

**A Conversation with Lucretius**  
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I will begin with a fiction. Rather than understanding Lucretius as a 1<sup>st</sup> century Roman philosopher and poet belonging to the Epicurean school, I will instead treat him as a contemporary American philosopher. This isn't so far from the truth. Just as historical Lucretius composed his poem in the context of the Roman Empire, our fictional Lucretius writes in the age of American empire. Likewise, where historical Lucretius wrote his poem for his disgraced friend Memmius, my fictional Lucretius wrote his poem for environmental scientist, James Hansen, who suffered such poor treatment from the Bush administration, and Senator Elizabeth Warren who received such poor treatment from the Obama administration when she was working to found the Consumer Financial Protection Bureau, and who has weathered such harsh treatment from the financial industry and the banks.

For a contemporary American philosopher working in the Continental tradition, my fictional Lucretius is a very strange creature. Unlike many continental theorists, he is thoroughly acquainted with the biology, physics, and the neurology of the day. He's particularly interested in meteorology. I suspect that his fascination with meteorology arose from his love of all things involving process, differentials of pressure and heat, and self-organization. He used to lament the fact that the structuralists chose structure as their guiding metaphor, rather than weather patterns. "How differently we would think of society", he said, "if we'd treated meteorology, not group theory, as our master science!" He was a naturalist and a materialist in a time when it's very unfashionable to be a naturalist or a materialist, but his naturalism and materialism share little resemblance to that of the evolutionary sociologists or Anglo-American theorists. Those of us working in the Marxist, critical theorist, posthumanist, and Foucaultian tradition might take

exception to this. “Aren’t we materialists?” we protest, “don’t we perpetually emphasize our materialist credentials?” Fictional Lucretius caused a great deal of controversy when he suggested that what passes for materialism today is largely a form of idealism, focusing on practices—especially of the linguistic and semiotic variety –while largely ignoring genuine materiality or physicality. “These neo-materialists,” fictional Lucretius remarked in an interview, “treat everything as a *text* to be interpreted, deciphered, and debunked. How can these theorists call themselves materialists when they never talk about anything physical and treat everything as a *meaning* and all power as arising from beliefs?” He believed the term “materialism” had become so degraded that it had lost nearly all meaning.

These comments, and many others fictional Lucretius made in his publications and talks, caused a great deal of controversy and more than a little acrimony. The critical theorists and neo-Marxists of Althusserian descent, piped up and declared that matters were far more complicated than Lucretius suggested, that of course the theorists were materialists. After all, they constantly refer to themselves as materialists. To this, fictional Lucretius, who was never talented at diplomacy despite his poetic skill, responded that *calling* yourself something doesn’t establish that you are that thing, and blandly pointed out that while these theorists embrace the title of materialists, they certainly seem to ignore the contributions that physical phenomena make to the organization of power, that they seem to have a great deal of hostility—resembling that of creationists and climate change deniers –to science, perpetually arguing that it’s socially constructed and but a formation of power and rhetoric, and that despite their claims to be materialists they seemed to comprehend the entire world in terms of constructions of meaning and language. “A curious materialism, that”, fictional Lucretius remarked at one conference. He was exaggerating, of course, but figured there was enough truth to the claim to warrant the

charge. He recognized that there were continental theorists that evaded this characterization such as Donna Haraway, Bruno Latour, Deleuze and Guattari, Serres, and a handful of others. However, within the academy these figures were statistical outliers and certainly weren't the dominant paradigms of theory.

Others accused fictional Lucretius of reducing everything to physics, biology, and neurology. Yet this is where things got really strange. While it's true that in his naturalism and materialism, fictional Lucretius held that everything had to obey the laws of physics and was constrained by biology and neurology, he also held that the phenomena of society could no more be reduced to neurology or biology, than the objects investigated by meteorology can be reduced to physics. Unlike the evolutionary sociologists—for whom he had a great deal of contempt -- who seemed to believe they could explain society and human behavior while largely ignoring the social sciences and history, fictional Lucretius had an extensive background in sociology, psychoanalysis, linguistics, ethnography, and history, and believed that society couldn't be understood without the findings and tools of these disciplines. Fictional Lucretius considered himself an ecologist, but understood "ecology" not as the investigation of natural ecosystems such as those found around deep water volcanic vents or Amazonian rain forests—though these too—but as the study of networks or dynamic systems of relations. Ecology, fictional Lucretius said, is the investigation of networks of entities interacting with one another, exchanging energy with one another, how their behavior and activity is modified as a result of acting in response to these interactions, and the energy these networks draw on to sustain themselves and the waste they produce. Within this framework, Lucretius saw societies or social assemblages as just one more ecosystem. "To be sure," he said, "societies differ from other ecosystems and have unique properties, but then *every* ecosystem differs from other ecosystems and has unique properties."

Unlike historical Lucretius who developed a profound critique of religion that analyzed its detrimental effects on virtue and politics as well as the psychological mechanisms that led to religious belief, fictional Lucretius had written a great deal on ideology and power. His work had deeply influenced Althusser, leading him to develop his theory of ideology as that body of institutions and practices that reproduce the conditions of production. Much to Lucretius's dismay, he felt that Althusser, in his excitement over the concept of ideology, came to ignore the role of political economy, physical geography, and technology in producing conditions of production. When Deleuze and Guattari were writing *Anti-Oedipus*, he was a silent author, helping them to explore the question of how people come to desire their own oppression, and assisting them in working through the thought of Spinoza, Nietzsche, and the psychoanalysts to answer this question. He was a great friend of Pierre Bourdieu, and the two of them had countless discussions of practice, symbolic power, the scholastic fallacy, and *habitus* as the mechanisms by which power comes to be organized. Predictably, those that called themselves naturalists accused fictional Lucretius of being a woolly-headed cultural idealist that ignored biology and neurology.

Such is the intellectual biography of fictional Lucretius. He wrote *De Rerum Natura* as a response to both his critical theorist and so-called "naturalist" critiques. I suspect that his decision to use a Latin title was not without significance. In our many discussions before his untimely death as a result of killer bees while working in his garden in South Texas, he always told me that the Rome—the Rome of atomistic and Epicurean philosophy --presented a third way, a forgotten way, between the two Greek options of Plato and Aristotle. This death by genetically modified bees was a sad irony as he'd spilled so much ink writing about the impact of culture and technology on nonhumans. He seemed unperturbed that his thesis of a third way

wasn't quite accurate given that Democritus and Epicurus were Greek because, as he often said, our most detailed formulation of ancient atomism is to be found in historical Lucretius. In the Romans, he said, he found a certain innocence and joyful exuberance. The Roman Epicureans, he thought, displayed a sort of ontological kindness or generosity that took delight in all living and mineral things and that saw humans as one animal—unique to be sure—among other animals. He liked to point out that they had as much wonder in how fish experience the world as humans. Unlike the Greeks who were obsessed with form or essence, the Romans saw everything as unique and singular. But above all, he said, the Roman atomists conceived being without hierarchy, as a plane of immanence, where forms were not treated as more real than individual things and where there was no unmoved mover or great chain of being serving as the origin of motion.

I confess that I was quite surprised when I sat down to read the manuscript of *De Rerum Natura*. First, much to my astonishment, my friend Lucretius had written it in verse, and beautiful poetry at that. His previous work had always been so arid, so precise, so technical. But here before me was a lush poem. When I asked him about this, he drew my attention to a passage where he wrote,

I teach great things,  
I try to loose men's spirit from the ties,  
Tight-knotted, which ideology, human exceptionalism, and anthropocentrism binds  
around them.

The Muses' grace is on me, as I write  
Clear verse about dark matters. This is not  
A senseless affectation; there's reason to it.  
Just as when doctors try to give to children  
A bitter medicine, they rim the cup  
With honey's sweetness, honey's golden flavor,  
To fool the silly little things, as far  
As the lips at least, so that they'll take the bitter  
Dosage, and swallow it down, fooled, but not swindled,  
But brought to health again through double-dealing,

Too grim for those who never yet have tried it,  
So grim that people shrink from it, I've meant  
To explain the system in a sweeter music,  
To rim the lesson, as it were, with honey,  
Hoping, this way, to hold your mind with verses  
While you are learning all that form, that pattern, of the way things are. (46 – 7)

In a conversation one evening over a nice Texas pinot grigio—yes, I too was surprised to discover that Texas has nice pinots –fictional Lucretius explained that, on the one hand, the Continental critical theorists needed beautiful verse to seduce them, as, all humans being narcissists, it was too grim for them to accept that meaning, lived experience, signifiers, signs, and texts—conveniently the things that they investigate –are not the sole things in the world and that these entities obey non-discursive physical principles. By contrast, he said, the so-called naturalists—he always derisively referred to them this way –needed to be reminded of the rhetorical dimension of the world, of the way in which signs and language influence things, that everything can't be reduced to biology, neurology, and physics as *they* conceived it. Fictional Lucretius said, optimistically, that his text should work directly on their nervous system, drawing attention to these dimensions.

Even more surprising was that he began the book with a *prayer* to the earth, or as he called it, Venus. If this elicited shock in me, it was because he had, in all the years I knew him, been something of a militant atheist. Yet there it was. As he wrote in supplication and hope,

Creatress, mother of the Roman line,  
Dear Venus, joy of earth and joy of heaven,  
All things that live below that heraldry  
Of star and planet, whose processional  
Moves ever slow and solemn over us,  
All things conceived, all things that face the light  
In their bright visit, the grain-bearing fields,  
The marinered oceans, where the wind and cloud  
Are quiet in your presence—all proclaim  
Your gift, without which they are nothingness.  
For you that sweet artificer, the earth,

Submits her flowers, and for you the deep  
Of ocean smiles, and the calm heaven shines  
With shoreless light.

Ah, Goddess, when the spring  
Makes clear its daytime, and warmer wind  
Stirs from the west, a procreative air,  
High in the sky the happy-hearted birds,  
Responsive to your coming, call and cry,  
The cattle, tame no longer, swim across  
The rush of river-torrents, or skip and bound  
In joyous meadows; where your brightness leads,  
They follow, gladly taken in the drive,  
The urge, of love to come. So, on you move  
Over the seas and mountains, over streams  
Whose ways are fierce, over the greening leas,  
Over the leafy tenements of birds,  
So moving that all the ardor burns  
For generation and their kind's increase,  
Since you alone control the way things are.  
Since without you no thing has ever come  
Into the radiant boundaries of light,  
Since without you nothing is ever glad,  
And nothing ever lovable, I need,  
I need you with me, goddess, in the poem I write here, *De Rerum Natura*.  
This book will be for James Hansen and Elizabeth Warren, people  
Your blessing has endowed with excellence  
All ways, and always. Therefore, all the more,  
Give to our book a radiance, a grace,  
Brightness and candor; over land and sea,  
Meanwhile, to soldiery's fierce duty bring  
A slumber, an implacable repose—  
Since you alone can help with tranquil peace  
The human race, and Mars, the governor  
Of War's fierce duty, more than once has come,  
Gentled by love's eternal wound, to you,  
Forgetful of his office, head bent back,  
No more the roughneck, gazing up at you,  
Gazing and gaping, all agog for love,  
His every breath dependent on your lips. (19 – 20)

I apologize for quoting at such great length, but you must appreciate my amazement at such words coming from the pen of a philosopher that has sometimes been described as one of the obnoxious new atheists. A prayer to Venus? Really? Had my friend gone soft? Initially my

feminist and queer theorist claws came out. Mindful of a long tradition that has associated femininity with the earth, the irrational, the material and all that is not is not characterized by reason and rationality, I flew into a friendly rage and castigated my friend for reinforcing this frame. Like a true epicurean with stoic influences, he responded to me impassively, taking a sip of his wine. Moments passed in silence, and then he reminded me of Lacan's teaching that masculine sexuality is the true masquerade, that femininity is the truth of being and the status of the subject. "But Lucretius", I exclaimed, "a prayer?" He told me that in the face of the ravages of capitalism and the refusal to meaningfully respond to climate change he had grown pessimistic. He said that as he reads culture from a structuralist perspective he's not hopeful. He pointed out that in the film of the 90's, there had been a string of disaster films such as *Deep Impact*, *Volcano*, *Dante's Peak*, *Armageddon*, and *Independence Day* where humanity always triumphed over adversity. These films, he said, were always really about getting the couple together. Their thesis was that society had to collapse for the couple to love one another. But, he added, in recent years, the films have gotten more dark. Since we've seen more menacing films such as *Children of Men*, *Wall-E*, *War of the Worlds*, and finally *Melancholia*. Humanity survives in the first three, but always with the implication that we won't, while in the fourth we witness the utter annihilation of our species and the earth. This, he said following Jameson in *The Political Unconscious*, is an unconscious index of our awareness that we can't change and the dire circumstances within which we're living. All we can do now, he said, is pray to Venus and recognize the fecundity of the earth, our dependence upon it, and that all flows from it. "All I can do now," he said before the bees, "is pray and hope".

But what surprised me most was the *content* of this book. Given that the critiques he was responding to were of a political nature, I had expected him to respond to the Continental critical

theorists by showing how his naturalism was not a reductionism, while responding to the so-called naturalists and materialists by showing how we need to take these cultural elements into account. Additionally, I had expected my South Texas friend to present a normative account of both how society *ought* to be organized and what we *ought* to do to change things. While his profound critiques of ideology were still there, I found no story of what we ought to do to change things, and instead encountered an *ontology of nature*.

What could this, I wondered, have to do with politics or society? Lucretius said that he was doing something called “onto-politics” or “onto-sociology”, and distinguished between normative political theory, tactical political theory, and analytic political theory. Normative political theory, he said, presents models of what society *ought* to be such as we find in Plato’s *Republic*, Locke’s two treatises, or the work of Rawls. Tactical political theory presents an account of what we ought to *do* so as to change things. Analytic political theory, very similar to sociology, investigates how existing societies are actually structured, and how power functions within these societies and generates oppression. Strangely he referred to analytic political theory as a branch of cartography, arguing that this thesis is merited because it maps systems of power. He cited Foucault and the Marx of *Capital* as examples of political cartographers. Finally, onto-politics or onto-sociology, Lucretius said, outlined the ontological framework within which any political and sociological questions are to be posed. He said that if we don’t get our onto-politics right we’ll be doomed to pose the questions of normative, tactical, and analytic politics poorly.

*De Rerum Natura*, he said, is a work of onto-politics. When I pointed out that the themes of the work seemed to have little to do with politics insofar as it says little about oppression, issues, policy, norms regulating human relations and behavior, or what form government should take, he just waved his hand. Before answering those questions, he said, we first have to account

for what kinds of things societies are, what sorts of beings inhabit societies, what sorts of beings contribute to assemblages of power, what sorts of beings we are, how relations are forged between entities, and so on. If we don't have a firm understanding of these things as a sort of propaedeutic to analytic, normative, and tactical political theory, we'll ignore what needs to be investigated in analytic political theory, where we need to intervene to right wrongs, and where norms come from. The title of *De Rerum Natura* could just as easily have been a *Critique of Political Reason*.

Take our good friend Slavoj Žižek, he said. We've often discussed ideology with him. Recall his amusing example of the three toilets at the beginning of *Plague of Fantasies*. There he shows how even when we go to the restroom we're knee-deep in ideology. German toilets have their hole in the front so that our waste might be laid out for inspection to determine the status of our health. French toilets have the hole directly in the center so that our waste might disappear as quickly as possible. Finally, English toilets have a nice bed of water so that we might inspect our waste if we so desire and easily flush it away. This, Žižek contends, represents three ideologies. German toilets represent the ideology of fastidious caution and obsessive care, French toilets, in their desire to quickly get rid of waste, represent the ideology of revolutionary haste, while English toilets represent the ideology of utilitarianism.

A whole ontology of society, power, and politics is presupposed here, Lucretius said. Societies are understood to be held together by significations or meanings and power is understood to issue from the signifier. Toilets are reduced to being vehicles or carriers of ideological significations, while the functioning of plumbing and whatnot is treated as irrelevant. Changing social relations would thus consist in critiquing significations or developing new significations. It's not that I think Žižek is entirely wrong, Lucretius remarked. Signification

such as that found in ideologies, is an important dimension of power in social ecologies. As our teacher Whitehead once said, Žižek's problem is not that he's wrong, but that he overstates things. Remember what our friend Latour taught us about tracing actants? We should ask Žižek whether the toilets themselves, independent of how they might signify, contribute anything to power? Does it make a difference whether a social ecosystem has plumbing, sewage treatment plants, and all the rest? I think so. Social ecologies that lack these actants are likely to have a higher incidence of diseases such as cholera and dysentery. This will have all sorts of impact on the ability of people to organize, develop their ecology, cultivate themselves, and so on. We can imagine a Žižekian ideology critique busily debunking the systems of signification structuring such a social ecology, when what these people really need is good plumbing. Here it wouldn't be their ideology that holds them back, but the absence of infrastructure. Žižek's political theory and practice presupposes an onto-politics, but it is not explicit but functions unconsciously as an assumption. A good onto-politics helps us to understand where power comes from and to discern these things.

At this point some of my perplexity began to dissipate. Lucretius, I said, what do you mean when you say we need to determine what beings inhabit societies? Aren't societies just composed of people? Remember, he said, that societies are ecosystems. Have you ever seen an ecosystem composed of just one type of thing? Take a coral reef. There are the different varieties of corals, the plants, plankton, crustaceans, all sorts of fish, regular patterns of ocean currents that bring things in and carry them away, the energy provided by sunlight, lunar cycles, and so on. Understanding the ecosystem of a coral reef requires us to understand the interaction and relations between all these things. So you're saying that societies are composed of people of different occupations, genders, nationalities, ethnicities, and with disabilities, I queried? That's a

start, he responded, but societies aren't just composed of people. My jaw dropped and I gasped, but he plowed on. There are also corporations, government agencies, groups, classes, memes, systems of signification, insects, cultural artifacts like novels and constitutions, technologies, infrastructure, various sources of energy such as oil, microbes as in the case of epidemic diseases like the H1N1 virus, animals, plants, weather events, and many more things besides. Where would society be, he asked rhetorically, without bees to pollinate our crops and worms and microbes to fertilize and aerate the soil? Aren't they vital entities within society? We can't understand what a society is, how power functions, why inequalities exist, and how to intervene and change things without understanding these ecosystems. We need to understand, above all, that social ecosystems are composed of humans and nonhumans alike. Onto-politics provides us, at a very abstract level, with the tools to understand these ecosystems.

That was our final conversation before he died weeks later from the killer bees. I'll round things out by discussing some of the central themes of the onto-politics he proposes in *De Rerum Natura*. The central commitment for which fictional Lucretius has become notorious is that of naturalism. I confess that initially this made me shudder for a variety of reasons, but as I spent more time with the text I began to understand that his is a very unusual and delirious naturalism. On the one hand, my initial reaction was to worry that Lucretius's naturalism entails reducing everything to biology, neurology, and physics, to the detriment of the cultural and the historical. On the other hand, whenever I read the term "nature" in his work, I can't help but think of essences such as the bigot likes to evoke when making a case for discrimination and oppression, as when he says that "women just are naturally a certain way" or that "sex is naturally heterosexual" or that people of other ethnicities are naturally inferior. But none of this follows from fictional Lucretius's naturalism.

Lucretius's naturalism consists of three inter-related claims. First and foremost, it is premised on the claim that *nothing* is *outside* of nature. Put in positive terms, it is the claim that *all* is nature. In this, Lucretius advocated an ontology of radical immanence. There is, for him, no transcendent realm composed of, for example, eternal Platonic forms. There are only natural beings populating a single plane without hierarchy. These beings all come-to-be and pass-away, and while some are very powerful, even a mighty emperor like Constantine can be felled by a humble microbe. In claiming that all is nature, Lucretius hoped to undermine the binary opposition between culture and nature. For him, culture too is a formation of nature, a natural entity, and an entity embedded in a broader natural world. In other words, Lucretius is not say that culture can be reduced to biology—though certainly that it is intertwined with biology—but rather that culture as culture is a formation of nature. There's no more reason to suppose that culture is unnatural than there is to suppose the unique and historically formed complex ecosystems of Amazonian rain forests are unnatural.

In this he undermined the idea that nature is some place you can *go*, outside of society, as in those cases where we visit Yellowstone National Park. Even in the middle of New York City, he liked to say, we're in nature. He felt it was crucial to understand this because it reminded us that societies are embedded in broader ecologies, that they must draw on the world around them for energy, that weather—as we saw during Hurricane Sandy—can have a profound impact on social assemblages or ecologies, and that what we do does not simply affect society, but impacts that broader ecology as well.

Once again, the objections came from his culturalist critics. They accused him of reducing things to physics, biology, and neurology. “We investigate power, signification, meaning, norms, and beliefs”, they said. Fictional Lucretius conceded that physics, biology, and

neurology constrain how we think about societies and people. For example, like anything else, people and societies require energy in the form of fuels and food to exist and that all societies and people also release waste into their environment. He deplored the fact that there had been little research into the concept of work as physics uses the term—as the force and energy required to move another body –and that energetic requirements as a dimension of power almost always seemed to be ignored in political theory. For example, he said, we often explain people’s attachment to oppressive systems as resulting from mistaken beliefs or from being ideologically duped, but isn’t our dependence on energy and the lack of energy as a result of being overworked and having our time saturated with labor just as great a contributor to imprisonment within oppressive systems? Biological bodies, like anything else, require energy to cognize, critique, and resist. Similarly, he noted that neurology shows us that brains such as ours can only process so much information at once, that there are limits to how much we can cognize at any point in time. This, he said, has implications for our ability to respond in a society such as our own. Finally, it will be true that communication must obey the laws of physics. Communications cannot move faster than the speed of light—and generally travel much more slowly depending on the medium of communication used –and must travel throughout the world to produce effects. He thought that this entailed that political theory needs to use the techniques of disease epidemiology to track how messages travel throughout the world, produce social and political effects, and why some messages successfully proliferate while others don’t.

However, he continued, modern science has transformed our concept of nature. The pre-modern concept of nature was premised on an essentialist distinction between *phusis* and *techne*. In the pre-modern conception, “nature” or *phusis* signified what is *intrinsically* within a thing as when we say “this is the nature of a thing.” For example, the *phusis* or nature of an acorn is to

become an oak tree. Oak trees are what acorns are *supposed* to be. It was this that allowed Aristotle to speak of monsters. If a two headed pig is, for Aristotle, a monster, then this is because by nature, pig embryos are supposed to actualize a particular form or essence. By contrast, *techne* refers to that domain of being where something is *extrinsically* brought to bear on something else. The carpenter fashions the wood into a chair. It is not already in the nature of wood to become a chair. *Phusis* as essence or form was thus conceived as the order of nature, while *techne*, the domain of invention and creation, was conceived as the domain of culture and society.

Lucretius contended that modernity had completely exploded this notion of nature, and that the new nature more closely resembled characteristics of culture such as historicity, invention, and singularity, than the traditional concept of nature as an eternal realm of unchanging essences or forms. Modern astrophysics suggested that the universe in which we live today is the result of the big bang, hypothesized that there have been many such events across vast and unthinkable expanses of time, and was exploring the idea that perhaps there are other universes and dimensions with very different physical laws. Physics has shown that the atomic elements are the result of a history, that they are forged in the heart of stars, and has even created a handful of atomic elements never before found in nature, suggesting that other elements are possible. The theory of evolution had shown that species are invented, and that individual differences deviating from “forms” are not imperfections, but rather the motor of speciation. Branches of evolutionary theory such as developmental systems theory, epigenetic theory, and evo-devo, was showing that the genome, far from being a blueprint like a Platonic form or an Aristotelean essence, was in fact a set of potentials that can be actualized in a variety of different ways depending on encounters with the environment as the organism develops from

fertilized egg to adult. Neurology was increasingly demonstrating that brains are not hardwired, but rather are plastic and capable of developing in a wide variety of ways. Lucretius felt that the humanities and social sciences were yet to catch up with these discoveries, that they remained within a pre-modern concept of nature, and that insights such as these showed the falsehood of attempts to evoke nature as pre-delineating form and behavior such as explanations found in evolutionary psychology and sociology. Nature, it was turning out, is inventive, creative, and historical just as culture; not an order of abiding and deterministic essences. This was attested, above all, by developmental theory in biology.

The second great principle of Lucretius's onto-politics and naturalism was that "nothing can come from nothing" (24). By this Lucretius meant that everything has a natural, physical, or material cause, or that there is no magic or action at a distance. In asserting this, Lucretius did not mean that we have to trace things back to biology or physics to explain them. As he put it to me, there just has to be some sort of physical connection for one thing to affect another. He gave the example of curses. "Levi", he said, "if I place a curse on you in my home, can the words I utter and the rituals you perform affect you?" I recognized that this would be absurd, as those words do not touch me in any way since they are performed in the privacy of Lucretius's cottage, away from my presence; but I then pointed out that in Spielberg's *The Color Purple*, Whoopi Goldberg's curse certainly seemed to affect Danny Glover. Lucretius chuckled. "That wasn't the result of magic, Levi. Rather, it's because Glover *believed* in curses. It was *psychological* mechanisms that allowed these words to have power over him, not magic. These are physical or natural causes, even though they are dependent upon an entire cultural framework to take place. Certainly you've read Levi-Strauss on sorcerers, no?"

Finally, the third great principle of his naturalism is that nature has no ontological teleology or purposiveness. He drew this principle from evolutionary biology. There is nothing, he said, that organs are *for*. Where Aristotle saw function or purpose *preceding* organs as in the case of the need to see somehow generating eyes, Darwin showed that organs *first* come into existence through random mutation, and *then* find a function that is or is not advantageous to reproduction. We don't have eyes *in order to* see, but rather we can see because we have eyes. For this reason, we can no longer speak of the "unnatural" as in those cases where those opposed to homosexuality claim that it is a deviant and unnatural form of sexuality, because there is no purposiveness or teleology in nature to begin with. In *De Rerum Natura* he quotes Love & Rockets' song "No New Tale to Tell" where they sing "you cannot go against nature, because when you do it's nature too." Everything that happens is nature, he said. He recognized that certain systems, by virtue of their cognitive capacities, can *become* teleological as in the case of a person setting goals for herself and engaging in certain actions as a result of these goals, or a corporation pursuing profit or universities searching for a cure to cancer. His point was that purposiveness is not pre-delineated by nature or being. On reflection I concluded that Lucretius's naturalism was quite amenable to semiotics, linguistics, hermeneutics, ethnography, sociology, psychoanalysis, and so on.

Lucretius was obsessed with the concept of entropy and believed that it was unjustly ignored by the social sciences and humanities. To him, entropy signified two things. Drawing on thermodynamics, it referred to the tendency of closed, ordered systems to become chaotic over time. In *De Rerum Natura*, he wrote that,

...If time destroys  
Completely what it banishes from sight  
With the procession of the passing years,  
Out of what source does Venus bring again

The race of animals, each after its kind,  
To the light of life? And how, being restored,  
Is each thing fed, sustained and given increase  
By our miraculous contriving earth?  
And what supplies the seas, the native springs,  
The far-off rivers? And what feeds the stars?  
By rights, if things can perish, infinite time  
And ages past should have consumed them all,  
But if, throughout this history, there have been  
Renewals, and the sum of things can stay  
Beyond all doubt, there must be things possessed  
Of an immortal essence. Nothing can  
Disintegrate entirely into nothing. (27)

Lucretius was here claiming that all things, even stars, are mortal or disintegrate. They are all subject to entropy. In light of this, he thought the real question was not how change is possible as thinkers such as Badiou and Deleuze were asking, but why don't things fall apart?

This brought him to the second concept of entropy drawn from the information theory of Claude Shannon. There entropy is conceived as a measure of order. A highly entropic system, Shannon said, is one where there is an equal probability of one element being related temporally or structurally to any other element. For example, a glass box containing a particular type of gas is a highly entropic system because there's a high probability that any molecule of that gas will be spatially proximal to any other molecule of that gas. We can't infer the position of other elements from a knowledge of the location of one element. Counter-intuitively, Shannon said that low entropy systems are characterized by *improbability*. By this he meant that there are specific structural or temporal relations between elements. Given one element, this element will not be related to *any* other random element, but to another specific element. In other words, where a gas cloud is chaotic and disordered and therefore highly entropic, a low entropy system is characterized by highly ordered or structured relations. We can make reliable inferences from one element to another in ordered or low entropy systems. During the second World War,

Shannon had used principles such as this to decrypt and encrypt coded messages. For example, given the frequency of certain symbols in a message, we could infer which symbols were vowels in that code. Now, depending on the language, some vowels are used more than others. Based on our knowledge of the source language of the coded message we're trying to decipher as well as the frequency with which different vowels are used in that language, we can begin to make educated cases as to which coded symbols correspond to which vowels. From here we can reverse engineer relations to consonants and other elements of the code, until we're able to decipher the message. This is all possible because languages are low entropy systems characterized by statistical frequency among different elements.

Lucretius felt these concepts were of great significance for the humanities, political theory, and the social sciences. Societies, he said, are low entropy systems. For example, given certain modes of dress, we can infer class position, values likely to be held by that person, and ideology. When we interpret a text such as Pynchon's *Crying of Lot 49*, we're essentially making a claim about entropy, arguing that there is a non-arbitrary relation between elements of the novel and another set of meanings. Above all, social relations tend to persist across time. For example, in the city of Chicago we find a fairly strong distribution of class and ethnicity on the south and north side. Just as we would ask why shells and pebbles of a particular size appear in this band, on this particular beach, and not others, instances such as the improbable distribution of class and ethnicity in the city of Chicago ought to lead us to ask why types of people appear with this particular ordered distribution and, above all, how this distribution maintains itself over time. Why don't societies degenerate into chaotic Brownian motion or a state of high entropy? How do they retain their order and resist entropy?

It became clear to Lucretius that these were questions of power, of the power that structures society, and that there was a link between entropy conceived by thermodynamics and entropy as a measure of order in information theory. Noticing that corpses or dead bodies quickly begin to decay or disintegrate, he asked himself why this is so or how a dead body differs from a living body. He noticed that living bodies draw in energy from their environment in the form of food and transform this energy into cells and electro-chemical reactions through metabolism, while dead bodies have ceased to do this. Influenced by dissipative systems theory, he concluded that systems are only able to maintain order across time when there is communication among elements and energy is drawn from its environment and converted into activity. For example, hurricanes are only able to sustain their existence or patterned structure so long as they draw energy or heat from the ocean. When they reach land and lose their source of energy from heated oceans, they quickly begin to disintegrate or the particles that compose them cease to communicate in ordered ways forming the cyclonic pattern of the hurricane. Hurricanes and living bodies were not so much things as processes or activities. They required *work* or operations to sustain themselves, and that work, in turn, required energy.

These were concepts from thermodynamics. The order described by the concept of entropy in information theory arose from and sustained itself through energy converted into work. The same, Lucretius reasoned, must be true of societies. Society, he thought, should not be conceived as a thing or body of beliefs, but as a *process* or activity that assembles beings. These social processes, he concluded, requires three things. First, they require communication where communication is broadly construed to include everything from speech, writing, and economic exchanges. Communications are not merely messages exchanged between communicators, he said, but are things that form the identities and ordered relations between

communicators. In speaking, for example, we are not only exchanging messages, we are also forming identities and reproducing the norms of language. This much was familiar to the linguists and semioticians. Second, however, societies require energy in the form of both calories to run bodies and fuels to perform work such as telecommunications, travel, industry, and so on. Societies can only maintain their order so long as they draw on energy from the broader natural world to motor their processes. Where that energy is cut off, the low entropy or ordered relations characteristic of society begin to disintegrate and either chaos ensues or new “speciations”, new social relations, begin to emerge. Along these lines, he cited the example of New Orleans following Hurricane Katrina. Cut off from both communication with the broader world and energy in the form of calories and fuels to power technologies, the low entropy system characteristic of New Orleans prior to the storm began to fall apart.

Lucretius felt that he had, with his meditations on society as a process or activity and how low entropy systems maintain their order across time, shed new light on what theorists such as Foucault had in mind when they spoke of power and subjectivization. Power has two dimensions; communication and energy. Foucault, and many other theorists influenced by him, had explored the way in which communication functions as power through the formation of social relations and identities. In Lucretius’s language, communication is one of the mechanisms by which entropy is reduced and resisted. I mispronounce a word and someone corrects me through mockery. That is a communication. A child acts up and a cruel parent wacks him on the back of the head. That is an identity forming and normalizing communication. What most of these theorists had not explored in any great detail is the role that energy plays in fueling these processes. Some theorists had hinted at such a thing such as Schopenhauer with his will, Nietzsche with his will to power, Freud with his more crass formulations of libido, Bergson with

his *elan vital*, and Deleuze and Guattari with their desire; but the role that energy plays in maintaining order and structuring social relations was by and large vastly under investigated.

From the standpoint of critical theory or emancipatory political theory, this was crucially important. If it is true that social assemblages require energy to maintain their ordering processes, then it is clear that protest, debunking ideologies and false beliefs, persuasion, and consciousness raising cannot alone produce social change. Energy in the form of calories and fuels is like a spider web within which we're trapped. Power functions in part not just through corrective communicative sanctions such as the slap to the child referred to earlier, nor simply through ideology and belief, but also through how the time of the working day is structured, the amount of operations our bodies and minds can energetically carry out (fatigue is a real political issue), and our dependence on a variety of fuels to sustain our life. Marx saw this clearly when he talked about reducing the working day. He understood that it wasn't enough simply to show workers how they were being exploited by wage labor, but that part of emancipation consisted in freeing up time for people. Freeing time consists in freeing calories and rendering them available for performing operations other than labor. Critical subjects are subjects that have enough leisure—enough calories—to reflect upon and analyze their social conditions and to imagine other possible social assemblages. And, of course, it goes without saying—Lucretius observed—that the metabolism of calories and fuel to perform work also releases waste into the environment, creating new problems that societies must face and contend with.

But what was the third condition of entropy reducing operations for Lucretius? Reflecting on his naturalistic principle that nothing can come from nothing, that there must be a real, physical, or material relation between entities for them to affect one another, he became perplexed by questions of communication and perception. He wondered, for example, how it

was possible to see that table there across the room when he was here and the table was over there. Here Lucretius proposed an extraordinary thesis. All five senses, he said, are senses of *touch*. As he wrote in *De Rerum Natura*,

...I now begin  
To teach you about images, so-called,  
A subject of most relevant importance.  
These images are like a skin, or film,  
Peeled from the body's surface, and they fly  
This way and that across the air...

Let me repeat: these images of things,  
These almost airy semblances, are drawn  
From surfaces; you might call them film, or bark,  
Something like skin, that keeps the look, the shape  
Of what it held before its wandering.  
This should be obvious to the dullest mind  
Since many things, as our own eyes can see,  
Throw off a substance, rather coarse at times—  
As burning wood produces smoke or steam—  
And sometimes thinner, more condensed, the way  
Cicadas cast their brittle summer jackets  
Or calves at birth throw off the caul, or snakes  
Slide out and weave their vesture under brambles  
Where we have often seen them, crumpled or caught.  
This being so, some film of likeness, frail  
And thin, must be sent forth from every surface. (120)

Where the philosophical tradition that preceded him had privileged the sense of sight, of specularity, of the arresting gaze that pornographically wants to reveal everything before its vision, Lucretius privileges touch; an eminently materialist sense. He said we only sense and communicate through touching. What did he mean by this? I think he meant that in order to see the desk over there, an image must fly through the air, passing between the table and I, touching my eyes and affecting my body. In order to hear another person, sound-waves must travel through the air and affect my ears. In order to smell something, there must be particles that pervade the air and hit my nose. Just as all sorts of radio or electro-magnetic waves are flying

about us at this very moment, Lucretius contended that all sorts of other images are traveling throughout the void as well. Communication, interaction, and perception all take place through these ghostly materials touching our body in a variety of ways.

My friend Lucretius felt that this hypothesis was of tremendous significance to social and political thought. He never tired of castigating those in the humanities and social sciences for focusing on the *content* or meaning of communications, while ignoring the matter of communications or this ghostly images that travel about the void. He would derisively say that the humanists believe in magic. By this he meant that they treat it as sufficient to write down an idea, to carry out a critique, to think something for it to transform the world. He countered this by trying to remind them that communications are not simply *about* something, nor are perceptions merely *of* something, but they also *are something*. My perception of the desk is not the desk itself, but is reflected light that travels through the air. An utterance is not simply a meaning, but is sound-waves or written texts that travels throughout the world.

Much to the dismay of his colleagues, this thesis drew his attention to meme theorists, as well as media theorists such as Marshall McLuhan, Walter Ong, and Friedrich Kittler who emphasized the manner in which the medium through which communications are transported affects the nature of the message. When Lucretius said that we need to think about communications on the model of disease epidemiology, he was saying that we need to attend to how communications travel throughout the world and affect things. He emphasized that if it's true that these images must travel between one being and another to affect each other, then time is a factor in all communication. As I look at my hand right now, I'm not seeing it as it is in the *present*, but as it was slightly in the past because it takes time for light to be refracted off my hand, travel through the void, and interact with my eye. Vision can't see faster than the speed of

light. Consequently, I can only see the past, never the present. This is even more the case when we talk about communications traveling across space. The medium through which communications travel—speech or sound-waves, writing, satellite communications, phone lines, and so on—will thus have a profound effect on the form and size of social relations because of different degrees of durability in the messages (a written message is more durable than a spoken one) and the speed at which they can travel to coordinate people across geographical distances. Warfare becomes entirely different with satellite communication than it was with written orders or speech. Global capitalism as we know it today wouldn't be possible without the internet and satellite communications. There is also a time that it takes for communications to travel through institutions. For example, the time of a bureaucracy processing passport applications is quite different than the time of two people talking to one another. This time of communication structures life and social relations in all sorts of ways.

Drawing once again on the information theory of Claude Shannon who has been at least as influential on our culture as Galileo, Darwin, Freud, Einstein, and Heisenberg, Lucretius noted that communications pass between senders and receivers along channels. A channel refers to the medium through which a message is transported to a receiver. Despite the fact that all sorts of radio or electro-magnetic waves are passing through us right now, we cannot receive these messages because we don't have the proper channels to receive them. Rather, we have to turn on the radio to receive them. The radio converts these electro-magnetic waves into sound-waves that can then travel through space and interact with our ears. Where there is no air as in outer space, this conversion cannot take place. Similarly, despite the fact that there are vast numbers of different wavelengths of light, we only see three primary colors because we lack the channels to perceive these other wavelengths, while mantis shrimp see 12 primary colors and can see

infrared, ultra-violet, and polarized light. These reflections on channels and information theory are what led Lucretius to castigate many of those in the humanities and social sciences. He said that they developed their critiques without reflecting on whether the audiences they wished to change had channels capable of hearing those critiques. He worried that many of the messages of political theorists were encountered by their audience as either mere noise without any signification, or, even worse, as completely invisible just as ultra-violet light is invisible to us.

As I reflect on the work of my deceased friend Lucretius, I think he wanted to accomplish two things with his work that initially struck me as so remote from political questions. On the one hand, I think he was angling for an analytics of power that would allow us to understand the functioning of power so that we might devise better, more effective strategic interventions in the name of emancipation. On the other hand, I think, due to his concern with climate change, he wanted to draw attention to our ecological embeddedness in the broader natural world because he felt that a great deal of political theory was blind to our link with nature. He wanted to preserve the discoveries of the critical theorists, the deconstructionists, the semioticians, the sociologists, and ethnographers, while also drawing attention to questions of ecology. If he devoted *De Rerum Natura* to Elizabeth Warren, then this is because he wanted her to remember that even powerful forces are subject to entropy and can be toppled under the right circumstances. If he devoted it to James Hansen, then this is because he wanted to remind him of the importance of channels, rhetoric, and learning to speak the language of those you wish to persuade as in the case of the Bush administration.