

Leaving Gridworld: Provincializing Electricity

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In the beginning, there was the steam machine. Or so starts one of the ways the Anthropocene story has been told. Much like the biblical Genesis, the Anthropocene discussion is inhabited by multiple versions, some starting with plantations, or with post-WWII U.S. petro-imperialism. What is common to all these stories is that they focus on a new form of exploited labour-power, or energy, albeit of vastly different materialities: in slaves, in coal, in oil (Yusoff, 2019). These stories all seem to lead to the stored potential power of modern capital and its infrastructures epitomized by the ever-expanding “gridworld” (Boyer, 2017) and the “Big Grid” (Özden-Schilling, 2019). As in Boyer’s work, the worlds of big electrical infrastructure loom large over my own ongoing research on the more-than-human problems related to introducing renewable energy in Japan’s electricity grid, often leaving me worried for the hope of even the mediocre goal of greening the grid, offering little room for a re-imagining of wider energy dependencies. It is out of this hope for a speculative re-imagination that I write this in preparation for the [FICT](#) project started by NatureCulture editor Asli Kemiksiz. I aim here to examine how even within the history of the modern rationalization of energy, there is a significant diversity that can help us to rethink the modern concept of energy, often expressed or reduced to its form as electricity, to speculate about how things might have gone differently.

I will try to briefly point to different stories at the fringes of this history of rationalized energy, reminding myself that the formation of *energy* as a scientific concept, and perhaps more specifically the idea of electricity as a phenomenon produced by the exchange of electrons to be captured by machines, moved by cables, and harnessed by humans, has historically been a provincial one. I mean this in the sense of Chakrabarty’s (2000) *Provincializing Europe*, contrasting the universalizing of European history (History 1) with the underexplored pre-colonial and post-colonial histories and knowledges that exist outside and in relation to it (History 2). My goals here are small: to allow us to rethink “electricity” through a survey of different moments, histories, and imaginations, and leave the gridworlds around us behind, if only for a moment.

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I want to begin with an historical encounter where we can glimpse a different idea of what energy and electricity could be even from relatively late in the modern period. In early 1896, the *grande dame* and theatrical visionary, Sarah Bernhardt played host to the interesting characters

of the day, as the educated and forward-thinking celebrities of the time often did. This particular party included the influential philosopher Swami Vivekananda, who is widely thought of as the first to have introduced Sanskrit knowledge traditions to the West. At this party, Vivekananda allegedly met superstar Nikola Tesla, inventor of the alternative current (AC) who had just the year before carried out perhaps his greatest practical success, the construction of a hydroelectric power plant in Niagara Falls that sent electricity all the way to the city of Buffalo, setting a precedent that would topple Edison's direct current lobby.

As Subhash Kak (2017) has described in an article in *Current Science* in 2017, Vivekananda had fascinated Tesla with his discussion of Indian physics concepts and in particular, the concept of *ākāśa*, itself part of a complex world of the Vaiśeṣika that attempts to describe all of existence through 6 categories: substance, quality, motion, universal, particularity and inherence, with the latter three as having existence only through the existence of observers themselves (mirroring problems of observation and reality that have emerged in quantum physics). Furthermore, all of the latter five revolve around substance, itself having 9 sub-classifications, with *ākāśa* being part of substances like space and time that are non-material (Kak, 2017). It was clear from his creation of alternative current that Tesla was interested in finding ways to transmit energy across long distances, and in *ākāśa* he found the mediating potential for force and matter to be interconvertible. Vivekananda saw in this ideal the validation of Vedantic cosmology through mathematics. Tesla was never able to come up with the proof, and  $E=mc^2$  was published soon after. However, Tesla would continue to believe in the possibility of wireless energy transmission even if it flew in the face of the new conventional wisdom of physics.

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Ideas analogous to electricity had also been part of medical understandings of the body before biomedicine had adopted its own particular understanding of the body as electrical. I want to raise here the medical tradition of Ibn Sina, also known as Avicenna, active during the Islamic Golden Age at the turn of the millennium. Ibn Sina's diagnosis tended to focus on the excretions and humors of the body, classifying epilepsy according to various humors, prescribing certain foods depending on their categorization (i.e. as *hot* and *cold*) and their effects on the body (Gorji and Ghadiri, 2001). More recently, some scholars have tried to compare Ibn Sina's idea of the "vital spirit" produced by the heart. The vital or medical spirit, itself drawing on Egyptian beliefs of the immortality of the soul and Aristotle's idea of a material soul, shares certain similarities with what modern medicine identifies as properties of the heart's electrical activity (Behbahani et al., 2013). A disciple of Ibn Sina also used a version of shock therapy using crampfish to cure epilepsy, suggesting connections at the time between the vital spirit and electricity (Gorji and Ghadiri, 2001).

Even in instances that can be said to be within the modern mythos of medicine, electricity in many forms acts as a mediator for souls, a force between life and death. The most popular example that comes to mind would be *Frankenstein: Or, the Modern Prometheus* (1818),

Shelley being inspired by a minor tradition of medico-electricity called galvanism that claimed to pave the way towards reanimating dead bodies. By the last quarter of the 18th century, the application of friction-generated electricity to bodies was a major feature of medicine and experimentation, combining bodies and machines into bodies of knowledge (Sleigh, 1998). This included the resuscitation of those still holding on to the vital “spark” (an expression in use at the time), a practice which was facilitated by a particular dovetailing of the Royal Humane Society of London’s agenda for a medicine that was gentlemanly, interesting to amateurs, valuable to society and gave doctors an independent role in healing, with Giovanni Aldini’s socially conservative and paternalistic vision of electrotherapy as a management of death. Once it became the instrument of the upper class, electricity continued to inspire thinking about the otherworldly and the embodiment of progress even as it was distanced from its history in curio-peddlers and conjurers that made up the first *electricians* of Isaac Newton’s time (BBC Four, 2011).

Aldini’s ontology of galvanism was one in which the mysterious forces of life (themselves caught up in the muscles and nerves of the “animal economy”, theorized as a continuous process of galvanism itself) could be *disembodied* by the actions of the medic upon the body-apparatus, in this case including the body of the medic who had conducted the experiment on themselves. This mode of therapy posited electricity as tied to all life’s natural action, and the ostensibly dead body as a sensitive and unobtainable focus. Much like the dark mirror of liberal humanism that is Shelley’s novel, Aldini sought the betterment of society via an autonomous birth of man by man, and indeed both seem to recognize science as constructed upon the ancient dreams of immortality, alchemy, and magic (Heffernan, 2003; Sleigh 1998).

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From this rich history of electricity as a quasi-supernatural force, connections continue to proliferate. In Japan in particular, the connection between souls and electricity, and the horror of its monstrous pervasiveness, as it hides in our walls and pockets, crossing even the barrier between the living in the dead, has only been expanded through the mythology created by popular horror movies like *Kairo*, *Ringu*, *Chakushin Ari* to name just a few where the object of horror (in most cases the spirit of the vengeful dead) is mediated by electrical devices. In another instance, the cyberpunk cult classic *Tetsuo* proposes a vision of life in Tokyo in which messy, parasite-like assemblages of cables, machines and iron scraps take over the bodies of the characters as their attempts to sate their desires or electrocute themselves only fuel their gory transformations.

Even in real-world tragedies, the connection between souls and electricity seems to reproduce itself, as towns caught up in the triple disaster of 3.11 have had people receive calls only to hear the sounds of water on the other end. The Fukushima Daiichi end of the 3.11 triple disaster itself is a horror story –or a nightmare– made real. In famous director Kurosawa Akira’s *Yume* (Dreams) released 21 years before the Fukushima incident, he immortalizes his own nightmare of a nuclear power plant meltdown in *Akafuji* (Mount Fuji in Red). A man in a suit explains the

various radioactive substances covering the atmosphere to a few survivors in the hellscape that has become Japan. They are all left helpless at the precipice of a cliff as one of the survivors curses those in charge for deceiving them into thinking they were safe. The following dream is of an actual hellscape, complete with demons, in what is revealed to be a post-nuclear-apocalypse world.

Watching this movie before Fukushima, I thought more about Chernobyl and the nuclear holocausts of Hiroshima and Nagasaki, but today Kurosawa's story of *Akafuji* seems less of a dream now than ever, as Fukushima Daiichi is everywhere: it is what people fear whenever there is a strong earthquake, it is weighing on the country's emissions as nuclear has merely been replaced by more fossil fuels, it is the very real boogeyman that stands in the way of an technology that seemed poised to take over even more of the world. While undoubtedly Fukushima has become a much touted symbol of life in the 21<sup>st</sup> century, I think it has also, in Japan in particular, become a powerful trauma that creates a lingering presence, and that draws out things unsaid, generating new imaginations from what was made mundane.

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We might place this in parallel with what is said in *Cultures of Energy* (Strauss, Rupp and Love, 2013) around the experiences of energy in its many material forms, but is also in discussion with previous posts in this area of *NatureCulture* by [Hansen](#) and [DeAntoni](#) in particular for their discussions of how embodied engagements with other worlds we might not have access to is nonetheless important: we should not shy away from discussing cow souls or possession alongside the mechanics of milk production and ritual practice. I am also inspired by [Simon](#) and [Linton](#) for the way they cross worlds, times and species, relating them through perspective and relations of eating. Much like Simon revisiting the problem of how we know what another sees, and Linton addressing the problem of needing to kill and eat to live, I raise the problem of how a particular modern scientific understanding of mundane electricity was and is not the only way of understanding the grid and its objects as well as the energy or forces that operate through and around us. By showing the stuff in our wires to be rather provincial, I hope to have put readers back in touch with the other possibilities and histories of this particular form of energy.

As I write this, we are also facing another real nightmare in the form of a pandemic that has claimed more than a million lives, creating even greater need for a speculative push to imagine and enact different possibilities. In a world that seems sometimes to be ruled by an elite death cult in service to a nebulous god, Economy, who feeds on misery, dehumanized labour, liquefied fossils, and electrons moving great distances at close to the speed of light, very little seems too fantastic to imagine otherwise. In the coming months, I will come together with others participating in the [FICT](#) project to imagine timelines in which very different relationships to labour, energy, land, and power might have developed if even greater numbers of Europe's population had been eliminated by the pandemic of the 14th century. I invite anyone interested to join us in this speculative process.

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