than others. How can we account for that? That is, how does lightning *know* how to find such objects? Before a lightning bolt is born, the sky and the ground engage in a highly nonlinear form of communication with each other across large distances, vast disjunctures.

As I have written elsewhere,

The **lightning expert** Martin Uman explains this strangely animated inanimate relating in this way: "What is important to note . . . is that the usual stepped leader [an electrical gesture that precedes a lightning strike] starts from the cloud without any 'knowledge' of what buildings or geography are present below. In fact, it is thought . . . that the stepped leader is 'unaware' of objects beneath it until it is some tens of yards from the eventual strike point. When 'awareness' occurs, a traveling spark is initiated from the point to be struck and propagates upward to meet the downward moving stepped leader, completing the path to ground."⁴⁸ What mechanism is at work in this communicative exchange between sky and ground when *awareness* lies at the crux of this strangely animated inanimate relating? And how does this exchange get ahead of itself, as it were? What kind of queer communication is at work here? What are we to make of a **communication that has neither sender nor recipient until transmission has already occurred**? That is, what are we to make of the fact that the existence of sender and receiver follows from this nonlocal relating rather than preceding it? What strange causality is effected?

A lightning bolt is not a straightforward resolution of the buildup of a charge difference between the earth and a storm cloud: a lightning bolt does not simply proceed from storm cloud to the earth along a unidirectional (if somewhat erratic) path; rather, flirtations alight here and there and now and again as stepped leaders and positive streamers gesture toward possible forms of connection to come. The path that lightning takes not only is not predictable but does not make its way according to some continuous unidirectional path between sky and ground. Though far from microscopic in scale, it seems that we are witnessing a quantum form of communication—a process of iterative intra-activity.⁴⁹

All of these strangely nonlocal communicative “gestures” happen before the lightning bolt forms, and even when that visible luminous flow of energy takes place, it does not proceed in a continuous or progressive path: “The part of the channel nearest the ground will [flash first], then successively higher parts, and finally the charge from the cloud itself [drains and makes visible flashes of light].”⁵⁰ Lightning flashes have no truck with traditional conceptions of causality or a unilinear progressive notion of temporality. An arcing dis/juncture, lightning is a connective thread, a *luminous entanglement*—and, I would argue, the way to understand this *entanglement* is in the technical sense that quantum mechanics understands the term—not as a connection between two preexisting objects at different places and times, but rather an intra-action through which “this” and “that,” “here” and “there,” “now” and “then” are formed. *Lightning is a jagged dis/continuous “moving toward” with innumerable interruptions.*⁵¹

Benjamin understands what-has-been diffracted through the now-time-being in a “dialectical reversal”; that is, the past remains open to what it might yet have been: “What has been is to become. . . . The facts become something that just now first happened to us.”⁵² Rolf Tiedemann, the editor/assembler of the posthumously published Benjamin work, *Passagen-Werk* (translated as *The Arcades Project*), further explains:

The object of history goes on changing; it becomes “historical” (in this word’s emphatic sense) only when it becomes topical in a later period. Continuous relationships in time, with which history deals, are superseded in Benjamin’s thought by constellations in which the past coincides with the present to such an extent that the past achieves a “Now” of its “recognizability.” Benjamin developed this “Now of Recognizability,” which he sometimes referred to as his theory of knowledge, from a double frontal position against both idealism and positivistic historicism. . . . That the lineaments of the past are first detectable after a certain period is not due to the historian’s whim; it *bespeaks an objective historical constellation*.⁵³

As Benjamin puts it:

History is the object of a construct whose site is not homogeneous, empty time, but the time filled by now-time [*Jetztzeit*]. . . . To write history . . . means to cite history.⁵⁴

Quantum physics has wrangled its way in again, this time “flashing up” through a markedly macroscopic phenomenon—lightning flashes—which play a key

role in Benjamin’s theory. Quantum physics radically disrupts the notion of “homogeneous, empty time.” Time takes on an entirely different, and much more active, set of features. These include possibilities such as temporal discontinuity, temporal diffraction, temporal entanglement (relevant both to lightning and the “dialectical reversal” in Benjamin), and the “condensation” of time into an instant (a quantum field theory phenomenon related to temporal indeterminacy)⁵⁵ that seem to go to the core of Benjamin’s notion of the dialectical image. (But now, appropriately enough, in introducing quantum physics, we have already gotten ahead of ourselves. More on this in the following sections.)

Lightning, constellations, and crystals play crucial roles in helping Benjamin articulate his notion of a *dialectical image*, which is the centerpiece of his methodology and (onto)epistemology.⁵⁶ For Benjamin, crystallization emerges with/in the temporal discontinuity, in the breaking of time’s continuum. That is, it is the halting of time—the introduction of an essential discontinuity—that constitutes (and is coincident with) the seeding of the crystallization of multiple temporalities into a temporal pattern/ing outside of the flow of time. The past is not left behind, but rather, is diffracted through/in *Jetztzeit*, the now-time of the present moment. Energy is released in this crystallization, this reconfiguring of time, that takes place in the messianic cessation of happening. And as light diffracts through this crystal structure, “the genuine historical image” “flares up briefly,” offering the historical materialist a revolutionary chance in the fight for the oppressed past.⁵⁷ That is, in/through this arresting of time, history—blasted out of a linear narrative of happenings in homogenous, empty time—becomes a *materialization of time (spacetime mattering)*, a dialectical reconfiguring of time itself: The materialization/reconstellation/crystallization of time and history is made possible in the flashing up of images, luminous points of light, sparks released from the small individual moment of the crystal of the total event, if only momentarily. Crucially then, Benjamin’s methodology constitutes a material intervention into the making of time and history.

Benjamin’s is first and foremost a materialist methodology. According to Rolf Tiedemann, “Benjamin’s intention was to bring together theory and materials, quotations and interpretation, in a new constellation compared to contemporary methods of representation.”⁵⁸ Benjamin sought in the method of montage an alternative to representationalism and a robust historical materialism that breaks with the temporality of progress. The material fragments are neither to be read as causally linked (in the sense of linear causality) nor merely analogous. Rather, they are to be picked up like crystals, and turned around and around allowing the light to diffract through them, seeing the overall pattern that is already inside each fragment but also watching entire

constellations of insights flash up, if only momentarily. How else might one have a chance of grasping the complex and intricate play of different forces that are condensed and concentrated into each object?

What I have discussed so far is one way of putting together some of the scattered fragments of Benjamin's discussion of dialectical images. It is a way that tries to make sense of the specifically material dimensions of his method, by fleshing out some important scientific and sensuous features of the particular objects that form the core of his method. My agential realist reading of these scientific phenomena (and my diffractive methodology)⁵⁹ joins with Benjamin in taking neither time nor being as a given, but rather understands time-being as something that materializes, as a specifically political and material practice, an iterative practice, a chance for intervention that is attuned to the possibilities for liberation, for justice, in the now of the present moment.

I am not proposing this as a historically situated reconstruction of how Benjamin understood things. I am not suggesting that he knew all details of the physics (let alone the quantum physics that is hinted at just a bit here, although much of the construction of the quantum theory took place in Europe in the 1920s and 1930s), or that he was somehow prescient about physics yet to come. There would be something ironic about making an argument of this kind and offering a seamless narrative that (presumes to) unfold(s) what Benjamin (already) had in mind, given that this kind of historical reconstruction must assume the very notions of history and time that Benjamin is criticizing. At least it would be an odd sort of thing to do without honoring the dis/junctions and dis/continuities.⁶⁰

In what follows, and doesn't follow, in a break that is about to happen—a dis/continuity in form, a break in the flow of the essay—I invite you to participate with me in a mini-montage/diffraction experiment, where no linear narrative will be offered. I will place before us some fragments, in the style of Benjamin's *Arcades Project*, including insights from Kabbalah, quantum physics, and Benjaminian philosophy (drawing heavily on Butler's commentary) and let us see what constellations form and what flashes up. But first some preliminary remarks.

ON THE FRAGMENTS THAT FOLLOW

For someone who sought to blast open the continuum of history, an assemblage of fragments seems quite apt, and speaks not only of the ruins but also of innumerable possibilities for re-membering the past and conceptualizing history anew. Benjamin's *Arcades Project* is a collection of fragments, including reflections of various lengths and individual passages from various texts copied down as individual notes and assembled in constellations suggesting multiple reverberations or diffraction patternings among the fragments.

The next section of this essay begins the montage/diffraction experiment and contains theological, political, and scientific fragments, including passages from Walter Benjamin, Butler's readings of Benjamin, Kabbalah, Marx, and quantum physics. It is crucial to understand that just as there is no singular Benjaminian philosophy, or Marxism, or Kabbalah, there is no singular interpretation of quantum theory. There are in fact a host of different interpretations. In part because of the elevated authority accorded to science, there is a general tendency to accept anything that physicists have said about quantum theory as a statement of fact and to believe that it is fair game to select these different "facts" about quantum physics and paste any subset of them together as if this constitutes a coherent interpretation of the theory. To make matters worse, physicists are not always upfront about the fact that there are multiple and competing interpretations of quantum theory, and they often do not specify which interpretation they are using when they make pronouncements about quantum physics. In fact, physicists sometimes fail to appreciate difference in interpretational stances in their own presentations and thinking about these matters (both in their popular writings and their research papers). (The fact that physicists and philosophers of physics often speak of the work of Niels Bohr, Werner Heisenberg, and Erwin Schrödinger as making contributions toward a single interpretation—"the Copenhagen interpretation"—is a case in point, since these founding fathers of quantum physics fundamentally disagree about crucial interpretative issues.)⁶¹ An antiphilosophical culture (which can be characterized by the widely known adage familiar to physics majors trained in the United States: "Shut up and calculate"), has predominated since the center of physics shifted across the Atlantic in the mid-twentieth century, and it has not served physics well. As for the stance I am using here, all the quantum physics fragments that I share here are based on my agential realist interpretation of quantum physics. Significantly, this particular interpretation of quantum physics is intentionally constructed in conversation with critical social and political theories, including Marxist, feminist, queer, critical race, poststructuralist, deconstructionist, postcolonial, decolonial, and science studies theories.⁶² This already underlines the important point that none of the three arms of the theological-political-scientific conjunction are separable from the others, which is not to say that they are identical; rather, each is entangled with, shot through with, the other.⁶³

The fragments from Benjamin and Butler's reading of Benjamin constellate around the theme of the nature of the relationship between the transcendent and the immanent, the divine and the profane, the eternal and the transient, the infinite and finite beings. The center of gravity is Judith Butler's remarkable essay "One Time Traverses Another: Benjamin's 'Theological-Political Fragment.'"⁶⁴ Butler begins this essay with the question of "whether Benjamin

understands the divine as a purely immanent feature of the world," and responds with a rather complex suggestion: "The eternal . . . *traverses* the transient without exactly becoming transient and losing its status as the eternal."⁶⁵ She also puts it this way: "The immanent is itself *broken up or traversed* by what is eternal, which means that the eternal is both a feature of immanence and yet irreducible to it—it can be in it or of it without being fully encompassed by it."⁶⁶ The key point then is to "understand how one time *traverses* another without precisely that first time being absorbed by and contained in or by the time traversed."⁶⁷ The explication of the nature of this "traversal" is what occupies her in the rest of the essay. In order to address this, Butler carefully traces Benjamin's notion of the messianic, especially as he expresses it in the "Theses on the Philosophy of History" (the final work he penned). Butler writes: "In my reading of Benjamin, the messianic does not, and cannot, follow the trajectory of revelation. Rather, it is figured time and again in Benjamin's work as the traversal of one temporal modality in and through another."⁶⁸ I will not be offering a full presentation of Butler's ideas here, nor, for that matter, any of the other subject matters that this essay engages with, including quantum physics, agential realism, and Kabbalah.

The theological fragments that appear in the next section are drawn from a range of Jewish theological texts. There is no one book that constitutes the sum total of the Jewish tradition, and "the Book" is, if anything, an ongoing deconstruction and dispersal of itself. As Marc-Alain Ouaknin explains in *The Burnt Book: Reading the Talmud*, the Jewish textual tradition is not one, and is never settled: "The Book . . . is not a 'compilation,' a 'manual.' It is not the scene of a gathering together of signs; it is not a system. The Book is the scene of the 'impossible simultaneity of meaning,' of the 'nonassemblage,' and the unsynchronizable." It is a dissemination of meanings, the blasting open of sedimented ways of thinking. Ouaknin writes:

The relation of the Book and time appears, then, as a fundamental relation by the fact that the Book is—or should be—the breaking up of the synchronizable, that is to say, of the recollectable. . . .

The Book will always be the future book, the "book yet to come" [*à-venir*] or, simply the future [*avenir*]. The Book, by its impossibility of settling down in the "now," helps us to attain discontinuity and time-as-discontinuity. The Book introduces us into a time that "adds something new to being, something absolutely new."⁶⁹

The question of temporality is at the forefront of that which constitutes the tradition, not as preservation and recollection, but on the contrary, as that which is iteratively reconfigured and never settles.

Interpretation cannot be repetition. The creation of meaning is a creation-production of time. We could be brought around to define a new time that is not the measurable time of the "watch or the calendar," but that of the creativity of interpretation. We could talk about "*Hidush* [new] time" or about "Talmudic time." In this way we would think, not about the change that is produced in time, but about time through change, and change through the speech of *Hidush*; "*Hidush* time" is the founding of History, of the World and Being. It is no longer a subjective or internal time, where time accelerates or slows down with the intensity of life, and of the events that fill existence. It is an ontological time. It is a time that "adds something new to being, something absolutely new." . . .

The importance of *Hidush* lies in the fact that it introduces a discontinuity into the rhythm of consciousness and into the process of being: it shatters the block of being.⁷⁰

While Ouaknin does not mention Benjamin in *The Burnt Book*, the imagery that he uses is one of blasting, bursting open, and scattering the words and sentence to effect a complete reorganization of meaning.

Let us point out that what is important is not to rediscover [the original words] but to understand the scattering and bursting movement of the sentence and words and the way they are reorganized. . . . Reading becomes possible only by "leaps."⁷¹

There is even the invocation of this crystal-like image: "You must turn them over, turn them around again showing up all their facets in the hope that a gleam will burst forth."⁷² And like Benjamin, Ouaknin also underlines the importance of a "destructive" element in the constructive methodology of reading according to *Hidush* time:

One must adopt a fundamentally critical attitude that one might call "destruction" in order to emphasize its radicality and importance. It is a matter of a totally positive act of destruction that will allow a man "to open himself up 'anew.'"⁷³

This is not to say that Benjamin mimics or follows this particular practice or that there is something essentially Talmudic in his approach. Neither is it to argue for some exclusionary or essentialist practice unique to Judaism. On the contrary, it points to a de-essentializing, indeed, radical approach to the tradition that is already part of the tradition.

In this spirit, my presentations of Jewish theological ideas in what follows are always-already shot through with my readings of quantum physics, which are shot through with readings of Butler and Derrida, which are shot through with a political commitment to unsettling and blasting through the alluvium of injustices that block the flow of the lifeblood of the planet, including all its inhabitants, from circulating in ways that support mutual thriving and survival in our cohabitating intra-dependence.

FRAGMENTS, CONSTELLATIONS, AND DIFFRACTED ILLUMINATIONS

*B'reishit. In the beginning of ...*⁷⁴

The great medieval Torah commentator Rashi warns: Do not read the opening line of Genesis as "In the beginning God created the heavens and the earth ..." because this is not what the Hebrew says. In fact, the grammatical construction of the opening sentence of Torah doesn't make sense. "*B'reishit*," the first word, is in "construct form," meaning that it should be the first of two nouns in a row, that would be translated: [the first noun] of [the second noun], as in *B'nei Yisrael*, "the children of Israel." "*B'reishit*" thus means "in [a/the] beginning of ..." and there is no noun that directly follows. In fact, Rashi writes: "This verse says nothing but *darsheini*—'Expound me!'"⁷⁵ That is, according to Rashi, the opening word of the Torah is just that: an opening—an invitation to interpret; it is in effect an injunction against the very possibility of literal interpretations of the Bible. This invitation, which is integral to the Jewish tradition, has been taken up with great enthusiasm (*midrash*, hermeneutics, etc. etc.). Volumes have been written on the meaning of just this first word, *B'reishit* (e.g., *Tikkunei Zohar*). It could be said that *B'reishit*, the opening word of Torah, signals the indeterminacy of the whole: for the words of Torah lack vowels, which forecloses the possibility of the determinate specification of many of the words. The opening is nothing but an emphasis on the text's ongoing openness: on the lack of determinacy. Creation is an indeterminate matter. And the first word of the Torah, what seems to start out as the articulation of a beginning, uses the word beginning in such a way that it interrupts itself to question the very possibility of origin, linear temporality, determinism, and determinacy.

B'reishit. In the beginning of ...

In the beginning ... there was an interruption, a rupture, a break in the continuum of time before time

a disruption, a hesitation, a pause, a stutter, a disjuncture, a cut. In the beginning of ... before we even get to the beginning of ...

there is a break that disrupts the very possibility of origin and the unilinear unfolding of

In the beginning that was an originary dis/continuity that breaks open the continuum of time, before it gets started, before there is a beginning.

"This 'beginning,' like all beginnings, is always already threaded through with anticipation of where it is going but will never simply reach and of a past that has yet to come. It is not merely that the future and the past are not 'there' and never sit still, but that the present is not simply here-now. Multiply heterogeneous iterations all: past, present, and future, not in a relation of linear unfolding, but threaded through one another in a nonlinear enfolding of spacetime mattering, a topology that defies any suggestion of a smooth continuous manifold. Time is out of joint. Dispersed. Diffracted. Time is diffracted through itself. It is not only the nature of time in its disjointedness that is at stake, but also *disjointedness itself*. Indeed, the nature of 'dis' and 'jointedness,' of discontinuity and continuity, of difference and entanglement, and their im/possible interrelationships are at issue."⁷⁶

"To Robespierre ancient Rome was a past charged with the time of now which he blasted out of the continuum of history. ... It is a tiger's leap into the past. This jump, however, takes place in an arena where the ruling class gives commands. The same leap in the open air of history is the dialectical one, which is how Marx understood the revolution."⁷⁷

Quantum leap—a discrete "jump" from here-now to there-then without being anywhere in between (original definition).

Quantum leap—a radical discontinuity, a breaking in continuity so profound that not even the boundary (discontinuity) between continuity and discontinuity can hold (according to agential realism).

"Quantum 'leaps' are not mere displacements in space through time, not from here-now to there-then, not when it is the rupture itself that helps constitute the here's and now's, and not once and for all. The point is not merely that something is here-now and then there-then without ever having been anywhere in between—that's bad enough, of course—but that here-now, there-then have become unmoored: there's no given place or time for them to be."⁷⁸

Quantum—an originary dis/continuity, not in space through time, but in the iterative intra-active constitution/reconfiguring of spacetime(mattering). Dis/continuity—neither continuity nor discontinuity but rather *cutting together-apart* (one move). *Intra-actions* cut together-apart, differentiate-entangle. *Intra-action*, not interaction. Causality reworked: cause does not precede effect, no subject/object; "subject" and "object," "cause" and "effect" are mutually constituted in and through intra-action in "a 'holding together' of the disparate itself."⁷⁹ "Agential cuts—*intra-actions*—don't produce (absolute) separation, they engage in *agential separability*—differentiating and entangling (that's one move, not successive processes)."⁸⁰ *Quantum*—that which distinguishes Newtonian physics from quantum physics. There is no "quantum world"—a natural quarantining of quantum queerness, keeping it at a safe distance from the quotidian, the realm of "normal" events. The attempts to safeguard the everyday from the queerness of quantum phenomena is merely an instance of queerphobia, not an empirical fact.⁸¹

In the Passover story, liberation from slavery was a matter of a *dillug* (leap)—an interruption of history—a breaking through by *passing over*: a quantum leap. A new calendar, a break from the continuum of oppression. A splitting of the sea, a rupture in the continuum, and a journey across the desert to bring forth new possibilities (see quantum field theory, quantum vacuum, nothingness). *Dillug*—a quantum leap: not from here to there, now to then, but rather, an entanglement of here-there now-then, a material reconstellating of spacetime(mattering).⁸²

"What characterizes revolutionary classes at their moment of action is the awareness that they are about to make the continuum of history explode. The Great Revolution introduced a new calendar. The initial day

of a calendar presents history in time-lapse mode. And, basically, it is this same day that keeps recurring in the guise of holidays, which are days of remembrance. Thus, calendars do not measure time the way clocks do; they are monuments of a historical consciousness."⁸³

Revolutionary actions require breaks in the continuum—temporal dis/continuities, a dis/jointure of time. (Derrida's *Specters*, the specters of Marx, surely haunt these temporal reimaginings/reconfigurings.) Revolution: an interruption, a break in historical continuity, a disruption/reconfiguring/reconstellating of the current material conditions of possibility, effecting an opening up of/to what-might-yet-have-been-and-might-yet-be. New calendar, messianic time—a flashing up of the covered-over calendars of the oppressed, monuments to historical consciousness.⁸⁴

Rashi begins his commentary on the first word of Torah (*B'resheet*) by asking why the Torah doesn't start with the first commandment, rather than with the beginning which is not a beginning. The first commandment given to the Jewish people does not happen at Mount Sinai, but before that, just prior to their exodus from Egypt. The first commandment occurs in the middle of the Torah, in the third book of Moses, and yet it does mark an origin of sorts. Not a beginning in time, but *of* time. The first commandment in the Torah is to disrupt time—to make a new calendar, a new temporality: "This month shall be for you the beginning of months; it shall be for you the first of the months of the year" (Exodus [*Shemot*] 12:2). Rashi writes: "[God] showed [Moses] the moon in its renewal and said to him, 'When the moon renews itself it will be the beginning of months for you.'"⁸⁵ The Jewish people are commanded to count the months by the moon. In Hebrew the word "month" (*Hodesh*) is from the same root as "new" ("innovation") (*Hadash*): the new moon—which marks the beginning of the month—brings renewal, not mere repetition, but iteration. Unlike calendars that track the sun, thereby keeping the cycles the same, such as the Julian and Gregorian calendars, the lunar calendar has a different rhythm, a reminder that change is possible. Each new moon is a minor holiday. A new moon, a new month, the new month of *Nisan*—the new moon preceding the full moon of the Passover holiday, a new year; one of four new years in the Jewish calendar;⁸⁶ a calendar synchronized to temporal indeterminacy.

* * *

"The importance of *Hidush* (new) lies in the fact that it introduces a discontinuity into the rhythm of consciousness and into the process of being: it shatters the block of being."⁸⁷

* * *

The commandment to count time by the moon appears right before the Exodus because counting by the moon is connected to liberation: "The sun has no sort of newness or change, it is always in a fixed position and never changes itself, but the moon is continually in a situation of change and self-renewal. It has small self-renewals every day and every hour, and at every time it is in a different and unique position, no day is similar to another; and it has a great self-renewal each month, in that a time comes when the moon makes itself small, until it reaches complete nothingness ... and then the light of the moon returns and renews itself. ... Every hour in a [being's] life is a unique situation unto itself, and one is always able to renew oneself as a new creature."⁸⁸

* * *

The Jewish calendar is attuned to change and to remembering, attuned to multiple rhythms at the same time—one *rhythm traversing another*: the phases of the moon and the movement of the sun in the sky. Celestial beings in motion, wheels within wheels, free will within determinism, a shattering of linear causality based on linear time. Syncopated to the rhythmic pull of two large forces: the moon and the sun. The number of months in a year is twelve, except when it's thirteen. The stars matter but are not determinative.⁸⁹

* * *

Jewish holidays are days of remembrance—of re-memberings, of material entanglements to other times, to past moments that are alive in the present, not merely as idealized visions within the mind of individual selves, but brought into existence in the now-time of the present through iterative communal material acts. Not eternal return but rather eternal recurrence, each iteration with a difference. The holidays are portals in time, openings to re-membering, reconfigurings of time-being. The past remains open to what might yet have been. Not looking back at the past, but bringing the past into the present: a simultaneity (coexistence) of times—multiple times at the same time: *Jetztzeit-Jetztseins*. Time-lapse mode—history condensed into the present

moment: a monad, a diffracted heterogeneous moment of time, now-time-being.⁹⁰

* * *

"Physicists now claim to have empirical evidence that it is possible not only to change the past, but to change the very nature of being itself ... in the past."⁹¹ "The point is that the past was never simply there to begin with and the future is not simply what will unfold; the 'past' and the 'future' are iteratively reworked and enfolded through the iterative practices of spacetime mattering."⁹²

* * *

"What has been is to become. ... The facts become something that just now first happened to us."⁹³

* * *

Temporal indeterminacy, time diffraction, temporal entanglements. A given object can be in a superposition of positions: two or more places at the same time. This is an expression of spatial indeterminacy. Less well known, but also empirically verified, is the fact of *temporal indeterminacy and temporal diffraction*: the fact that an object can be in a superposition of times—multiple times at the same. ... hauntologically coexisting multiple times in the here-now of time-being. Multiple temporalities, diffracted in, threaded through this moment.⁹⁴

* * *

"The appearances of superposition, of overlap, ... come with hashish."⁹⁵

* * *

"Remembrance is not about demonstrating or telling a history, and neither is it finally about the excavating and subsequent monumentalization of a past. ... Remembrance works against history, undoes its seamless continuity ... [the] breaking forth of another temporality into one characterized by its uniformity and its progress."⁹⁶

* * *

The past is not fixed, not given, but that isn't to say that the trace of all memories can simply be erased. Memory is not a mere property of individual subjects, but a material condition of the world. "Memory—the pattern of sedimented enfoldings of iterative intra-activity—is written into the

fabric of the world. The world 'holds' the memory of all traces; or rather, the world is its memory (enfolded materialization)."⁹⁷

"The soothsayers who found out from time what it had in store certainly did not experience time as either homogeneous or empty. Anyone who keeps this in mind will perhaps get an idea of how past times were experienced in remembrance—namely, in just the same way. We know that the Jews were prohibited from investigating the future. The Torah and the prayers instruct them in remembrance, however. This stripped the future of its magic, to which all those succumb who turn to the soothsayers for enlightenment. This does not imply, however, that for the Jews the future turned into homogeneous, empty time. For every second of time was the strait gate through which the Messiah might enter."⁹⁸

"Everything is foreseen, and free will is given."⁹⁹

Every year at Passover, each Jew is obligated to see themselves leaving the Narrow Place (*Mitzrayim*).¹⁰⁰ Every year, each day, each moment. A syncopation of rhythms. Wheels within wheels. Each day, each Jew is commanded to remember, or rather, to re-member, that you too [here-today] are enslaved in the Narrow Place (*Mitzrayim*) and require a *dillug*, a break in the continuum of time.¹⁰¹ A stopping of time, to take in the fact that Israel is both oppressed and oppressor. An olive on the seder plate (to remember the oppression of Palestinians under Israeli occupation). A re-dedication to work for justice for all peoples, all beings.

Quantum "entanglements are not intertwining of separate entities, but rather irreducible relations of responsibility. There is no fixed dividing line between 'self' and 'other,' 'past' and 'present' and 'future,' 'here' and 'now,' 'cause' and 'effect.' ... Entanglements are not a name for the interconnectedness of all being as one, but rather specific material relations of the ongoing differentiating of the world. Entanglements are relations of obligation—being bound to the other—enfolded traces of othering. Othering, the constitution of an 'Other,' entails an indebtedness to the 'Other,' who is irreducibly and materially bound to, threaded through, the 'self'—a diffraction/dispersion of identity. 'Otherness'

is an entangled relation of difference (*différance*). Ethicality entails noncoincidence with oneself."¹⁰²

"An ethics of entanglement entails possibilities and obligations for reworking the material(ized) [configurations of] the past and the future. As the quantum eraser experiment shows, it is not the case that the past (a past that is [allegedly fixed and] given) can be changed (contrary to what some physicists have said), or that the effects of past actions can [thereby] be fully mended, but rather that the 'past' is always already open to change. There can never be complete redemption [in the sense of a full restoration of the way it was], but spacetime matter can be productively reconfigured, as im/possibilities are reworked. Reconfigurings don't erase marks on bodies—the sedimenting material effects of these very reconfigurings—memories/re-member-ings—are written into the flesh of the world. Our debt to those who are already dead and those not yet born cannot be disentangled from who we are. What if we were to recognize that differentiating is a material act that is not about [absolute] separation, but on the contrary, about making connections and commitments?"¹⁰³

Time doesn't unfold as unilinear forward motion. Jewish clock time is surreal relative to the standard. A nighttime hour is not the same length as a daytime hour. Sunset to sunrise divided by twelve is the length of a nighttime hour; sunrise to sunset divided by twelve is the length of a daytime hour. Midnight (halfway through the hours of nighttime—midnight) is different from day to day. Indeed, every hour is different. Every day hours are different lengths. Imagine calibrating train schedules, capitalist expansion, and empire building to such clocks. Imagine a theory of relativity synchronized to such clocks. Einstein would never have left his work at the patent office. Shabbat is cut loose from time: 25 hours outside of time (from sunset until the stars come out (twilight)—belongs to both days).

The commandment to count days, to "count the Omer," between the Jewish holidays of Passover and Shavuot: spheres within spheres (worlds within worlds, wheels within wheels). All sefirot inside each sefirah: Different constellations of sefirot constitute different flows of energy, different forces. Shavuot—the giving of the Torah at Mount Sinai, thousands of years ago, a whole history crystallized into now-time: The

break in the continuum of time produces new conditions of possibility, new Torah coming through. Tradition rewritten once again: History is only ever citational. "To write history ... means to cite history [anew]."¹⁰⁴ Judaism re-newing its founding commitment to justice. "Justice, justice shall you pursue."¹⁰⁵

* * *

Kabbalah turns tradition on its head, which is, in fact, traditional.

* * *

"In every era the attempt must be made anew to wrest tradition away from a conformism that is about to overpower it."¹⁰⁶

* * *

Shavuot—the coming through of Torah anew, at Mt. Sinai 3000 years ago, entangled with this moment, this now-time (of Shavuot each year). "The crystal of the total event" (Benjamin). Ben Bag Bag said of the Torah, "Turn it and turn it over again, for everything is in it" (*Pirkei Avot*, 5:25).¹⁰⁷

* * *

"And the exposition [of Torah] is not what is essential, but rather action."¹⁰⁸

* * *

"The philosophers have only *interpreted* the world, in various ways; the point, however, is to *change* it."¹⁰⁹

* * *

Torah, the blueprint for the world, existed before the world.¹¹⁰ Torah doesn't follow chronology; it can't be read as linear sequence. "There is no before and after in Torah."¹¹¹ The multiple "creation stories" do not synchronize and do not simply unfold, they are dis/jointed narratives of temporal indeterminacy tied to justice-to-come. The Kabbalists explain that the "creation story" is not a narrative of the unfolding of things in linear time; rather, it is a map of the cosmic structure and the ethical practices that follow from it.

* * *

B'reishit. In (a/the) beginning of ...

The first letter of the first word *B'reishit*, the letter *bet*, can mean "with" as well as "in."

B'reishit: With (B') a point (*reishit*) ...

So, the first three words—*B'reishit* [With a point] *bara* [created] *Elohim* [one of the names of God that is plural yet singular; Kabbalistically associated with *Gevurah*—boundary-making]—can be read:

With a point—an infinitesimal bit of the Infinite—... created *Elohim*

(Blasphemy within blasphemy—part of the tradition)

* * *

Lurianic Kabbalah (which is not one) takes this point seriously. The Kabbalistic account of Isaac Luria starts before the beginning—with the creation of the conditions of possibility of creation.¹¹² It starts with *Eyn Sof*—*No-thing-ness*. (*Eyn Sof*—literally "without end," infinite. *Eyn Sof* is *Ayin*, literally "nothingness," but also "spring" or "source").¹¹³ Before the creation of light or anything else, there was light—the infinite light of *Eyn Sof*.

Before the emanations were emanated and the creations created, a most supreme, simple light filled the whole of existence. There was no vacant place, no aspect of empty space or void, but everything was filled by that simple, infinite light ... what is called the light of the Infinite (*or Eyn Sof*).¹¹⁴

Luria explains that the *Eyn Sof* (the Infinite) sets out to make a space for creation by contracting/concentrating its light within itself. This *tzimtzum* (contraction/concentration) of the light of the Infinite produces a space within which to create the world, not a world detached from or absent of *Eyn Sof* (see below), on the contrary, but with a chance for finitude.¹¹⁵

You should know at the beginning of everything, the whole of existence was a simple light called the light of the Infinite. ... There was no empty space or open space. ... The Infinite contracted itself in the middle of its light, at its very central point, withdrawing to the circumference and the sides, leaving an open space in between.¹¹⁶

The emphasis on the center is noteworthy since it isn't clear what can be made of a notion of a center of something infinite. But a point is surely made about this point.

The Infinite contracted/concentrated itself at its midpoint, in the exact center of its light.¹¹⁷

And at the same time, there is a related point: "The space created is [itself] a mere infinitesimal point in contrast with God's infinity. Nevertheless, . . . it is the space in which all dimensions of existence are formed."¹¹⁸

In the beginning there was an involution, not evolution, a kind of self-touching,¹¹⁹ such that creation does not simply start with, but materializes with/in a point, an infinitesimal bit of the infinite.

"Each letter is a world, each word, a universe."¹²⁰

"This point is especially not a point, an indivisible place, a touchable limit, but a spacing—forever."¹²¹

The *tzimtzum* is not a subtraction or a negation in any ordinary sense. It is a contraction/concentration—a pulling back of an infinite light from a space, a mere point of the infinite, to leave an infinitesimally small space/place (*Halal panui*) of infinitely less intensity. How are we to understand the "subtraction" of one infinity from another? Surely, this is not the same operation as the subtraction of finite numbers. But there are different sizes of infinity,¹²² and so there is in fact a rather oblique way to do the nonstandard "subtraction." According to Lurianic Kabbalah, the result of the *tzimtzum* is not to produce a space that is fully empty—it is not empty, and it is also not not-empty. What remains is the mere trace of the Infinite (like the trace of wine that remains after the glass has been emptied)—the *reshimu*—the indeterminate empty/not-empty no-thing-ness fills-and-does-not-fill the space created inside an infinitesimal bit of the Infinite.¹²³

"From the point of view of classical [Newtonian] physics, the vacuum [is complete emptiness: it] has no matter and no energy. But the quantum principle of ontological indeterminacy calls the existence of such a zero-energy, zero-matter state into question, or rather, makes it into a question with no decidable answer. Not a settled matter, or rather, no matter. And if the energy of the vacuum is not determinately zero, it isn't determinately empty. In fact, this indeterminacy is responsible not only for the void not being nothing (while not being something), but it may in fact be the source of all that is, a womb that births existence."¹²⁴

After the *tzimtzum* (contraction/condensing) of the Infinite light, the *Eyn Sof* emitted a *kav*—an infinitely thin thread of light into the space. What remains at this point is not nothing, but rather a structured nothingness—the condition for the possibility of creation. The *kav-reshimu* intra-action starts off an emanation that after a long complicated set of further intra-actions results in a coarsening of the light on the way to making finite material beings. This emanation is not a one-way unfolding but an intra-action that depends on the actions of material beings in its co-creation.¹²⁵

Quantum field theory (QFT) is a combination of quantum physics, relativity, and field theory. QFT rewrites our understanding of the nature of space, time, and matter; or more precisely, *spacetime mattering*, and nothingness. According to QFT, the vacuum can't be determinately nothing because the indeterminacy principle allows for fluctuations of the quantum vacuum. "The quantum vacuum is more like an ongoing questioning of the nature of emptiness than anything like a lack. The ongoing questioning of itself (and *itself* and *it* and *self*) is what generates, or rather *is*, the structure of nothingness. The vacuum is no doubt doing its own experiments with non/being. In/determinacy is not the state of a thing, but an unending dynamism."¹²⁶

"When it comes to the quantum vacuum, as with all quantum phenomena, ontological indeterminacy is at the heart of (the) matter . . . and no matter. Indeed, it is impossible to pin down a state of no matter

or even of matter, for that matter. The crux of this strange (non)state of affairs is the so-called energy-time indeterminacy principle, but because energy and matter are equivalent [see Einstein, $E = mc^2$], it seems appropriate to call it the 'being-time' or 'time-being' indeterminacy principle."¹²⁷

"Crucially, an indeterminacy in the energy of the vacuum translates into an indeterminacy in the number of particles associated with the vacuum, which means the vacuum isn't (determinately) empty, nor is it (determinately) not empty. These particles that are and aren't there as a result of the time-being indeterminacy relation, are called 'virtual particles.' *Virtual particles are quantized indeterminacies-in-action.* Virtual particles are not present (and not absent)—they are hauntological non/presences—that are material. Virtual particles do not traffic in a metaphysics of presence. They do not exist in space and time. They are ghostly non/existences that teeter on the edge of the infinitely fine blade between being and nonbeing. Admittedly, virtuality is difficult to grasp. Indeed, this is its very nature."¹²⁸

"The Newtonian nature of space, time, matter, and the void are undone by quantum physics. In particular, quantum physics undoes the Newtonian assumptions of separability and metaphysical individualism. There are no individual entities running in the void. Matter is always already caught up with nothingness."¹²⁹

The *kav* serves as a thread of connection between the *Eyn Sof* and creation. There is a gap, a dis/continuity between the *kav* and the surrounding light of the *Eyn Sof*. Joined and not joined, touching and not touching (*mati v'lo mati*), *separate and not separate* (agential separability).¹³⁰ The *reshimu*, which fills and doesn't fill the space, is at once the ultimate realm of limitation/manifestation and pure openness.¹³¹ The *reshimu* is the recurrent play of in/determinacy of being/nonbeing that is the condition of possibility for existence. The nothingness (no-thingness) out of which creation arises is indeterminately empty/not-empty. Creation is and is not (or rather, is indeterminately) *ex nihilo*, and this is the point. The point out of which creation arose.

Everything changed in the run-up to WWII, during, and after: Time will never be the same. Being and time were together remade. No longer an independent parameter relentlessly marching forward, time is no longer continuous or one. There are no longer individual moments; there never were. "Time is diffracted, imploded/explored in on itself: each moment made up of a superposition, a combination, of all moments (differently weighted and combined in their specific material entanglements). And directly linked to this indeterminacy of time is a shift in the nature of being and nothingness."¹³²

"According to QFT, the vacuum can't be determinately nothing because the indeterminacy principle allows for fluctuations of the quantum vacuum. How can we understand 'vacuum fluctuations'?"¹³³ If the physicist's conception of a field can be likened to a drumhead, with a zero-energy state being akin to a perfectly still drumhead, and a field with a finite energy being identified with a drumhead in one of its (quantized) vibrational modes (like the 3D analog of harmonics of a string), then while classical physics fashions the vacuum state as perfectly still, without any vibrations, according to quantum physics the vacuum state, although it has zero-energy, is *not* determinately still as a result of the energy-time indeterminacy principle. *Vacuum fluctuations are the indeterminate vibrations of the vacuum or zero-energy state. Indeed, the vacuum is far from empty, for it is filled with all possible indeterminate yearnings of time-being; or in this drum analogy, the vacuum is filled with the indeterminate murmurings of all possible sounds: it is a speaking silence.* What stories of creation and annihilation is the void telling? How might we approach the possibility of listening?"¹³⁴

"If we are trying to figure out in what sense rhythm is eternal, then it cannot be that we can discover *this* or *that* rhythm, and can say that this one is eternal and the other one is not. We cannot really give an example without making a mess of what we are trying to say. In any case, we don't really have to, since it seems, at least for Benjamin, that not every rhythm is eternal—only the one that characterizes the rhythm of downfall; so we are left having to understand what that means."¹³⁵

"The vacuum is flush with yearning, bursting with innumerable imaginings of what could-be/have-been. The quiet cacophony of different frequencies, pitches, tempos, melodies, noises, pentatonic scales, cries, blasts, sirens, sighs, syncopations, quarter tones, allegros, ragas, bebops, hiphops, whimpers, whines, screams are threaded through the silence, ready to erupt, but simultaneously crosscut by a disruption, dissipating, dispersing the would-be sound into non/being, an indeterminate symphony of voices. . . . A polyphony of emptiness."¹³⁶

"Virtual particles are not in the void but *of* the void. They are on the razor edge of non/being. The void is a lively tension, a desiring orientation toward being/becoming. The void is flush with yearning, bursting with innumerable imaginings of what-could-be/might-yet-have-been."¹³⁷ That is, virtuality is the material wanderings/wonderings of nothingness. Vacuum fluctuations are ongoing virtual/thought experiments of the void: testing out every conceivable possibility, flashes of creation-annihilation, birth-death of every possible time-being. *Virtual transience* is what's up, or rather *the indeterminate play of what's up-what's down, creation-annihilation, downfall-renewal*. Multiple and varied rhythms diffracted through one another—the dance of the vacuum.

"If the recurrent character of transience is eternal, meaning that it has no beginning and no end, then the recurrence itself is not transient. . . . However, the particular form of recurrence that characterizes transience requires the multiplicity of transient beings or processes in duration, since without that multiplicity and duration, there would be no recurrence (or reiteration) and so no punctual condition for what Benjamin calls the rhythm of transience."¹³⁸

Nothingness is not nothing. The vacuum fluctuations constitute the structure of this no-thingness: *The structure of nothingness is one of eternal virtual transience—the play of indeterminacy*.¹³⁹ Which is not to say that the quantum vacuum is always the same, it never is/was/will-be, but virtual transience is in any case its defining characteristic, and manifests as the eternal transience of matter. If (a sufficient amount of) energy is

put into the vacuum it produces matter together with its anti-matter partner (since $E = mc^2$ —energy and matter are equivalent), and all matter and antimatter have finite lives and inevitably find their downfall: They emerge from and fall back into nothingness. But what is the nature of matter such that it is governed by transience? In particular, what is matter's relationship to nothingness?

"Indeed, the problem with which we must come to terms is the following: How can the eternal characterize the recurrent character of transience while not being the same as the transience it characterizes? . . . The eternal recurrence of the transient is itself not transient; even as we must understand this eternal recurrence as specifically characterizing the transience, it is neither absorbed nor defeated by the transience that it characterizes. The one remains irreducible to the other; and yet, the eternal recurrence at issue is less a Platonic form . . . than a particular feature of musical, poetic, or metric patterns—closer perhaps to Pythagoras than to Plato. . . . Rhythm belongs to movement. . . . One hears a rhythm in the midst of a melody, or moves with a rhythm when one dances, and there might be a silent rhythm, but that means that it is punctuated by something noisy, or that it is itself punctuated by a field of sound."¹⁴⁰

"Matter fell from grace during the twentieth century. It became mortal. Very soon after that it was murdered, exploded at its core, torn to shreds, blown to smithereens. The smallest of smallest bits, the heart of the atom, was broken apart with a violence that made the earth and the gods quake. In an instant, in a flash of light brighter than a thousand suns, the distance between Heaven and Earth was obliterated—not merely imaginatively crossed by Newton's natural theology-philosophy, but physically crossed out by a mushroom cloud reaching into the stratosphere. 'I am become death, the destroyer of worlds.'"¹⁴¹

"If transience, however, is what characterizes the time of *this* life, and of all life or living processes, then a principle or a movement that is eternal or nontransient traverses this time of the living. I use the term *traverse* to characterize the radical alterity of this eternity to transient life; eternity characterizes the recurrence of transience, and so informs all transient things."¹⁴²

"Birth and death, it turns out, are not the sole prerogative of the animate world; 'inanimate' beings also have finite lives (troubling the inanimate/animate boundary and calling forth what the stakes are/ have-been in maintaining it). 'Particles can be born and particles can die,' explains one physicist.¹⁴³ In fact, 'It is a matter of birth, life, and death that requires the development of a new subject in physics, that of quantum field theory. . . . Quantum field theory is a response to the ephemeral nature of life.'¹⁴⁴

How does quantum field theory understand the nature of matter?

"According to classical physics, a particle can stand on its own. We simply place a particle in the void—a Democritean delight. But according to QFT, a physical particle, even a (presumably) structureless point particle like an electron, does not simply reside in the vacuum as an independent entity, but rather is inseparable from the vacuum. The electron is a structureless point particle 'dressed' with its intra-actions with virtual particles: It intra-acts with itself (and with other particles) through the mediated exchange of virtual particles. (For example, an electron may intra-act with itself through the exchange of a virtual photon, or some other virtual particle, and that virtual particle may further engage in other virtual intra-actions, and so on.) Not every intra-action is possible, but the number of possibilities is infinite. In fact, some of the exchanges themselves constitute infinite contributions to the particle's energy-mass, and there are an infinite number of possible virtual intra-actions. This would constitute an infinite contribution to the mass of the electron. But how can this be when the mass of a physical electron is clearly finite (indeed, it's pretty darn small from our perspective)? The explanation physicists give is that the lone ("bare") point particle's contribution is infinite as well (infinitely negative due to the negative charge of the electron), and when the two infinities (that of the bare electron and that of the self-energy) are properly added together (or rather, subtracted from each other), the sum is a finite number, and not just any finite number but the one that matches the empirical value of the mass of the electron. In other words, an electron is not just "itself" but includes as part of its structure a "cloud" of an indeterminate number of virtual particles. All this may seem like a farfetched story, but it turns out that vacuum fluctuations have direct measurable consequences."¹⁴⁵

Richard Feynman, one of the physicists who designed the "renormalization" procedure for consistently subtracting the infinities to produce a finite electron, quipped that the self-touching that the electron engages in that produces an infinity is "immoral." According to the renormalization procedure the "bare" electron (which is mathematically infinite) is "dressed" with the infinite contributions of the virtual particles of the vacuum such that, in the end, the physical electron is finite. (I'm using technical language here!) That is, what renormalization entails is the subtraction of two infinities to get something finite. This renormalization procedure necessarily entails taking into account the infinite possible intra-actions with all virtual particles in all possible ways, that is, *all possible virtual histories are condensed into each bit of matter.*¹⁴⁶

In Lurianic Kabbalah, as part of the "chaining down" (*seder hishtalshelut*), the order of the emanation of the Infinite into the making of finitude, which is a highly elaborate and complex process, there are many levels where more rarefied lights become "enclothed" in coarser ones (as increasingly coarse vessels are made, until they are "crystallized out").¹⁴⁷ In a stage of emanation called the "World of Points" (*Olam Ha-Nekudot*), the lower *sefirot* (vessels made of lights) were not able to hold the light and the vessels shattered. The main parts of the broken vessels remained, but bits of the vessels in the form of shards and sparks fell. The shards that were struck by the sparks emerged as *kelippot* (*husks*), which form the matter of the material world. The sparks live within the *kelippot* as their life force. *Bits of the infinite are threaded through the finite.* It is the task of humankind to liberate the sparks that exist in each bit of matter: "The world of points was like a sown field whose seeds could not bear fruit until they had first split open and rotted."¹⁴⁸

"Where thinking suddenly stops in a configuration pregnant with tensions, it gives the configuration a shock, by which it crystallizes into a monad. . . . In this structure [the historical materialist] recognizes the sign of a Messianic cessation of happening, or, put differently, a revolutionary chance in the fight for the oppressed past. He takes cognizance of it in order to blast a specific era out of the homogeneous

course of history. . . . The nourishing fruit of the historically understood contains time as a precious but tasteless seed."¹⁴⁹

"History is the subject of a structure whose site is not homogeneous, empty time, but time filled by the presence of the now [*Jetztzeit*]. . . . A historian who takes this as his point of departure stops telling the sequence of events like the beads of a rosary. Instead, he grasps the constellation which his own era has formed with a definite earlier one. Thus he establishes a conception of the present as the 'time of the now' which is shot through with chips of Messianic time."¹⁵⁰

The breaking of the vessels (*shevirat ha-kelim*) is a major element of Lurianic Kabbalah. In Luria's account, the making of finite beings is not a unilinear developmental process of emanation that proceeds in a one-way teleological unfolding from the source to creation. Rather, creation is created in incomplete form, and it is the task of human beings (or perhaps all worldly beings) to engage in community-shared iterated material practices that liberate *the sparks, the tiny bits of light from the fallen shattered vessels (coarsened lights produced through elaborate sets of intra-actions) that are threaded through the material world*. The liberated sparks ascend and repair the *sefirot*, allowing the flow (*shefa*) of the Infinite to come down into the material world with fewer impediments. Also, written into this cosmology is the iterative rematerialization of the world based on ongoing intra-actions between the upper and lower worlds. On this account the world is not created once, but rather it is re-created/co-created anew in each moment: an iterative intra-active reconfiguring/reconstellating of the world.¹⁵¹

"Nothingness is not the background against which something appears, but an active constitutive part of every 'thing.' As such, even the smallest bits of matter, electrons—infinitesimal point particles with no dimensions, no structure—are haunted by, indeed, constituted by, the indeterminate wanderings of an infinity of possible configurings of spacetime mattering in their specificity. Entire worlds inside each point; each specifically configured. Matter is spectral, haunted by all im/possible wanderings, an infinite multiplicity of histories present/absent in the indeterminacy of time-being."¹⁵² Finitude is shot through with infinity, with an infinity of polyrhythmic

vibrations of nothingness that flash up and fall away (eternal virtual transience) in the eternal iterative play—the dynamism—of indeterminacy.

"It is the history of the oppressed that flashes up within present time, disrupting the continuity and contesting its progressive claim."¹⁵³

"The true picture of the past flits by. The past can be seized only as an image which flashes up at the instant when it can be recognized and is never seen again."¹⁵⁴

"The messianic does not, and cannot, follow the trajectory of revelation. Rather, it is figured time and again in Benjamin's work as the traversal of one temporal modality in and through another."¹⁵⁵

"The messianic, understood not as a human figure, becomes the recurrent and rhythmic downfall or going under that characterizes the transience of all living things."¹⁵⁶

"A human centered temporal perspective that presumes and struggles against transience is supplanted by the rhythmic nature of an eternal recurrence of passing away. . . . One temporal perspective interrupts, converts, and follows from another. The sentence in which Benjamin relays this news works by . . . shifting the perspective from that of human finitude to one that is decidedly not human centered. Something recurs, repeats in the sentence: the human-centered temporal perspective shifts into an eternal perspective on recurrent transience, one that requires the abandonment of the anthropocentric perspective itself."¹⁵⁷

"Even the smallest bits of matter are an unfathomable multitude. Each 'individual' always already includes all possible intra-actions with 'itself' through all the virtual others, including those that are noncontemporaneous with 'itself.' That is, every finite being is always

already threaded through with an infinite alterity diffracted through being and time. Indeterminacy is an un/doing of identity that unsettles the very foundations of non/being. . . . *Ontological indeterminacy, a radical openness, an infinity of possibilities, is at the core of mattering.*"¹⁵⁸

"In an important sense, in a breathtakingly intimate sense, touching, sensing, is what matter does, or rather, what matter is: Matter is condensations of responses, of response-ability. Each bit of matter is constituted in response-ability; each is constituted as responsible for the other, as being in touch with the other. Matter is a matter of some intimacy, of cohabitating, of touching, of being in touch, of responses to yearnings."¹⁵⁹

"Nothingness is not absence, but the infinite plentitude of openness. Infinities are not mere mathematical idealizations, but incarnate marks of in/determinacy. Infinities are a constitutive part of all material 'finites,' or perhaps more aptly, 'affinities' (*affinities*, from the Latin, 'related to or bordering on; connection, relationship'). Representation has confessed its shortcomings throughout history: Unable to convey even the palest shadow of the Infinite, it has resigned itself to incompetence in dealing with the transcendent, cursing our finitude. But if we listen carefully, we can hear the whispered murmurings of infinity immanent in even the smallest details. Infinity is the ongoing material reconfiguring of nothingness; and finity/finitude is not its flattened and foreshortened projection on a cave wall, but an infinite richness. The idea of finitude as lack is lacking. The presumed lack of ability of the finite to hold the infinite in its finite manifestation seems empirically unfounded, and cuts short the infinite agential resources of undecidability/indeterminacy that are always already at play. Infinity and nothingness are not the termination points defining a line. Infinity and nothingness are infinitely threaded through one another so that every infinitesimal bit of one always already contains the other. *The possibilities for justice-to-come reside in every morsel of finitude [including in the thick-now, the now-time, of the present moment].*"¹⁶⁰

"In reality, there is not one moment that does not carry its own revolutionary opportunity in itself. . . . [Crucially,] the power this moment has to open a very particular, heretofore closed chamber

of the past. Entry into this chamber coincides exactly with political action."¹⁶¹

"For nature is Messianic by reason of its eternal and total passing away. To strive after such passing, even for those stages of man that are nature; is the task of world politics."¹⁶²

WHAT FLASHES UP

Meditating on this constellation of theological-political-scientific insights, one point (among many others) that flashes up is this: *The messianic—the flashing up of the infinite, an infinity of other times within this time—is written into the very structure of matter-time-being itself.*¹⁶³

The political import of such a claim is multiple. For one thing, this claim extends weak messianic power and eternal transience to *all material beings* and not merely those that are identified as "organic" or "living." Furthermore, it provides a way to link Benjamin's earlier and later works, the "Fragment" and the "Theses," by connecting rhythmic passing away, or eternal transience, a theme in the earlier work, to the seemingly episodic flashing up of the past, found in the latter piece. According to my agential realist materialist reading of QFT, all material beings are susceptible to downfall. This includes institutions, ideologies, imaginaries, and affective states, which (according to agential realism) are specific material configurations of worlding—and all of which are thereby susceptible to change and impermanence. *Benjamin sought to interrupt a long-standing belief in progress; this was on behalf of his yearning for the destruction of fascism, for its downfall and the rebuilding of new institutions out its ruins.*¹⁶⁴ Can we understand the messianic—the flashing up of the other times within this time—as linking up the transience of all material beings (e.g., the downfall of fascism) with the messianic as the flashing up of the past in a moment of danger? The rhythmic and the episodic seem to be at odds, but according to (my reading of) QFT, the past (and the future, indeed all possible temporalities and histories) flash up in the *thick-now/now-time* of the present. All rhythms are at play (virtually) in the vacuum/nothingness, and out of this can emerge large amplitude virtual expressions of past events (where events are neither singular nor locatable although they leave specific traces). And "seiz[ing] hold of a memory as it flashes up in a moment of danger"¹⁶⁵ is then not only a hopeful message about the impermanence of violent regimes but also an opportunity for taking up the charge of weak messianic power¹⁶⁶—taking responsibility to rework the past in the present (which is not

the same as denying the past, but on the contrary, of being present to it on behalf of the oppressed and their erased histories).¹⁶⁷

At the same time, in the course of her subtle and nuanced reading of Benjamin, Butler offers some important cautionary remarks that seem, at least at first blush, to create substantial trouble for the claim above. It seems prudent to heed them or least take them seriously. In what follows, let's consider this particular claim that has flashed up in light of Butler's cautions. Here are Butler's cautionary remarks (rounding out a paragraph within which she clarifies what she means by *eternal*):

As clarified earlier, the eternal no longer is posited exclusively in a spiritual domain considered as distinct from the worldly one, but becomes characteristic of transience or downfall that defines the worldly. At the same time, it would be a mistake to say that the eternal is now expressed in some final and readable form within the worldly or worldly terms, since we have already established that nothing in the historical or the worldly can adequately or properly refer to the messianic. So neither the eternal nor the messianic is expressed directly or instantiated in the transient and finite world—it enters in a more oblique way. One might suspect that the messianic is not all of what is meant by the eternal, but for Benjamin, it seems to be the name for “nature in its eternal and total transience.” If we conclude that the messianic is nature, and it *includes* the eternal, we have missed the point that the messianic works in and through nature and its transience in a way that remains irreducible to it. The conclusion is not that the messianic belongs to another order, but only that it operates within this one as a constitutive alterity—breaking in, breaking out, flashing up, confounding without collapsing the spheres of this-worldly and the otherworldly.¹⁶⁸

If we say that the flashing up of the eternal/infinite is written into the very structure of matter-time-being itself, have we not failed to heed Butler's cautionary remarks? Have we not naturalized the messianic, or even the eternal, collapsing the spheres of this-worldly and otherworldly, and making the rhythm of transience this-worldly, that is, itself transient (thereby bringing an end to the recurrence of transience)? The stakes, as Butler explains, are nothing less than whether violence and downfall (e.g., of “this or that regime or some other existing state of affairs”) is “a certain action of the divine, the divine in action.”¹⁶⁹ Crucially, her reading of Benjamin understands the messianic not as wholly immanent, but rather as a matter of one time traversing another, which short-circuits theocratic claims.

One response might be to say that my claim is about the nature of matter, and not nature per se, and that this claim arises within a materialist account that is not reducible to concerns about nature as separate from culture. Although such an objection sidesteps rather than responds to Butler's cautions, it does draw attention to an important point about the need to blast open terms such as “matter,” “nature,” and “ontology” that have been deeply sedimented in fixed and particular forms within Western philosophical discourses. This is surely part of what is at issue here, but let's not move too quickly, but rather take up Butler's cautions in detail. *Slow reading*—an arresting of thinking,¹⁷⁰ at least a slowing down, moving slowly through words and sentences carefully crafted, a practice of opening up to the possibilities of important insights flashing up—is an anticapitalist praxis. **Not picking up a work and dismissing it or slamming it before it is given its due, before it is even understood and moving on to the next trendy theory.** Critique is an indispensable practice, but **there is nothing inherent in critique that makes it anticapitalist;** critique too can be a handmaiden of capitalism, engaging in and enabling a continuing logic of disposability and training the mind to operate in the mode of progress, always looking to the next exciting idea, turning aside the old in favor of the new. The possibilities for countering an economy of disposability include composting ideas, turning them over, reading against the grain, reading through, aerating the encrusted soil to stimulate new growth.¹⁷¹

Before I address Butler's cautionary remarks that round out this paragraph, we'll need to unpack the first half of this dense paragraph. In the first sentence of the paragraph Butler summarizes one of her main points about the nature of the eternal in relation to the spiritual and worldly domains. Butler provisionally separates these two domains, and explains the nature of their inter- or perhaps intra-action: The eternal is not (“no longer”) restricted to the spiritual domain, but rather becomes characteristic of transience that defines the worldly. In particular, Butler explains that the eternal “enters into” or “informs” the worldly through the relation of the eternal recurrence of transience without the eternal itself getting swallowed up by and conditioned by the temporality of worldly transience, which would belie its eternity. “Eternity,” Butler writes, “characterizes the recurrence of transience, and so informs all transient things; and yet, it is not reducible to the transience of any of those things.”¹⁷²

This feeds directly into the next sentence of the paragraph we are considering, which cautions that it would be “a mistake to say that the eternal is now *expressed* in some final and readable form within the worldly or worldly terms.” It may seem that the first clause of the statement already stands on its own, without the explanatory phrase that follows, since the nature of the

traversal is such that eternity crosses over but is not encompassed by the worldly. That is, one would in any case expect that the **eternal**—that which **is without beginning or end, the endless, the infinite**—cannot be adequately or properly described in limited terms. But Butler follows this phrase with its justification (signaled by the connector “since”) based on what she has argued is the ahistorical nature of the messianic: “since we have already established that nothing in the historical or worldly can adequately or properly refer to the messianic.”¹⁷³ At first blush it might seem that Butler is conflating the eternal and the messianic here, which would be odd. It is one thing to claim that both the eternal and the messianic lack adequate or proper referentiality in worldly terms and quite another to equate them. The paragraph we are discussing is precisely the one in which Butler explicates what she means by the eternal (to the degree that anyone can presume to do this, as she herself remarks). So how are we to understand these key terms—the eternal and the messianic?

Remarking on the opening lines of Benjamin’s “Theological-Political Fragment,” Butler writes that Benjamin’s formulation of the messianic “afflicts our very capacity to refer to the Messiah as a historically embodied human figure. Indeed, the Messiah or, rather, the messianic is the name for the break in referentiality that occurs when something historical seeks to relate itself to the messianic and necessarily fails.”¹⁷⁴ Butler reads the messianic in Benjamin’s “Theological-Political Fragment” as follows:

The messianic figures the failure of the historical to signify the divine (which is one reason why the messiah cannot be a historical instantiation of the divine); the messianic, understood not as a human figure, becomes the recurrent and rhythmic downfall or going under that characterizes the transience of all living beings. The eternal thus traverses the transient without exactly becoming transient and losing its status as eternal.¹⁷⁵

What remains to be answered is precisely the nature of this traversal. Let’s leave this crucial matter aside for the moment and step back to consider what’s been offered so far. Have we here entered a realm of abstraction that renders the messianic wholly unrecognizable from the perspective of its more usual renderings?

One might be willing to grant that a break in referentiality may be a feature or mark of the messianic, but it would seem that this does not exhaust the primary characteristics of this important term; surely, there are other kinds of breaking that are important in defining the messianic, **such as a breaking with state-sanctioned violence, a breaking of the continuum of time**, which is the condition for the possibility of redeeming the past, to name some dimensions of the messianic as they are expressed in Benjamin’s “Theses.”¹⁷⁶ In *Parting*

Ways, Butler offers a Benjaminian notion of the messianic that is significantly more resonant with (and at the same time also divergent from) traditional understandings of this term: “The messianic is a counterdoctrinal effort to break with temporal regimes that produce guilt, obedience, extend legal violence, and cover over the history of the oppressed.”¹⁷⁷ She then explains: “The messianic emerges as a way of exploding that particular chronology and history in the name of recovering in scattered form those remnants of suffering’s past that in indirect ways comport us to bring to an end regimes whose violence is ... physical.”¹⁷⁸ At this point we might ask if we are being offered entirely different and disconnected, perhaps even inconsistent, accounts of the messianic? It here where Butler’s brilliance shines through with crystalline clarity. She writes:

In the “Theses on the Philosophy of History” (1940), it is the history of the oppressed that flashes up within present time, disrupting its continuity and contesting its progressive claim. In each case, we have to understand how one time traverses another, without precisely that first time becoming absorbed and contained in or by the time traversed. And although the focus changes in the twenty-one-year interval between these two pieces [the other being “Theological-Political Fragments”] from eternity to the history of the oppressed, both modalities are referred to as *messianic*, meaning a traversal or a breaking through of one time in another.¹⁷⁹

In other words, there is a crucial feature of the messianic that underlies these two (or, indeed, the various) seemingly disparate takes: *The messianic is a traversal or breaking through of one time in another*. Continuing to leave the question of the nature of this traversal aside for a bit longer, let’s return to the original set of questions about the paragraph we are considering, understanding that Butler does not collapse or equate the eternal and the messianic.

Can we now understand the first clause as logically following from the second? Butler claims that the messianic is “the recurrent and rhythmic downfall or going under that characterizes the transience of all living things,” and that “the eternal thus traverses the transient without exactly becoming transient and losing its identity as eternal.”¹⁸⁰ Hence, the messianic is a matter of the eternal traversing the this-worldly, and since nothing in the this-worldly can adequately or properly refer to the messianic, it follows that not even the eternal as it becomes characteristic of the transient can be expressed in some final and readable form within the worldly or worldly terms. In other words, the eternal is a matter of transience—of *endings* not unendingness—in its this-worldly form.

Which leads Butler to her next statement that “neither the eternal nor the messianic [which is not to conflate the two] is expressed directly or instantiated

in the transient or finite world—it enters in a more oblique way.” This more oblique way is clearly in the form of a “traversal” (yet to be discussed).

Butler next underlines the fact that while it would be wrong to conflate the messianic and the eternal—“One might suspect that the messianic is not all of what is meant by the eternal”—for Benjamin, the messianic is the name for “nature in its eternal and total transience,” that is, it is, in particular, the eternal characteristic of transience that constitutes the messianic: “For nature is Messianic by reason of its eternal and total passing away.”¹⁸¹ This crucial point of Benjamin’s is the very point Butler has set out to explicate.

Now we come to her primary cautionary remarks. The first one is this: “If we conclude that the messianic is nature, and it *includes* the eternal, we have missed the point that *the messianic works in and through nature* and its transience in a way that remains irreducible to it.”¹⁸² We need to pause at this juncture and first consider what kind of relationship between the messianic and nature is being figured here. If it is the messianic that is the sole actor, the one who acts, and acts unilaterally “in and through” nature, which remains a passive receptacle open to the eternal-yet-fleeting interruptions by this external force, then haven’t we come to a place where nature is figured as the feminine awaiting the penetrating act of (yet another force coded as masculine, this time) the messianic? Does nature passively await the messianic to open it up to possibilities of redemption/revolution? That is, do we have here, in one form or another, a reinscription of the nature/culture dualism, or its interruption? Given Butler’s marked rejection of the inscription model of social constructivism in *Bodies That Matter*, we might expect her to flag this in Benjamin if that were her reading of his position regarding the nature of nature in its eternal transience.¹⁸³ If, however, the nature of the mark of the eternal is not an inscription, then can we understand the eternal’s traversal of nature as performative, as constitutive of nature itself? This goes to the point I raised at the outset: How is nature here understood? And can we understand nature itself as agential when it comes to the messianic? **We can no longer delay an encounter with the question of the nature of the traversal, which is key to understanding the nature of the messianic in its relation to nature.**

Butler explains what she means by the verb “traverse” in this way: “I use the term *traverse* to characterize the radical alterity of this eternity to transient life; eternity characterizes the recurrence of transience, and so informs all transient things; and yet, it is not reducible to the transience of any of those things.”¹⁸⁴ She continues: “Indeed, the problem with which we must come to terms is the following: how can the eternal characterize the recurrent character of transience while not being the same as the transience it characterizes?”¹⁸⁵ Butler goes on to explain that this cannot be answered by postulating a Platonic form

for this eternal recurrence of transience and that the nature of this recurrence is rhythmic and therefore “closer perhaps to Pythagoras than to Plato.”¹⁸⁶ She then offers some examples of rhythms punctuating one another, such as in contrapuntal music, in seeking to grasp something of this traversal. And yet she concludes this analogical exploration by saying that “it cannot be that we can discover this or that rhythm, and can say that this one is eternal and this other one is not.”¹⁸⁷ At the same time, it is only the eternal rhythm that concerns us because it is the one that characterizes downfall, that is, the eternal rhythm of downfall. Butler continues:

The eternal recurrence at play in this formulation is precisely not an immanent dimension of life, but an *entry* or *interruption of the eternal* within the transient. It is in transience without being of it, and this leads us to ask how one temporal modality (eternity) can *enter into and inform another* (transience) without ever becoming fully absorbed by the latter. To understand this *entry* of one temporal modality into another, one has to turn to Benjamin’s notion of the messianic.¹⁸⁸

Now we’re coming to the crux of things. Butler names here a very particular conception of the messianic that goes directly to this question:

Indeed, as I hope to show, the hyphen that links the *theological* with the *political* in the title of this fragment names a way that the messianic operates as the flashing up of one time within another or, in this passage, a timelessness within the domain of time. We have to understand how an atemporal mode breaks into another, or how an atemporal mode breaks out from with a temporal one. *Such traversals are possible only on the condition that finite and present temporality does not contain the other temporality that runs through it, flashes up within it, or breaks into or out of it.*¹⁸⁹

The key point is that “to say that any given transient object or life is informed by an **eternal recurrence of transience** is not to say that that eternal recurrence is transience, will stop at some time, or be finished once and for all. For transience to be informed by the eternal means that it is interrupted or broken up by a temporal order that exceeds its frame, indeed, a temporal order that is not itself transient (and that strictly speaking, is not a temporal modality, but an atemporal one).”¹⁹⁰ In other words, *nature is constituted as transient in and through the breaking-in of an atemporal temporality.*

And this brings us to the concluding sentence of the paragraph we’ve been considering: “The conclusion is not that the messianic belongs to another

order, but only that it operates within this one [the this-worldly] as a constitutive alterity—breaking in, breaking out, flashing up, confounding without collapsing the spheres of this-worldly and the otherworldly.”

If the very nature of this “breaking in, breaking out, flashing up” is such that its relationship to nature (and it the very nature of this nature that is at stake and in question) is constitutive, rather than one that figures nature in a passive role awaiting the mark of the messianic, that is, if the nature of this “flashing up” is such that there is no nature that endures until it receives the mark of transience, but rather is constituted in and through eternal transience, does this action (intra-action) with the eternal somehow constitute nature as agentive? That is, *can we understand nature, which is eternally transient in its very constitution, as itself agentive and alive with possibilities?*¹⁹¹ And how is this accounted for? For in reading Benjamin’s explication of the messianic in the “Theses,” it seems clear that the revolutionary Lurianic possibilities that are shot through the thick-now of the present are materially co-constituted; in other words, each moment, each bit of matter is materially shot through with the possibilities for change and transformation. And if the messianic, by Benjamin’s lights, is surely not human, if his “formulation afflicts our very capacity to refer to the Messiah as a historically embodied figure,”¹⁹² then the nature of nature must itself be agentive.

At this point, I want to return to the claim that opened this section, and consider it in light of what we have learned about Butler’s understanding of Benjamin’s notion of the messianic. Let’s remind ourselves of this very point: *The messianic—the flashing up of the infinite, an infinity of other times within this time—is written into the very structure of matter-time-being itself.*

Although this claim relies heavily on my agential realist reading of quantum field theory (which also constitutes a further elaboration of agential realism), I would remind the reader, as I cautioned at the outset of this essay, that this is not to position the scientific (in particular, QFT) as the foundation for the theological-political, but on the contrary, to understand the scientific as always already shot through with the theological-political in a way that undermines the privileging of the former over the latter. In particular, the reader will do well to remember that my agential realist interpretation of quantum physics was crafted using a diffractive methodology of reading insights drawn from quantum physics through those of social and political theories (which, in particular, means that it is already shot through with some of Butler’s insights).

A few notes and qualifications before I begin. First of all, as I mentioned previously, I will not be offering a systematic exposition of QFT here; rather, in what follows I rely on the montage, or shifting diffraction patterning, of fragments on QFT as diffractively read through other fragments, in the previ-

ous section of the essay. Second, if the “eternal” is usually understood as the temporal dimension of the infinite, which leaves the spatial to one side, I will speak about the “infinite” in what follows, since this term covers both spatial and temporal aspects of the infinite, and, in QFT, in particular, space and time do not exist as separate categories but rather are combined into spacetime (or rather, space, time, and matter become spacetime-mattering).¹⁹³ I will, however, occasionally use “eternal” to specifically strike up resonances with Butler’s analysis. Also, if nature, as Benjamin understands it, is that which is susceptible to downfall (often identified as “the living”), we will not be deviating from this in focusing on matter (since the conception of matter presented here calls into question the animate/inanimate binary).

As I have explained in detail elsewhere, according to (my agential realist reading of) QFT, there is an important sense in which the eternal/infinite does in fact operate with/in and through matter in its very constitution and as a constitutive alterity.

The infinite touch of nothingness is threaded through all being/becoming, a tangible indeterminacy that goes to the heart of matter. Matter is not only iteratively reconstituted through its various intra-actions, it is also infinitely and infinitesimally shot through with alterity.¹⁹⁴

What is the nature of this constitutive alterity and its operation with/in and through matter in its very constitution? It is the dynamism of the in/determinacy of the nothingness (the quantum vacuum) and its inseparability from matter that is the source and substance of this constitutive alterity. **The quantum vacuum is an active polyrhythmic polyphonic play of nothingness, the polyamorous multiply desiring material sensuous vibrancy of the virtual.** The virtual in its materiality is the infinite play of the flashing up of an infinity of possible “histories,” diffraction patternings of spacetime-mattering in their ongoing reconfiguring, which derives from the indeterminacy (an ongoing dynamism) of time-being, where these “histories” do not happen in time, but rather, are the indeterminate flashings up of different times, rhythms, temporalities through one another.

Because *even* (but not only!) the smallest bits of matter, the electron, for example, engage in (all possible ways of) self-touching, the very nature of “self” is necessarily troubled. In the electron’s touching itself, it intra-acts with the vacuum’s indeterminate play of being-nonbeing and is in touch with all possible virtual-particles/fluctuations-of-nothingness in all possible ways.

According to QFT, *even the smallest bits of matter are an enormous multitude!* Each “individual” is made up of all possible histories of virtual

intra-actions with all others; or rather, according to QFT, there is no such thing as a discrete individual with its own roster of properties. In fact, *the "other"—the constitutively excluded—is always already within (but not fully enclosed by the self): the very notion of the "self" is a troubling of the interior/exterior distinction.* Matter in the indeterminacy of its being un/does identity and unsettles the very foundations of non/being. Together with Derrida we might then say: "identity . . . can only affirm itself as identity to itself by opening itself to the hospitality of a difference from itself or of a difference with itself. Condition of the self, such a difference *from* and *with* itself would then be its very thing . . . the stranger at home." What is being called into question here is the very nature of the "self"; all "selves" are not themselves but rather all matter of time-beings. *The self is dispersed/diffracted through being and time.* In an undoing of the inside/outside distinction, it is undecidable whether there is an implosion of otherness, or a dispersion of self throughout spacetime-mattering.¹⁹⁵

These are admittedly very strange matters, especially in light of the predominant scientific and Western metaphysical assumption that matter is an eternal and fixed sameness that travels in the void. Clearly, the very nature of matter and nature are being radically reworked in quantum theory. And it is these very forms of self-touching (self-intra-actions) through which the infinite makes itself felt. *Ontological indeterminacy—the flashing up of the infinite in the making of the finite, a dynamism that constitutes the eternal transience of matter, the recurrent passing-away and opening-up of eternally reconfigured im/possibilities in the very undoing of linear causality and determinism—is at the core of mattering, in its very constitution.*

Hence, to say that the messianic is written into the very structure of matter-time-being is not to claim that matter fully includes, encloses, or encompasses the eternal. Rather, it is to say that the "flashing up"—the in/determinate play of non/being as it flashes-up/returns-to the vacuum—is integral to the very nature of matter. It is, for example, to say that the indeterminacy of time-being, the flashing up of other possible worldings—the messianic—is shot through every bit of matter, every moment. Moments are not infinitely thin-slices of the present, but rather "now-time" (*Jetztzeit*)—the infinitely thick-now, "blasted out of the continuum of history" and "shot through with chips of Messianic time"—the possibilities for reconfiguring spacetime-mattering in an instant: "a leap in the open air of history."¹⁹⁶

On the one hand, the fact that the eternal is not fully contained within matter is evidenced by the fact that the "flashing up" is itself a characteristic of the nothingness that "surrounds" as well as is threaded through every bit of matter. On the other hand or, rather, at the same time, the sense of an "inside"

versus an "outside" to matter is compromised by the very fact that there is no absolute separation between "matter" and "void" or, for that matter, between "inside" and "outside," which is not to deny distinctions, but rather to come to terms with the radical openness that is matter in its eternally iterative rematerialization—its materializing "itself" otherwise, reconfiguring "itself" anew. *Matter is indeed agentive in its very constitution.*¹⁹⁷

What about Butler's point that in Benjamin's "Fragment" the messianic is the name for the break in referentiality that occurs when something historical seeks to relate itself to the messianic and necessarily fails? Recall that the process of making finite what "starts out" as infinite is very involved and complicated, whether in QFT or in Lurianic Kabbalah. In QFT, the process of "renormalization"—the "handling" of infinities in QFT—is *not* a mechanism for placing the infinite or the eternal within the realm of representation, "in some final and readable form within worldly or worldly terms." On the contrary, the individual mathematical maneuvers are not translatable in worldly terms; "renormalization" is a patchwork set of mathematical acrobatics that lacks a sound mathematical foundation, barely managing a safety net, and the severe (but not wholly intractable) difficulties of "taming" the infinities marks a failure of the possibility of representing and explicating the nature of the infinity of infinities.

And yet through the renormalization procedure it is nonetheless possible to conclude that for all this self-touching-the-other, through the "bare" particle's inseparability from the vacuum, *the result of the eternal flashing up of the infinite, is that each bit of matter (no matter how large or small) far from being fixed and eternal ultimately winds up having only a finite lifetime.* Although the focus has been on the smallest bits of matter, in order to show that matter has this messianic structure written into its finitude, *no matter how small a piece*, this is surely true of all material beings, each of which is *an enormous entangled multitude*. This is a good reminder that we are not just talking about the "microworld" (as if one existed—indeed, any such conception is clearly being undone here!) nor "inanimate" matter (as if that category any longer had any meaning). In particular, the very materiality of our being, indeed *all beings*, participates in this rhythm of eternal transience.

Hence, on this account the messianic can be understood as a constitutive alterity, a flashing up of other time-beings with/in and through matter *in its very constitution*. Is there some way in which we might understand this operation as a flashing up that is *constitutive* of matter itself *without* thereby "collapsing the spheres of this-worldly and the otherworldly"?

This question goes to a broader set of questions about how distinctions and separations are figured within this relational ontology of agential realism, which is the basis for my reading of QFT (and which also constitutes

a further elaboration of the theory). It is important to realize that the usual options—no separation/distinction and absolute separation/distinction—do not exhaust the possibilities. *Agential separability* provides one such alternative, and this goes to the core of the notion of intra-action, which troubles conventional conceptions of causality (and spacetime-mattering).¹⁹⁸ In brief, *agential separability* is the agential realist conception of separability that results from *intra-actions* (not interactions): Differentiations do not precede intra-actions but rather result in and through them, such that the “differentiations” so constituted are entangled or ontologically inseparable (as part of one phenomenon). Agential separability is a differentiation within entanglement: a cutting together-apart, differentiating-entangling as one move.¹⁹⁹ “Differentiating is not about radical exteriority but rather agential separability. That is, differentiating is not about othering or separating [off,] but on the contrary about making connections and commitments.”²⁰⁰

Significantly, my agential realist reading of QFT entails intra-actions, not interactions, and so it is possible to acknowledge that the flashing up of the messianic is written into the very structure of—is indeed constitutive of—matter-time-being itself, without thereby collapsing the spheres of this-worldly and otherworldly. In particular, the this-worldly and the otherworldly are neither entirely separate realms nor overlapping or equivalent realms; rather, they are agentially separable, which constitutes a radical reworking of the immanent/transcendent dichotomy. The infinite flashes up within and through the constitution of the finite, but this is not to say that it is possible to fully contain the infinite within the finite. And furthermore, to fully jettison the transcendent is an act of hubris, the kind of hubris that breeds the violence of state-sanctioned, state-funded technoscientific practices like the Manhattan project, which presumed that it was possible to get a handle on matter down to its “smallest parts” in order to harness the energy of “a thousand suns.” However, to deny the immanent, to deny matter the fullness of its agency, is to cut short the practical sensuous material possibilities for change. It is to forget one of the central contributions of Lurianic Kabbalah, the fact that the messianic is not something that arrives (one day) from on high, but rather is here-now in the form of “messianic chips” whose energies are released through collective praxis—material activities of reconfiguring the conditions of im/possibilities of change/transformation/revolution, to enliven and activate the possibilities for justice that are here-now, in this very instant. Benjamin caught hold of Luria’s notion of praxis and the revolutionary possibilities for redemption and read him through Marx, and vice versa. The repair of the world (*tikkun olam*) is an immanent praxis shot through with and made possible by the flashing up of the infinite from within the finite.

And this point brings us full circle, back to Benjamin’s “Theological-Political Fragment,” wherein “a worldly restitution leads to the eternity of downfall, and the rhythm of this eternally transient worldly existence, transient in its totality, in its spatial but also in its temporal totality, the rhythm of Messianic nature, is happiness. For nature is Messianic by reason of its eternal and total passing away.” Butler’s inspired interpretation of downfall and happiness brings this home. She writes:

Can we understand happiness as the apprehension of the rhythm of transience, and even consisting in the abandonment of an anthropocentric relation to loss? . . . The embrace of transitoriness implies the loss of the very first-person perspective that would make the embrace; to hear or sense the rhythm of transience is precisely to allow one’s own loss, even the loss of one’s own finite personhood, to become at once small and iterable. . . . Happiness . . . is that rhythmic movement or sound by which each and every living process is washed away, and thus linked with one another in their vanishing. One might understand this as a radical break with narcissism, including most importantly, the negative narcissism of guilt. . . . The nonanthropocentric apprehension of transience is what releases the human subject from guilt, self-vilification, and cycles of retribution . . . which would include accusations of guilt and rationales for war. Further, from the perspective of eternal transience, my own life is equal to the life of every other, that is, equally subject to this eternally recurrent dying away. . . . The deconstitution of the human subject into its “living soul” is precisely the access to the nonanthropocentric basis of his or her happiness, a link with an eternal rhythm that washes away traces of guilt, and affirms transience as an eternal link among all living beings.²⁰¹

And perhaps it is this eternal link among all living beings, all beings in their aliveness, this shared transience, and the possibilities for renewal that follow downfall, that is needed in confronting the rise of fascism in its connections with late capitalism, the normativity of state-sanctioned violence against the oppressed, and the ongoing devastation of the planet and all its inhabitants. Facing the im/possibilities of living on a damaged planet, where it is impossible to tease apart political, economic, racist, colonialist, and natural sources of homelessness (otherwise called “the problem of refugees”), will require multiple forms of collective praxis willing to risk interrupting the “flow of progress”—not by bombing the other but by blasting open the continuum of history. THE END

NOTES

Acknowledgments: In engaging with the methodology of diffraction/constellation, time and again I found myself overcome by the multitudinous patternings that came to the fore while I traced the flashes, lighting up intermittently here and there, watching the configurations crystallize and then rearrange. I found myself taken in by the configurations and felt amazement as each one expanded, shifted and reconstellated again; the project felt like it would burst under this pressure, as it kept expanding in more and more directions. Perhaps this was a taste of what Benjamin may have experienced in his unending travails on the *Passagen-Werk*. As a result, and also because I found myself face to face with the transience of the life of loved ones, I missed innumerable deadlines for this essay, and every one of them was greeted with understanding, encouragement, and grace by my supremely patient editors, Catherine Keller and Mary-Jane Rubenstein. I am enormously grateful to them for hanging in there with me despite all the missed deadlines and beyond all expectations, and for their generous feedback. I am also infinitely indebted to Fern Feldman for making it possible for me to continue living in deadline mode for months on end, for her careful reading of and feedback on the essay, for amazingly helpful and inspiring conversations, and for all her ideas that I can't even begin to separate out from mine in this essay and are wholly inadequately acknowledged here. I am deeply grateful to Victor Silverman and Judith Butler for their important comments on earlier drafts of the essay. Finally, this essay was written during a year in my life when I lost my father, Harold Barad, and my dear friend Professor Ibrahim Baba Farajajé. This essay is dedicated to them. May their memories be for a blessing.

1. "Thick-now" is an identifying phrase that I use to invoke the thick sense of multiple historicities and temporalities that exist in any given moment. More on this below. In particular, the "thick-now of the present," as I have used it, is resonant with Benjamin's now-time (*Jetztzeit*), as I understand it. See, for example, Karen Barad, "TransMaterialities: Trans*/Matter/Realities and Queer Political Imaginings," *GLQ* 21, no. 2-3 (2015): 387-422, and Karen Barad, "Troubling Time/s and Ecologies of Nothingness: On the Im/Possibilities of Living and Dying in the Void," in *Eco-Deconstruction: Derrida and Environmental Philosophy*, ed. Matthias Fritsch, Philippe Lynes, and David Wood (New York: Fordham University Press, forthcoming 2017).
2. Walter Benjamin, "Theses on the Philosophy of History," in *Illuminations*, trans. Harry Zohn (New York: Schocken, 1969), Thesis XVII, 263.
3. Judith Butler, *Parting Ways: Jewishness and the Critique of Zionism* (New York: Columbia University Press, 2012), 103. Butler's Benjamin quotations are taken from "Theses on the Philosophy of History," 261.
4. Benjamin, "Theses," Thesis XVI, 262; see also Thesis XVII, 263.
5. The quotation marks are Benjamin's: "'Construction' presupposes 'destruction,'" quoted in Susan Buck-Morss, *The Dialectics of Seeing: Walter Benjamin and the Arcades Project* (Cambridge, MA: MIT Press, 1989), 219.

6. Susan Buck-Morss, *Dialectics*, 250. Buck-Morss here refers to Benjamin, V, 578 (N3, 4).
7. Although Derrida distances deconstruction from Benjaminian destruction (Derrida, "Force of Law," trans. Mary Quantaince, *Cardozo Law Review* 11, nos. 5-6 [1990]: 919-1046), I hope it will become evident here that there may be creative materialist possibilities for reconsidering Derrida's distancing response.
8. Butler, *Parting Ways*, 92-98.
9. Benjamin, "Theses," Thesis IX, 258.
10. Ibid., Thesis IX, 257-58.
11. Ibid., Thesis XVI, 262.
12. This story appears in different versions in *Yerushalmi Brachot* (2:17a, b) and *Lamentations Rabbah* (16:51). From the latter: "A hard fate is in store for my child. 'Why' he asked; and she answered 'Because close on his coming the Temple was destroyed.' He said to her, 'We trust in the Lord of the Universe that as close on his coming it was destroyed so close to his coming it will be rebuilt.' . . . After some days the man said, 'I will go and see how the child is getting on.' He came to the woman and asked, 'How is the child?' She answered, 'Did I not tell you that a hard fate is in store for him? Misfortune has dogged him. From the time [you left] there have been strong winds and a whirlwind came and carried him off.' He said to her, 'Did I not tell you at his coming [the Temple] was destroyed and at his coming it will be rebuilt?' [footnote: The fact that the storm carried him away was evidence that the child was to be used for supernatural purposes]" (*Lamentations Rabbah* [London: Soncino, 1983], 137). The tradition was that the Messiah would be born on the day that the Temple was destroyed. I am grateful to Fern Feldman for bringing this to my attention.
13. Benjamin, "Theses," Thesis XVII, 263.
14. Ibid., Thesis II, 254.
15. Butler, *Parting Ways*, 94, my emphasis.
16. Ibid.
17. Benjamin, "Theses," Thesis VIII, 257.
18. Ibid.
19. Butler, *Parting Ways*, 94.
20. Ibid., 123.
21. Butler writes, "It is important to remember not only that divine power destroys mythical power, but that divine power *expiates*. This suggests that divine power acts upon guilt in an effort to undo its effects. Divine violence acts upon lawmaking and the entire realm of myth, seeking to expiate those marks of misdeeds in the name of a forgiveness that assumes no human expression. . . . For Benjamin the Jewish God does not induce guilt and so is not associated with the terrors of rebuke. Indeed, divine power is described as lethal without spilling blood. It strikes at the legal shackles by which the body is petrified and forced into endless sorrow, but it does not strike, in Benjamin's view, at the soul of the living. Indeed, in the name of the soul of the living, divine violence acts" (Butler, *Parting Ways*, 80).

22. Cited in Susan Buck-Morss, *Walter Benjamin and the Arcades Project* (Cambridge, MA: MIT Press, 1991), 250.
23. From Ernest Rutherford's Nobel Prize lecture: "A minute fraction of the radium atoms is supposed each second to become unstable, breaking up with explosive violence. A fragment of the atom—an α -particle—is ejected at a high speed, and the residue of the atom, which has a lighter weight than before, becomes an atom of a new substance, the radium emanation" (Ernest Rutherford, "The Chemical Nature of the α -Particles from Radioactive Substances," in *The Collected Papers of Lord Rutherford of Nelson*, vol. 2 [New York: Routledge, 2014], 139). The announcement of major new discoveries in nuclear physics by Rutherford at a scientific meeting in 1933 inspired the headlines and an article by Rutherford in *The Times of London*. A five-stacked headline from *Illustrated News* announced that nothing less than "a new world" resulted from this discovery (Richard Reeves, *A Force of Nature: The Frontier Genius of Ernest Rutherford* [New York: W. W. Norton and Sons, 2008], 149).
24. *Spacetime-mattering* is an agential realist term that acknowledges the iterative materialization of space-time-matter. See Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, N.C.: Duke University Press, 2007). More on this below. I ask for patience with the many citations to my own work in this essay. I am trying to condense much into this essay, and I am forgoing any systematic explication of agential realism here. The many citations are meant to direct the reader to more detailed discussions of points only hinted at here.
25. Benjamin, "Theses," Thesis A, 263.
26. As I tried to make clear in my earlier work, "posthumanist" (for lack of a better word when I first used it in 2002) thinking for me is *not* about moving beyond the human, but rather about understanding how the cut gets made that differentially marks the "human" in relation to its constitutive others. That is, the "posthumanist" point is that distinguishing cuts must enter into the frame of analysis rather than beginning the analysis after these divisions are made, thereby enabling an exploration of the limits that human exceptionalism in its differential constitution of the "human" poses to theory construction, political praxis, and scientific practices. See Barad, *Meeting the Universe Halfway*, esp. pp. 32 and 136, and chap. 4.
27. "At the lab bench" is a shorthand for radically reworking scientific practices from within so that questions of justice (including questions of what constitutes justice and for whom) are part and parcel of scientific practices, as opposed to the usual after-the-fact ethical analyses performed by professional ethicists where the "ethical implications" regarding possible (mis)uses of scientific findings are analyzed in a limiting way that leaves science itself in the rarefied realm of pure knowledge. The latter approaches, including ELSI (ethical, legal, and social implications) analyses that are an afterthought on grant applications, leave science untouched, miss crucial issues of justice, and have the wrong temporality: They are too little, too late. For more details see J. Reardon, J. Metcalf, M. Kenney, and K. Barad, "Science and Justice: The Trouble and the Promise," *Catalyst: Feminism, Theory, Technoscience* 1, no. 1 (2015): 1–36.
28. I only hint here at some of the important entanglements. See *Meeting the Universe Halfway*. More recently I have been publishing works on the entanglements between *quantum field theory* and the atomic bomb, which are of relevance here: See, for example, "Troubling Time/s," and "No Small Matter: Mushroom Clouds, Ecologies of Nothingness, and Topologies of Spacetime-mattering," in *Arts of Living on a Damaged Planet*, ed. Anna Tsing, Heather Swanson, and Elaine Gan (University of Minnesota Press, forthcoming, 2017). My most recent writings on quantum field theory seek to shed light on the violence as well as the radical political potential written into quantum field theory. This essay, engaging with the work of Walter Benjamin, is drawn from a larger body of work in progress, tentatively titled *What Flashes Up*.
29. A critique of science that only attends to its overblown authority, without also taking account of its empirical reliability, and the fact that science and fact-making are under attack by right-wing forces has never been sufficient, and surely isn't now.
30. For example, the scientific notion of diffraction (already suggested by Benjamin's references to crystallization) might be useful—see below. A diffractive methodology (Barad, *Meeting the Universe Halfway*) would allow the following type of claim to be made without theocratic implications: The fact that Benjamin finds Kabbalah to be an important resource for his work is not in spite of, but because of, his political, indeed Marxist, commitments. In particular, despite the fact that several prominent scholars of Benjamin's work, including his friend Gershom Scholem, find an irreconcilable tension between his commitments to Marxism and Kabbalah, it is precisely those times when Benjamin refers to Marxism that he is drawing most directly from Kabbalah, and vice versa. Which is *not* to say that they are the same in his mind or that he collapses the two—but rather, that he diffractively works their insights through one another—understanding that each is in fact always already threaded through the other: so that, for example, it is not only the fact that the messianic takes the form of interrupting commodity time, but also that praxis takes the form of *tikkun olam* (repair of the world through material acts); neither is fully enclosed in the other but each is diffractively threaded through the other.
31. See Butler, *Parting Ways*.
32. On questions of water justice see, for example, Nicole Harari and Jesse Roseman, *Environmental Peacebuilding Theory and Practice: A Case Study of the Good Water Neighbors Project and In-Depth Analysis of the Wadi Fukin/Tzur Hadassah Communities* (Amman, Bethlehem, and Tel Aviv: EcoPeace/Friends of the Earth Middle East, 2008). Website http://foeme.org/uploads/publications_publ93_1.pdf.
33. Benjamin, "Theses," Thesis XIII, 261.
34. Isaac Newton, Scholium to the Definitions in *Philosophiae Naturalis Principia Mathematica*, bk. 1 (1689); trans. Andrew Motte (1729), rev. Florian Cajori (Berkeley: University of California Press, 1934), 6.
35. Benjamin, "Theses," Thesis XVII, 263. For more on the materialization of time see the agential realist notion of *spacetime-mattering* in *Meeting the Universe Halfway*, and also as further elaborated in Barad, "Quantum Entanglements and Hauntological Relations of Inheritance."

36. Benjamin, "Theses," Thesis XVII in its entirety, 262–63, my emphasis.
37. Walter Benjamin, *Arcades Project*, [N10, 3], 475, my emphasis.
38. Ibid. [N2, 6].
39. Anne Sayre, *Rosalind Franklin and DNA* (New York: W. W. Norton, 1975).
40. Different kinds of beams are used to determine structure, depending on particular parameters of the crystalline or molecular structure and what level of detail is sought. X-rays (high energy light), electrons, and neutrons are often used. Sometimes an inverse process is used to determine the characteristics of the substance that makes up the beam rather than the crystal. Crystallography has been used to confirm that electrons (and other subatomic entities generally considered to be particles) can exhibit wave behavior: In particular, aiming a beam of electrons at a crystal produces a diffraction pattern. With regard to Benjamin's remark that the "total event" is contained in a small bit, two facts about diffraction are worth noting: (1) The diffraction pattern is a "fourier transform" of the spatial structure, which in essence means that it is taking account of all possible wave interferences with the structure, and (2) diffraction is the basis for holography—the making of holograms—where beams of light coming from lasers directed from different directions and bouncing off the object combine to make a diffraction pattern—that is, a hologram. Each fragment of a hologram contains the entire image of the object.
41. On a materialist reading of Derrida's notion of *hauntology*, especially as appropriate in understanding quantum physics, see Karen Barad, "Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come," *Derrida Today* 3, no. 2 (2010): 240–68. For more on temporal diffraction see Barad, "Troubling Time/s" and references therein.
42. See my analysis of the physics-politics of the "quantum eraser experiment," and see also the agential realist notion of *spacetime-mattering* as a process of materialization, in Barad, *Meeting the Universe Halfway*, esp. chap. 7, and Barad, "Quantum Entanglements and Hauntological Relations of Inheritance."
43. Benjamin, *Arcades Project*, <M°, 14>, 854.
44. Albert Einstein, "Zur Elektrodynamik bewegter Körper," *Annalen der Physik* 17 (1905): 891.
45. Benjamin, *Arcades Project*, <H°, 16>, 845.
46. Ibid., [N2a, 3], 462, my emphasis.
47. Ibid., [N1, 1], 456.
48. Martin Uman, *Lightning: Physics and Effects* (Cambridge: Cambridge University Press, 1986).
49. Karen Barad, "TransMaterialities: Trans*/Matter/Realities and Queer Political Imaginings," in *GLQ* 21, no. 2–3 (2015): 398. See also Karen Barad, "Nature's Queer Performativity (the authorized version)," in *Kvinder, Køn & Forskning* (Women, Gender & Research), no. 1–2 (2012): 25–53, and Vicki Kirby, *Quantum Anthropologies: Life at Large* (Durham, N.C.: Duke University Press, 2011).
50. Discovery Channel television program "Discovery Wonders of Weather: Lightning Phenomena" (September 2007), <http://science.howstuffworks.com/nature/natural-disasters/lightning.htm>, quoted in "Nature's Queer Performativity," 35.
51. I make this argument in more detail in "Nature's Queer Performativity" and in "TransMaterialities." Related to lightning and also to Benjamin's "dialectical reversal," see the discussion of the quantum eraser experiment in Barad, *Meeting the Universe Halfway*, chap. 7, and Barad, "Quantum Entanglements and Hauntological Relations of Inheritance."
52. Benjamin, *Arcades Project*, [K1, 2], 389.
53. Rolf Tiedemann, "Dialectics at a Standstill: Approaches to the *Passagen-Werk*," in *The Arcades Project*, 942, my emphasis.
54. Benjamin, "Theses," Thesis XIV, 263 and Benjamin, *Arcades Project*, [NII, 3], respectively, as quoted in Tiedemann, "Dialectics at a Standstill," 942.
55. See below for more details on quantum field theory (QFT) and its notion of thick-now as a condensation of temporalities and possibilities.
56. Significantly, all three are also important figures in Kabbalah. See Barad *What Flashes Up* (in progress) for more details.
57. The quoted phrases are from Benjamin, "Theses," Thesis VII, 256.
58. Tiedemann, "Dialectics at a Standstill," 931.
59. Benjamin's montage methodology has many interesting resonances with my "diffractive methodology"—a specifically materialist methodology that is designed to be consistent with and is informed by agential realism's ontoepistemology (Barad, *Meeting the Universe Halfway*, chap. 2). That the physical phenomenon of crystallization already entails diffraction hints at the resonances here; for more details see Barad, *What Flashes Up*.
60. On "dis/continuity" and its relationship to writing histories that do not assume linear time see Barad, "Quantum Entanglements and Hauntological Relations of Inheritance."
61. See Barad, *Meeting the Universe Halfway* for more details.
62. Barad, *Meeting the Universe Halfway*. I have continued to elaborate both the ontoepistemological framework of agential realism and the agential realist interpretation of quantum physics following the publication of *Meeting the Universe Halfway*. Of particular relevance to this essay are my more recent publications on quantum field theory (QFT). These include Karen Barad, *What Is the Measure of Nothingness? Infinity, Virtuality, Justice / Was ist das Maß des Nichts? Unendlichkeit, Virtualität, Gerechtigkeit*, dOCUMENTA (13): 100 Notes—100 Thoughts / 100 Notizen—100 Gedanken | Book N°099 (English & German edition, 2012); Karen Barad, "On Touching—The Inhuman That Therefore I Am," in "Feminist Theory Out of Science," special issue, *differences: A Journal of Feminist Cultural Studies* 23, no. 3 (2012): 206–23; Barad, "TransMaterialities"; Barad, "Troubling Time/s and Ecologies of Nothingness"; and Barad, "No Small Matter."
63. Karen Barad, "Diffracting Diffractions: Cutting Together-Apart," in "Diffracting Worlds, Diffractive Readings—Onto-Epistemologies and the Critical Humanities," ed. Kathrin Thiele and Brigit Kaiser, special issue, *Parallax* 20, no. 3 (2014): 168–87.
64. Judith Butler, "One Time Traverses Another: Benjamin's 'Theological-Political Fragment,'" in *Walter Benjamin and Theology*, ed. Colby Dickinson and Stéphane Symons (New York: Fordham University Press, 2016), 272–85.

65. Ibid., 272, my emphasis.
66. Ibid., 274, my emphasis.
67. Ibid., my emphasis.
68. Ibid., 273.
69. Marc-Alain Ouaknin, *The Burnt Book: Reading the Talmud*, trans. Llewellyn Brown (Princeton, N.J.: Princeton University Press, 1995), 169. The citation for the quotations used by Ouaknin here are from Emmanuel Levinas's *Totality and Infinity* (Pittsburgh: Duquesne University Press, 1988), 283.
70. Ouaknin, *Burnt Book*, 171. The citation for the quotations used by Ouaknin here are from Maurice Blanchot's *L'entretien infini* (Paris: Gallimard, 1969), 260. I have changed the spelling of the Hebrew word *Hidush* to keep the transliteration conventions consistent in my essay.
71. Ibid., 94.
72. Ibid., 62; this is Ouaknin quoting Vladimir Jankélévitch.
73. Ibid., 89.
74. Genesis (*Bereishit*) 1:1
75. Rashi, *The Torah: With Rashi's Commentary*, translated, annotated, and elucidated by Rabbi Yisrael Isser Zvi Herczeg (New York: Mesorah Publications, 1995, 1999), *Bereishit/Genesis* 1:2.
76. See Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 244.
77. Benjamin, "Theses," Thesis XIV, 261.
78. Barad, "Nature's Queer Performativity," 40.
79. Jacques Derrida, *Specters of Marx: The State of the Debt, the Work of Mourning, and the New International* (New York: Routledge, 1994), 29.
80. Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 265.
81. On these points see Barad, *Meeting the Universe Halfway*; Barad, "Quantum Entanglements and Hauntological Relations of Inheritance"; Barad, "Nature's Queer Performativity," Barad, "No Small Matter."
82. On the *dillug* in the Passover story see R. Sholom Noach Berezovsky, *Sefer Netivot Shalom al Moadim u'Midot* (Jerusalem: Yeshivat Beit Avraham Slonim, 5761), 2:313.
83. Benjamin, "Theses," Thesis XV, 261.
84. Benjamin, "Theses," Theses XIV, XV, 261.
85. Rashi, *Shemot/Exodus*, 3:106.
86. The four new years are: The first of *Nisan*, the first of *Elul* (for the tithe of animals), *Rosh Hashanah* (literally Head of the Year, which is the first day of the seventh month, *Tishrei*; New Year for the years and for planting and for vegetables, commemorates creation of the world), and *Tu B'Shvat* (New Year of the Trees). *Mishnah Rosh Hashanah* 1:1.
87. Ouaknin, *Burnt Book*, 171.
88. R. Shalom Noach Berezovsky, *Netivot Shalom al haTorah*, 2:323, trans. Fern Feldman. My gratitude to Fern Feldman for this reference.
89. See *Sefer Yetzirah: The Book of Creation*, trans. and commentary by Aryeh Kaplan (Boston: Weiser Books, 1997), chap. 4.
90. See below on matters of time-being in quantum field theory. Benjamin mentions both *Jetztzeit* (now-time) and *Jetztseins* (now-being, waking-being), *Arcades Project*, <O°, 5>, 857; "waking-beings" is Tiedemann's translation on page 942.
91. Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 258.
92. Ibid., 260–61.
93. Benjamin, *Arcades Project*, [K1, 2], 389.
94. See below on matters of time-being in quantum field theory. For more details see Barad, "Troubling Time/s".
95. Benjamin, *Arcades Project*, [M1a, 1], 418.
96. Butler, *Parting Ways*, 102.
97. Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 261.
98. Benjamin, "Theses," Thesis B, 264.
99. Rabbi Akiva, as quoted in *Pirkei Avot* 3:19.
100. Every Passover Haggadah has this line: "In every generation a person is obligated to see themselves as if they had left Egypt [*Mitrayim*: the narrow place]" (*Mishnah Pesachim* 116b).
101. Deuteronomy (*Devarim*) 15:15.
102. Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 265.
103. Ibid., 266.
104. Benjamin, *Arcades Project* [NII, 3].
105. Deuteronomy 16:20. See also Butler, *Parting Ways*.
106. Benjamin, "Theses," Thesis VI, 255.
107. *Pirkei Avot* is traditionally studied between Passover and Shavuot.
108. *Pirkei Avot*, 1:17.
109. Karl Marx, "Theses on Feuerbach," Thesis 11, in *The Portable Karl Marx* (New York: Penguin, 1983), thesis 11, 158.
110. *Midrash Beraishis Rabbah* 1:1.
111. *BT Pesachim* 7a.
112. Isaac Luria (1534–72). For more information about Luria see Larry Fine, *Physician of the Soul, Healer of the Cosmos: Isaac Luria and His Kabbalistic Fellowship* (Stanford: Stanford University Press, 2003). Luria wrote little in his short lifetime. His teachings were written down by his students. The most studied versions of his teachings, and there are multiple redactions, are by R. Chayyim Vital. Page numbers here refer to an English/Hebrew version of *The Tree of Life* (*Etz Chayyim*), vol. 1, with an introduction by Donald Wilder Menzi and Zve Padeh, 2nd ed. (New York: Arizal, 2008).
113. Hava Tirosh-Samuelson, "Philosophy and Kabbalah: 1200 to 1600," in *The Cambridge Companion to Medieval Jewish Philosophy*, ed. Daniel H. Frank and Oliver Leaman (Cambridge: Cambridge University Press, 2003), chap. 11.
114. *Tree of Life*, 13.
115. Ibid.

116. Ibid., 24.
117. Ibid., 13.
118. Lawrence Fine, "The Contemplative Practice of Yihudim in Lurianic Kabbalah," in *Jewish Spirituality*, vol. 2, ed. Arthur Green (Crossroad, 1997), 66.
119. On matter's self-touching see Barad, "On Touching."
120. Ouaknin, *Burnt Book*, 182.
121. Derrida, *On Touching—Jean-Luc Nancy*, trans. Christine Irizarry (Stanford University Press, 2005), 369.
122. On the notion of different sizes of infinities see the work of the mathematician Georg Cantor. Georg Cantor, *Contributions to the Founding of the Theory of Transfinite Numbers*, trans. Philip E. B. Jourdain (New York: Dover, 1915).
123. On the reshimu see Gershom Scholem, *Kabbalah* (New York: Meridian Books, 1974), 312, and Saul Baumann, *Keys to the Wisdom of Truth*, with an introduction and commentaries by Reb Zalman Schachter-Shalomi (ALEPH Canada: Alliance for Jewish Renewal [pamphlet]).
124. Barad, *What Is the Measure of Nothingness?* 8–9.
125. See Luria, *Tree of Life* (*Etz Chayyim*). On co-creation see especially on *tikkun olam*, raising the sparks.
126. Barad, "TransMaterialities," 396; see also Barad, *What Is the Measure of Nothingness?*
127. Barad, "TransMaterialities," 395.
128. Ibid., 396.
129. Barad, "No Small Matter."
130. On *mati v'lo mati* see *Tree of Life*; on agential separability see Barad, *Meeting the Universe Halfway*.
131. Baumann, *Keys to the Wisdom of Truth*.
132. Barad, "No Small Matter." For more on time diffraction see Barad, "Troubling Time/s."
133. The physics term "vacuum fluctuation" is unfortunate, but it has stuck. The notion of "fluctuation" which suggests a process that happens in time is a remnant of a misleading narrative, a story in part for the public, that physicists began repeating at some point about the temporal indeterminacy at the core of things. An unfortunate consequence is that this has led to misunderstanding of the nature of virtuality; nonetheless, this misunderstanding has been and continues to be the basis for some philosophical accounts of the virtual. The tale speaks of the void as a kind of dishonest banker who plays fast and loose with the energy books (the energy banker can cheat as long as it does it quickly enough that no will notice). But this way of putting it misses the radical features of temporal indeterminacy. See Barad, *What Is the Measure of Nothingness?* and "On Touching."
134. Barad, "Troubling Time/s"; see also Barad, *What Is the Measure of Nothingness?*
135. Butler, "One Time Traverses Another," 275.
136. Barad, *What Is the Measure of Nothingness?* 13.
137. Ibid.
138. Butler, "One Time Traverses Another," 274.
139. Like the word "fluctuation" (see n. 133 above), "transience" is also perhaps not the most apt term to use when it comes to the vacuum, since both suggest processes that happen in time over a finite interval, whereas temporal indeterminacy is a defining feature of the vacuum. However, I use this term here not only to point out resonances with Butler's use of the term, but also because it is precisely this virtual feature of the vacuum (named either fluctuation or transience) that is materialized as a property of matter once the intra-actions between the vacuum and matter are taken into account. In other words, the *virtual eternal transience of the vacuum* ultimately manifests as *the eternal transience of all matter*. (This point will be discussed forthwith.)
140. Butler, "One Time Traverses Another," 275.
141. Barad, "No Small Matter." This line from the Bhagavad Gita was famously quoted by physicist J. Robert Oppenheimer (his translation from the Sanskrit) in the wake of the first atomic bomb explosion. See also Barad, "Troubling Time/s" for more on the relationship between the bomb and quantum field theory.
142. Butler, "One Time Traverses Another," 274–75.
143. A. Zee, *Quantum Field Theory in a Nutshell*, 2nd ed. (Princeton, N.J.: Princeton University Press, 2010), 3.
144. Barad, *What Is the Measure of Nothingness?* 9.
145. Ibid., 14–15.
146. See Barad, "TransMaterialities," 410.
147. Scholem, *Kabbalah*, 136.
148. Ibid., 140.
149. Benjamin, "Theses," Thesis XVII, 262–63.
150. Benjamin, "Theses," Thesis XIV, 261; Thesis A, 263.
151. See Scholem, *Kabbalah*, and *Tree of Life*.
152. Barad, "No Small Matter."
153. Butler, "One Time Traverses Another," 273.
154. Benjamin, "Theses," Thesis V, 255.
155. Butler, "One Time Traverses Another," 273.
156. Ibid., 273–74.
157. Ibid., 277–78.
158. Barad, "On Touching," 214.
159. Karen Barad, "Deep Calls unto Deep: Queer Inhumanism and Matters of Justice-to-Come," Transdisciplinary Theological Colloquium, Drew University, Madison, N.J., March 29, 2014.
160. Barad, *What Is the Measure of Nothingness?* 16–17.
161. Benjamin quoted in Tiedemann, "Dialectics at a Standstill," in *Arcades Project*, 944 (orig. 1:1231).
162. Benjamin, "Theological-Political Fragment," 313.
163. This claim is indebted to and builds directly on Butler's insights regarding the nature of nature and the messianic in Benjamin. More on this below.
164. The Jewish tradition has many references to a hopeful vision of the downfall of empires. See, for example, Midrash Tanchuma-Yelammedenu, va-Yetze 2, the story

of Jacob's vision of the angel's ascending and descending a ladder, a rhythmic ascent and downfall. In this case, the specific empires mentioned are Babylon, Media, Green, and Edom (i.e., Rome). My gratitude to Fern Feldman for this reference.

165. Benjamin, "Theses," Thesis VI, 255.

166. Ibid., Thesis II, 254.

167. See my account of the "quantum eraser" experiment in *Meeting* and "Quantum Entanglements and Hauntological Relations."

I am indebted to Judith Butler for her specific framing and articulation of the possibility of this linkage and an email discussion of this point (July 2016). Any mistakes or misunderstandings in the presentation here are mine alone.

168. Butler, "One Time Traverses Another," 278.

169. Ibid., 273.

170. Benjamin, "Theses," Thesis XVII, 262.

171. This also goes for materialisms as well. It would be wrong to think Marx should be turned aside and disposed of in some "turn" to "new materialisms." Feminist science studies and its new materialist innovations are deeply indebted to Marx, whose ghosts are very lively and most welcome. I, for one, understand feminist science studies to have firm roots in Marxist theory and feminist engagements with it. (This legacy is surely evident in classic works such as Donna Haraway's "Cyborg Manifesto" and Sandra Harding's work on standpoint epistemologies; see, for example, Harding, *Whose Science? Whose Knowledge?*) Feminist science studies and feminist studies more generally (if such generalizations are useful) did not and do not dispose of the economic in favor of less material matters, but rather have been at work theorizing how to understand the nature of the material in ways that include but are not restricted to economic forces and how they contribute to the materialization of bodies that matter—all bodies—in their differential constitution. The "new" ought not be understood indexing a successor account and replacement for the "old" according to the logics of the temporality of progress. How the relationship between the "new" and the "old" is understood is part of what is at issue in understanding the nature of matter, materiality, and materialization. See especially Barad, "Diffracting Diffractions."

172. Butler, "One Time Traverses Another," 275.

173. Ibid., my emphasis.

174. Ibid., 277.

175. Ibid., 273–74.

176. In "One Time Traverses Another," Butler is focused on decoding Benjamin's "Fragments," and she therefore stays close to this text. In particular, she doesn't assume there is any consistency or even compatibility across the key articles that frame Benjamin's writings—between the "Fragments" (1919) and the "Theses" (1940). My approach also doesn't assume that Benjamin is unfurling a single philosophy over his lifetime; at the same time, my approach is to work with the fragmentary nature of things, and all matter of quantum leaps, at least experimenting with them and trying them out. And if it is indeed the case that Benjamin's philosophy does not unfold in some continuous fashion, but rather leaps here and there, this does

not necessarily mean that all coherence and significant patterns of *differencing* are lost or rendered impossible. For example, in leaping with Butler across various Benjamin writings, there is nonetheless a consistency in the feature of breaking or disjuncture that runs through his various definitions of the messianic (e.g., break in referentiality ["Fragments"], break in state-sanctioned violence ["Critique of Violence"], break in the continuum of history ["Theses"]), and it is the very nature of this break that it is important to contemplate. More on this below.

177. Butler, *Parting Ways*, 70.

178. Ibid.

179. Butler, "One Time Traverses Another," 274, my emphasis.

180. Ibid., 273–74.

181. Benjamin, "Theological-Political Fragment," 313.

182. Butler, "One Time Traverses Another," 278; second emphasis is mine.

183. Butler, *Bodies that Matter: On the Discursive Construction of "Sex"* (New York: Routledge, 1993).

184. Butler, "One Time Traverses Another," 274–75.

185. Ibid., 275.

186. Ibid.

187. Ibid.

188. Ibid., 276, my emphases.

189. Ibid., my emphasis of this last sentence.

190. Ibid.

191. Butler's goal in "One Time Traverses Another" is to explicate Benjamin's understanding of the nature of nature and the messianic, rather than using Benjamin's philosophy to further elaborate her own philosophy. Given Butler's prior work on the nature of nature, one might expect her to note any uneasiness with Benjamin's conception of nature if he were thinking of the eternal as marking passive nature and imprinting it with eternal transience. Indeed, Butler argues that Benjamin's conception of nature is constituted in and through its relationship with the eternal such that there is no nature that endures while awaiting the mark of the eternal. The question remains, nonetheless, how to understand where this leaves nature with regard to the question of its own agency, especially given the plethora of active verbs attributed to the eternal in its acting in and through nature: such as "traverse," "enter into," "inform," "interrupt," "breaking in/out," "flashing up." That is, when it comes to how the eternal makes itself felt as the transient, it is not clear whether nature also has an active/agentive nature or whether it is the action of the eternal that produces a nature that is necessarily transient but is not itself agentive.

192. Butler, "One Time Traverses Another," 277.

193. See n. 24 above on *spacetime mattering*.

194. Barad, "On Touching," 215.

195. Barad, "Troubling Time/s," and "On Touching." This is true of moments of time as well as bits of matter (being), each of which is indeterminately infinitely large and infinitesimally small, where each bit is specifically constituted through an infinity of intra-actions with all others.

196. Quotes from Benjamin's "Theses," Theses XIV, XV, A, 261, 263.

197. The unending dynamism that is ontological indeterminacy (in action) results in matter's ongoing touching and reconfiguring of itself. This is surely not to say that humans have no role to play in revolutionary politics, as if the world will take care of itself, for there is no world separate from the "human" in its differential constitution and its ongoing rematerializations—which is not to say that humans cannot become extinct, or that the existence of humans is a precondition for the world worlding itself, but on the contrary, to acknowledge the human as being of the world as currently configured. (Humans do not live in an environment, but rather humans in their differential constitution are specific material configurings of the world.) And at the same time, agentive participants such as floods, mosquitoes, melting ice caps, drought, together with water availability, market forces, colonialism, militarism, and so on, in their inseparability, are also part of the field of revolutionary possibilities in their ongoing reconfiguring. (For more details see Barad, *Meeting the Universe Halfway*.) And while Benjamin in the "Theses" seems to suggest that the messianic flashes up during times of urgency (e.g., "to seize hold of a memory as it flashes up in times of danger" [Benjamin, "Theses," Thesis VI]), there is an undoing or dispersion of the notion of event in the agential realist formulation offered here, so that it is possible to hold both points at once: that is, that matter is constituted through the ongoing flashing-up of other times, other histories, other possibilities, and this eternal dynamism offers possibilities for seizing hold of other times as they flash up (and are perhaps most needed in times of danger), as noted in the beginning of this section.

198. For more details on "agential separability" see Barad, *Meeting the Universe Halfway*.

199. For more details see *Meeting the Universe Halfway*. On the ethical dimension see esp. 392–93. See also Barad, "Diffracting Diffractions," and Trinh T. Minh-ha, "Not You/Like You: Post-Colonial Women and the Interlocking Question of Identity and Difference," *Inscriptions*, special issues 3–4, "Feminism and the Critique of Colonial Discourse," (1988), http://culturalstudies.ucsc.edu/PUBS/Inscriptions/vol_3-4/minh-ha.html. [26/02/2014] (my emphasis).

200. Barad, *Meeting the Universe Halfway*, 392.

201. Butler, "One Time Traverses Another," 279–80, 283, 284.

✧ Vegetal Life and Onto-Sympathy

JANE BENNETT

In "I Eat an Apple," Annemarie Mol wonders what would happen to accounts of human agency if they were to begin with the figure of the human-that-eats, rather than, say, thinks or wills or makes:

I eat an apple. Is the agency in the *I* or in the *apple*? . . . Here is the apple, there am I. But a little later (bite, chew, swallow) I have become (made out of) apple; while the apple is (a part of) me. *Transubstantiation*. What about that for a model . . . ?¹

The eating self, it seems, would both highlight the I's entanglements with *outside* bodies (foodstuffs, farm workers, agribusiness machines, etc.) and also underscore the I's *internal* heterogeneity, including a vegetality.² The eating self would present human agency as a multimedia effort distributed across a variety of material elements and shapes.³ Or, in Mol's words, it would lead us away from a "muscular" model of agency and toward something like the gut's "transubstantiation" model⁴—wherein there is an activeness that is neither quite "free" nor fully "determined": "Thus we leave the model of the muscular body and its particular centred masculinity behind—as well as its 'other': the actor controlled from elsewhere (be it a boss, a ruling class, a structure). The eating 'I' is no longer eager to stay a free man lest he becomes a slave, but an altogether different kind of being."⁵

But can we say more about what this "different kind of being" is and does? How to describe this being and his or her or its powers of action? How, in other words, to paint a fuller picture of the life of this nonautonomous but underdetermined creature? In this essay I follow Mol's lead and pursue the trail of the plant within us. I also enlist the help of three naturalists—Henry David Thoreau, Henri Bergson, and Charles Darwin—each of whom, like Mol, believed that human agency was entwined with botanical life. Thoreau