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Art of Life, Art of War: Movement, Un/Common Forms, and Infrastructure

When is a theory of movement not a theory of movement but of invariance? Versions of this question appear in a series of philosophical debates about the change that does not change. Henri Bergson focuses on the difference between quantitative and qualitative multiplicities, Gaston Bachelard on continuity and discontinuity, and Gilles Deleuze contends with the moving image of the cinematic apparatus. Another, obliquely related strand of debates involving Karl Marx, Rosa Luxemburg, Friedrich Hayek, and Antonio Gramsci raises questions of causal complexity and emergence, of spontaneity and organization, and whether repetition and reproduction are the same. Rather than rehearse these debates here, I thread them through two concepts: “the art of life” (Alfred North Whitehead) and “the art of war” (Antoine-Henri Jomini).

Instead of tracing theories of movement directly through political theory, I approach the question of movement in the history of modern dance, physics, and infrastructure. This essay focuses in particular on the legal controversy surrounding American dancer and writer Loie Fuller’s Serpentine Dance (1891), and her vastly differing aesthetic (and political) claims from those of Hungarian-German (and National Socialist) choreographer Rudolf Laban. The Serpentine Dance dealt in the attractions and physics of turbulence and convulsion rather than the referential and metaphysical – an early, constituent modernism that arguably reached beyond the limits of modernism as a discrete object of aesthetic periodization. The 1890s to the 1930s was a time of great upheaval that encapsulates the dance and political contexts on either side of Fuller’s Serpentine Dance. In that time, “movement” was posited as a changing object of emerging knowledge and disciplines, and theories of movement underwent enormous changes.

By most accounts, modern dance emerged between the 1890s and the early 1930s. So too did the modern physics of Einstein’s theory of special relativity. In physics, Newtonian science and the classical science of objects gives way to quantum mechanics, the notational systems of analytical geometry, and the point-set topology of functionally invariant groups of transformations. In the development of mathematics: Riemannian manifolds and topology. Modern physics twists a spontaneous Platonism further away from a metaphysical dichotomy between ideal, eternal forms and the phenomenal flux by moving both into the functional ranges of algebraic notation.

In dance, there are multiple, conflicting trajectories that follow on from the abandonment of narrative (the hallmark of
Gaspard-Félix Tournachon (Nadar), Loïe Fuller, c.1900. Gelatin Silver print. 240 x 180 mm (9 7/16 x 7 1/16 in.) Photo: Fine Art Museum of San Francisco collections.
dance’s modernity), and which correspond to different locations in the production of dance. In some cases, this extends to a refusal of dance as a succession of ideal figures that Deleuze hints at, but on which he did not elaborate. In others, it amounts to the retrieval of an Aristotelian substantialism as the condition of statements regarding dance theory’s aesthetic object.

At the same time, the rise of fascist movements and parties in the 1920s sharpens the stakes and implications of the longer period under consideration. If there are parallels to be drawn between then and now, it is not that nothing changes. To the contrary, the rise of fascism does not come out of thin air and was not inevitable. Moreover, it is possible to clarify the processes through which movements for change are recuperated into the change that does not change – or changes for the worse. This does not constitute an argument for pessimism or hope. Such framing trades on investments in the futurity of presumably ideal forms; rarely does it make explicit what those forms are. Instead, the following discussion suggests a theory about movement that, by implication, treats theorizing as a process of discerning the limits to movement and change.¹

In focusing on dance, I reject the ways in which movement theory is so often grounded in a distinction between the representational politics of citizenship (and sovereignty) and the physical movements of migration that, by convention, are not recognized as movements.² The approach to infrastructure offered here does not argue for the retrieval of a surface/depth or ideal/phenomenal distinction that would rescue the concept of classical properties grounded in legal and economic tenets of private property (but also those of race and nation as presumably unique, heritable properties or sex and gender as the condition of their reproduction).³ In such accounts, materiality and movement are the auxiliary to a metaphysical ascent to or descent from ideal, eternal forms, in which utility and nature are presented as a substance that preexists historically specific apparatuses of measure and appropriation as useful or natural.

Art of Life: Movement and Invariance
In Deleuze’s Cinéma 1: The Movement Image, "accidents" appear twice. The first instance concerns the capacity of a body to respond to "accidents of the environment." The other he calls the "burlesque" (in English, "slapstick"), in which the succession of an image through the interlocking mechanisms of a "prodigious causal series" finishes by unraveling right before one’s eyes, yielding the radical instant as a "critical moment of opposable situations."⁴ In Aristotle’s writings, accidents and spontaneity are treated as the ephemera that, through logical subtraction, substantiate an entity’s property and class or are construed as those moments when an entity veers off or is thwarted from pursuing its teleological course. The analogue in Plato’s work is the constant flux of the material world, against which a knowledge of eternal forms sits in purportedly metaphysical judgment. In a book about the cinematic apparatus, these “accidents” are the occasions on which Deleuze’s attention turns, remarkably, to dance, burlesque, mimic, and ballet. He does not set cinema aside. The examples he gives are the films of Charlie Chaplin and Buster Keaton, though both drew on the staged performances of the vaudeville and burlesque theater. Deleuze also suggests that while early cinema lapsed into rendering time as the succession of formal poses and ideal figures, “to an even greater degree [than in cinema], dance, ballet and mime were abandoning figures and poses to release values which were not posed, not measured, which related movement to any-instant-whatever."⁵

This defection from the figural and the succession of poses was how, according to Deleuze, “art, ballet and mime became actions capable of responding to accidents of the environment; that is, to the distribution of the points of a space, or the moments of an event."⁶ It raises a question not only about figuration, but also prefiguration as a technique through which dispositions of the past and present are projected into an otherwise uncertain future.

In making his argument, Deleuze implicitly draws on Lucretian cosmology: “The fall of a body presupposes another one which attracts it, and expresses a change in the whole which encompasses them both.”⁷ Explicitly, Deleuze turns around Bergson’s juxtaposition between duration and abstract time. The difference, in Bergson’s view, is between, on the one hand, the discontinuous movement of “changes that are felt,” where the percept of radical “movement ... is the accident of a moving body,” and, on the other hand, continuous movement, or the “abstract motion which the mechanician studies and which is nothing, at bottom, but the common measure of concrete movements.”⁸ Deleuze rejects the metaphysics of Bergson’s eventual call for spiritual renewal and Bachelard’s phenomeno-technical dialectics. Instead, he points to the breakdown of an immanent causal series in “slapstick” and the responsiveness of the improvisational, afformative possibilities of dance.⁹ Deleuze underlines both “slapstick” and improvisation as illustrations of a moving or “creative” instant that he focuses on in discussing the machinations of the cinematic apparatus. Still, Deleuze’s enthusiasm for modern science tends to overshadow whatever
brief but allusive reference he makes to topological invariance, but those limits are important to note. Briefly put, the relational scope of network topology does not, despite Deleuze’s enthusiasm, quite budge the entelechy of point-set topology – the selective preservation of functions through continuous deformations identified by Emmy Noether in the 1920s[10] – unless new points are added or divisions are randomly introduced. Going beyond Deleuze’s insights, this raises an additional question about how contemporary logistical or managerial approaches to movement (and infrastructure) involve the preservation of set pieces regardless of the shuffling of points.

Art of Life 2: Sensation and Substance
In the early 1930s, the dance critic John Martin gave a series of lectures at the New School in New York, in which he argued that modern dance had discovered “the actual substance of the dance, which it found to be movement.”[11] More than two decades before this, in her book *Fifteen Years of a Dancer’s Life*, the American dancer Loie Fuller wrote: “What is the dance? It is motion. / What is motion? The expression of a sensation.”[12] Like Fuller, Martin’s definition of dance as movement rejected dance’s subordination to narrative. Yet the implications for Fuller’s rejection of this established order, in the late nineteenth century but in the same city, were not the same as those greeting Martin in the 1930s. Fuller wrote her book in English in 1908 while living in Europe. Initially published in French as *Quinze ans de ma vie*, the work was then translated back into English and republished in 1913. The overt aim of Martin’s lectures was to establish dance as a discrete aesthetic object of dance criticism and theory. The lectures asserted, as the late dancer and professor Randy Martin once suggested, “a presumed autonomy for the aesthetic [of dance] in the realm of theory” so as to ground “without needing to name or situate, the authority of the theorist or critic.”[13] Fuller’s book, by contrast, is often characterized as a personal memoir of the dancer’s years in Europe. This biographical perception persists even though Fuller was also a choreographer, wrote and theorized about dance, and on occasion did so in order to describe her “characteristic motions” or to argue that a dance was legally her own.[14] Martin’s reviews in the *New York Times* could make a dancer’s career. Fuller had departed New York for Europe in 1892, after a judge dismissed her claim of copyright infringement over the

Buster Keaton in a promotional image for the movie *The Camera Man* (1928).
Serpentine Dance on the grounds that, as the judge put it, “the end sought for and accomplished was solely the devising of a series of graceful movements, combined with an attractive arrangement of drapery, lights, and shadows, telling no story, portraying no character, depicting no emotion.” In the judge’s view, “merely mechanical movements by which the effects are produced on the stage are not subjects of copyrights where they convey no ideas whose arrangement makes up a dramatic composition.” In other words, it could not be defined as property because it did not refer the physics of movement beyond itself, to a metaphysical account of movement that would connect it to concepts of legal personhood—or, authorship. Fuller did however patent the costume of the Serpentine Dance in the subsequent year, along with chemical compounds for luminescent fabric and gels for stage lighting—indeed, Martin described Fuller as an “electrical wizardess.” Fuller and Martin occupied different positions in the production and circulation of dance as an aesthetic property; namely, that of the observable dancer and the dance critic who is read. Still, the judge had not ruled on seeing Fuller perform in the courtroom or theater, but rather on the basis of Fuller’s written description of the Serpentine Dance in court filings. (Possible modes of viewing performance would soon expand—indeed, Fuller would be involved in the making of at least three experimental films beginning in 1904.) Perhaps a great deal had changed between Fuller’s death in 1928 and Martin’s lectures in 1933. Perhaps not. It would not be until the mid-1970s that the gist of the 1892 Fuller v. Bemis case was set aside by incorporating a performative index of emotional expression as evident in movement and, by implication, the kinesthetic and proprioceptive into the repertoire and scope of United States copyright law.

Yet while Martin followed Fuller in defining dance as movement (or motion), their understandings of movement radically differ. Only one renders dance (or movement) into a candidate for proprietary claims, specifically by adjudicating on a body’s movement as the unbroken expression of a specific, intrinsic property. In that divergence it is possible to locate a shift between a concept of movement that, on the one hand, involves a relational, affective concept of movement as a body’s expression of sensations in a world of fluctuating forces and, on the other, a tautological account of discrete bodies in which movement is
characterized as the actualization of essence or "substance." The first suggests a universe of constant motion; the second treats movement as the unfolding of what a body always, in essence, was – and therefore not movement so much as the expression of an inherent tendency interior to a body that was there at the outset and needs no outside. The latter alludes to the terms of property ownership, in both legal and epistemological terms. As an understanding of movement it is teleological and non-relational, connecting the ostensible origin and ends of discrete bodies as a theory of unfolding but essentially unchanging properties over time – unless there are “accidents” or spontaneous events which generate, by that view, monsters, treachery, or more simply, something improper.

In this sense, the modernist impulse to see movement everywhere was circumscribed by a return to a classical concept of property that could, bluntly put, distinguish between movement and circulation and, at the same time, would discern an eternal form in the promiscuous profusion of movement and relation. Writer and curator André Lepecki has recently argued that in 1933 Martin articulated, for the first time, a “strict ontological identification between uninterrupted movement and dance’s being.” If we reintroduce Fuller back into this history of dance, it is possible to discern two very different understandings of “uninterrupted” movement. Martin’s use of the term “actual substance” highlights his recourse to Aristotelian physics, in which the movement that bodies make (through time and space) is determined by the classes or forms to which they belong by dint of a common essence. The continuity of uninterrupted to which Martin refers is a qualitative consistency whose model is an unchanging body moving through space (Newtonian physics). Philosophically, this concept of motion draws on an Aristotelian metaphysics of movement as the auto-catalysts of bodies in possession of souls. By that account, a body can preserve its unique and inherent properties throughout movement and in a changing world. Its teleological course may be interrupted by “accidents” or chance, or the spontaneity that gives rise to monstrosities, but its movements are nevertheless conceived of as an underlying future that was always present as a substance and at its origin. Lepecki gives the example of a hiccupping dancer as a “betrayal” of continuous movement. This idea of perpetual movement is based on a distinction between voluntary and involuntary motions (rather than that of “perpetual flux”) that, according to Aristotle, distinguished between natural entities and artifacts. For Aristotle, artifacts (such as technological instruments and enslaved people) lack the capacity for self-movement; instruments (and slaves) were defined as such by not containing the principles of generation and motion within themselves. In other words, it is a theory of proper property ownership (including, in Aristotle’s account, the ownership of other people who are, by their nature, deemed to be property).

By contrast, Fuller’s understanding of constant motion recalls pre-Socratic philosophies. But more so, her approach to movement is steeped in an epistemological shift between a classical, Aristotelian physics and the modern physics of special relativity, quantum mechanics, and the molecular sciences. Many of Fuller’s earlier performances involved experimenting with interactions between chemical compounds and lighting. She “caused the light to dance,” as one reviewer remarked. It is not surprising therefore that in the catalog of early modern dance Fuller is most often associated with artifice and technology, the “goddess of light.” This is in stark contrast to many of her otherwise similarly experimental contemporaries, such as, say, Isadora Duncan with her renaissance of Ancient Greek naturalism or Rudolf Laban with his expressionism of presumably eternal forms, whose more or less explicit philosophical prompts were those of Aristotle and Plato respectively. Fuller’s work explicitly parallels a shift in theories of physics, precipitated by the invention of apparatuses of observation, which had, as Fuller put it in her 1911 lecture on radium, discovered “something unseen and unseeable, something which had to do with those forces which hitherto had been looked upon as supernatural, inasmuch as our eyes were inadequate to see them.” Elsewhere, she wrote that “the microscope revealed to me a world greater than the bible had told me about.” Pivotal to that epistemological move was the abandonment of the Aristotelian concept of “substance” that Martin’s definition of dance would, in 1933, subtly retrieve. Without an Aristotelian understanding of substance it would be impossible to describe modern dance as a unique, aesthetic object and, simultaneously, link that epistemological understanding of property with its legal-economic significance for property rights claims. Fuller instead reaches for a theory of movement that is relational, experimental, and kinetic – and endeavors, but fails, to ensure a proprietary claim. Martin closes the aesthetic, teleological circle between being and becoming by declaring that modern dance is the actualization of a substance that was always inherent.

Fuller’s expressionism instead amounts to a view of a prosthesisized body in motion existing in a universe of “waving forces,” a theory of...
movement where the object-oriented, naturalist differentiation between artifacts and natural entities no longer holds sway. As she put it: movement is the “expression of a sensation.” It is a theory of movement as affect: “the reverberation that the body receives,” as when “matter responds to immaterial [and material] causes.” For Fuller, “motion is the starting point of all effort at self-expression.” But movement does not materialize from the interiority of a discrete body or descend from a transcendental idea so much as it indicates a capacity to “feel within ourselves” the “impulse [of] an indefinable and wavering force,” presupposing a multiplicity of bodies that are capable of imparting a force that is “indefinable but certain in its impact.” She advised that “there ought to be another word for it [the dance]” but, still, “the human body should, despite conventional limitations, express all the sensations or emotions that it experiences.” Embracing artifice, eschewing anthropometry, she suggested that animals enjoyed far greater scope for movement and the expression of sensations than did the human body.

Art of Life: Expression and Figure

To an even greater degree, dance, ballet and mime were abandoning figures and poses to release values which were not posed, not measured, which related movement to any-instant-whatever.

– Deleuze, Cinema I

Fuller’s performative body twisted, crumpled, and folded – topology in dance. While reviewers tended to describe her performances in figural or symbolic terms (as the fleeting appearance of, say, a flower or a flame), her own descriptions consistently eschewed representational references and expressionism in favor of characterizations of technique. Laban, in contrast to Fuller’s tenuous connection with reviewers’ metaphorical exchanges, overlaid the five regular polyhedra on massed dancers. The five polyhedra, otherwise known as “Platonic solids,” are the cube, tetrahedron, octahedron, dodecahedron, and icosahedron – often associated with classical concepts of ideal perfection because of their absolute symmetries, in contrast to, say, the “pathological curves” of a Koch snowflake, one of the first fractals mathematically described by Helge von Koch in 1904. If modern physics, mathematics, and modern dance emerged around the same time and in similar places, so too did self-described fascist movements and parties. This is not to suggest that they each followed the same trajectory or disposition, excepting where they did. Neither Fuller nor Laban were much concerned with narrative. Yet where Fuller abandoned narrative in order to experiment at the limits of movement and sensation, for Laban, narrative was less significant than staging a subliminal appeal for the restoration of presumably ideal forms. Fuller performed her last dance in 1927. Almost a year earlier, Laban began making his case for movement choirs as a way of unifying, through dance, “the white race.” This was the same year the Hitler Youth was formed. Suggestions that Laban was not an enthusiastic supporter of Nazism are implausible. Three years before Hitler was elected to power, Laban had already denounced the “incursion of racially foreign habits of movement into a rhythmically exhausted race.”

In 1933, when Hitler was appointed chancellor, Laban dismissed all “non-Aryan” children from the State Opera’s ballet school. Six months later, he directed that the entire school should be Aryanized. (Notably, the German government itself waited until 1938 to issue orders to remove “non-Aryan” children from schools.) Laban approached dance movements as a “living architecture,” a vital prelude to the restoration of an idealized community through an emphasis on archetypes – the geometric essence or soul of the nation. His notational system broke movements down into discrete units – initially he called these “resonant points” – and recomposed those points into a syntax and grammatical formalism of dance movements. Laban described the kinesphere in anthropometric terms, as the “space which can be reached by easily extended limbs.” In practice, that meant overlaying the five polyhedra over every movement so as to define what constitutes an “acceptable movement,” a eurhythmics. This would, according to Laban, better reflect “the true rhythms of the ‘master’ race.” Charleston, swing, and jazz were out – this is what Laban meant by “bad rhythms.” The “picture we have,” he suggested of his approach, is that “the most natural movement for the white race, is roughly the sideward movement.” The purpose of Laban’s movement choirs and dance notation was to retrieve an underlying, kinetic unity through the expressionism of ideal, Platonic forms – a unity that would function, in his words, as “a cultural stimulation, [a] new symbol of national Becoming.” According to Laban, meeting this achievement involved the identification of “the boundary between ... acceptable [rhythms] and what is not, between eurhythm and kakorhythm,” that is, between presumably well-ordered rhythms and a bad cacophony. Laban’s theory of an underlying rhythm, or “ur-rhythm,” was grounded in a distinction between a turbulent cacophony on
Photograph of Rudolf Laban at the Art of Movement Studio, Manchester, c1948. Photo: Roland Watkins, LC/A/1/3/30, Laban Archive, Trinity Laban Conservatoire of Music and Dance
Indeed, for successive reviewers, Fuller’s referential tendency toward the affirmation of inclination or step toward the figural, a body to air would treat liquescence as an characterization as a rapid circuit from a fixed crossings and the ports of empire, its through a liquid state. If the Serpentine Dance gaseous apparition, without quite passing a phase transition between a solid body and a often read as sublimation in the chemical sense: hinted at an exoticism, but was Serpentine Dance remarked that the costume she used in the Fuller was in London. Fuller herself had Orientalist repertoire of English theaters while accounts — the “Nautch dancing” (the colonialist term for Indian dance) that was part of the Orientalist repertoire of English theaters while Fuller was in London. Fuller herself had remarked that the costume she used in the Serpentine Dance was “an old Hindoo costume,” given to her by a British officer who had served in India; on another occasion, she said that it was a costume that had been used in an Oriental production at London’s Savoy Theater. The Serpentine Dance hinted at an exoticism, but was often read as sublimation in the chemical sense: a phase transition between a solid body and a gaseous apparnition, without quite passing through a liquid state. If the Serpentine Dance emerged in the turbulence of transatlantic crossings and the ports of empire, its characterization as a rapid circuit from a fixed body to air would treat liquescence as an inclination or step toward the figural, a referential tendency toward the affirmation of ideal forms rather than delight in affirmation. Indeed, for successive reviewers, Fuller’s performance became little more than a metaphor or, as the French symbolist poet Mallarmé wrote in his review of the Serpentine Dance: a “becoming metaphorical,” the “fragmentation [of the body] in a play of metaphorical forms.”

It both confounded and dazzled its most famous reviewers precisely because of what they tended to read as a figural sublimation of any recognizable, “gyrating” sexuality or identifiable gender performance. Too queer to make sense, it would seem. For one reviewer, what distinguished the Serpentine Dance from the other acts at the Folies Bergère was that there were, to quote, “no more contortions, no more hip swaying, no more circular pelvic movements; the chest stays rigid.” As Mallarmé wrote: The dancer is not a woman dancing, for these juxtaposed reasons: that she is not a woman, but a metaphor summing up one of the elementary aspects of our form: knife, goblet, flower, etc., and that she is not dancing, but suggesting through the miracle of bends and leaps a kind of corporeal writing.

According to Camille Mauclair, Fuller’s “performance [is] freed from all known aesthetic forms, uniting and destroying them together, and defying all qualification.” What might have been seen as a defiance of qualification was instead, oftentimes, treated as a metaphorical displacement, making it possible to attribute to the dance properties revealed by others. Much more could be said of such responses to women who danced and wrote as a demand for expression — unlike Laban, or Isadora Duncan’s renaissance of Ancient Greek dance and “Nature,” Fuller’s performance failed to adhere to the lexicon of self-possession that is the condition of contractual authority, and became, ultimately, the shimmering object of other people’s aesthetic writing, from Mallarmé in the 1890s to, more recently, Jacques Rancière.

By and large, Rancière joins with Mallarmé in reading Fuller as the dematerialized symbol that eludes self-expression and, in so doing, becomes communicative of something by becoming another writer’s muse. Though Fuller wrote at some length, Rancière cites a series of male reviewers writing about Fuller; nowhere does he cite Fuller.

Fuller did not, then, exist outside the circuits of production, including that of written texts. While she had become famous in Europe for performing the Serpentine Dance, her work in New York was routinely dependent on male managers and producers with whom she had contracted and, as was routine, according to which it was possible for them to sell or lease her on to other theaters. Fuller had taken to refusing
to honor such transfers — her circulation between men, as it were — unless she had signed the contract herself. Her regard for the work of performance as work extended to describing her own circulation through various theaters, by way of a range of contracts, as “migrations of personality,” movements which, she insisted, she should have a role in charting. In any case, it was one of these contractual disputes which led to her to bring a suit against the chorus girl Minnie Renwood Bemis, in what we now know of as the case of Fuller v. Bemis (1892). As others have pointed out, the Fuller v. Bemis case also illustrates the ways in which the proprietary claim over the performance of this dance — and, indeed, modern dance itself — was staked in the contested contractual margin between the properties of whiteness, women as property, and the unnamed working women of burlesque.

Fuller’s contractual claim in New York was not only directed toward difficult negotiations with theater producers and the interchangeability that organizes competitive strata within discrete labor markets. It also sought, but failed to, as Anthea Kraut and others have argued, fully distance the Serpentine Dance from the sexualized, working bodies of the variety stage while simultaneously trading in the exoticism that passes for novelty within the formal market. It involved, among other things, the bleaching of otherwise racial/gendered performance, so as to make kind of circulation possible through systems of contractual authorship and proprietary arrangements.

Interval: “Art of War” and “Art of Life”

There are fewer, more emphatically mythic accounts of the link between the “art of life” and the “art of war” than those found in philosophical juxtapositions between Plato and Odysseus — in other words, fewer epic and aristocratic versions of the phenomenological dichotomy between ideally solid objects of life whose properties are known and enclosed, and seagoing circuits where the hero sets off from the noble home to war and tribulations and returns, eventually, to a proper homecoming of being known. In a series of lectures in the late 1920s, the English mathematician Alfred North Whitehead proposed that “the function of Reason amid the welter of our mental experiences, amid our intuitions, our emotions, our purposes, our decisions of emphasis” is to “promote the art of life.” Whitehead distinguished between two kinds of reasoning: Platonic and Odyssean. According to Whitehead, Plato’s rationality is absolute, speculative, and “enthroned above the practical tasks of the world.” Odysseus, by contrast, is a “pragmatic agent,” whose decisions are determined by experiential and situational knowledge. Without the latter, Whitehead contends, there is no impetus to creativity, including in the techniques of reason. Whitehead does, however, offer a fleeting warning: “the bones of his [Odysseus’] companions are strewn on many a reef and many an isle.”

The Odysseus of Homer’s epic is polytropic, a person of “many turns,” who becomes lost and for ten years endures storms at sea after undertaking the war on Troy; he takes multiple forms, encounters monsters and temptation, returns initially unrecognizable, murders the rivals for his wife’s affections, and finally regains his proper place at the head of the royal Ithacan household. Whitehead is not alone in ascribing to the mythical figure of Odysseus an iconic status in philosophy as the legend of a practical, seafaring reason juxtaposed with that derived from transcendental knowledge — one that, more or less explicitly, treats the well-defined, patrimonial property of the sovereign household (or oikos) as the normative condition of formal, categorical reason.

Adorno and Horkheimer describe Odysseus melancholically. For them, he is the exemplary homo oeconomicus characterized by self-mastery and (self-)sacrifice, the condition of a bourgeois aesthetics that is all ears but incapable of taking pleasure in beauty, the alienated “homesickness” of an Enlightenment rationality both set adrift from and destructive of normative foundations in a euphemistic nature.

If Whitehead was less scornful of Odysseus’s adventurist entrepreneurialism than Adorno and Horkheimer, he nevertheless deals, albeit tacitly, in a similar structural analogy between the patrilineal genealogy of a well-ordered oikonomia and the coherent properties of classical, categorical reason by suggesting that “reason is the self-discipline of the originate element in history,” without which “this element is anarchic.”

The oikos has long-furnished philosophers with a naturalized, patrimonial aesthetics of the selective preservation of heritable, unique properties. It links economic and legal norms of property ownership with the ostensibly certain, categorical knowledge of the properties of the material world that is otherwise in flux. Machiavelli’s Art of War and The Prince, arguably a treatise on politics as entrepreneurial risk calculus, connects the presumably non-conflictual, but non-contractual and hierarchical, household with the overt violence of the battlefield. More explicitly, Odysseus’s route between the sovereign household and its restoration — which involves a series of destructive, risky oceanic encounters with accidents, strange monsters, gods and sirens,
and, not least, wars – describes, as an epic odyssey whose protagonist is the aristocratic hero, the movement of capital from C to C without which that path from sovereign oikos to its restoration would be a mere repetition or tautology without surplus. Put another way, the contract is asymmetrical and incomplete. In the tortuous, accumulative circuit, the “art of life” resorts to the “art of war.” Its methodology is that of a threshold Platonism or entrepreneurial phenomenology that takes a perilous, dialectical detour through the exotic, oceanic flux of the physical world before returning to reclaim its purportedly proper, sovereign and eternal form.

Art of War 1: Infrastructure and Criticality

There is no concept of infrastructure available to a classical Platonism – excepting that derived from the cosmology of the container that contains amorphous matter, or that which furnishes the geometric scaffolding or “parts-whole” reassembly of forms, as a concept of the medial between discrete entities rather than the stuff. In the early twentieth century, “infrastructure” goes from being a minor, technical term in French civil engineering, enters the vocabulary of English-speaking governments and institutions, and, along with its subsequent spread, elaborates a theory of warfare that is also a theory of governance, physics, and organization. In its initially speculative, military aesthetic, the concept of infrastructure involves the setup and apprehensions of “slapstick,” involving a theory of proximate (rather than final or transcendental) causes whose emblematic demonstrative in the history of infrastructure (and in warfare) is the collapsing series of falling dominoes. Put differently, it involves the criticality that obtains in chains of causes (or “supply chains”) which proceed from contingent base points. Along with its incorporation of the relational, the introjection of the “accidental” and arbitrary offsets in the procedural course of reasoning implies a remarkable distance from the classical understanding of the properties of things, within which movements are thought of as teleologically constrained to becoming what something was always, essentially, from the outset.

When a fluent vocabulary of infrastructure does emerge in the mid-twentieth century, it does so at the edge of a classical, renaissance Platonism, and one which verges on the apologia for dictatorship in the eighth book of The Republic. There, Plato rails against people moving freely beyond their proper place, including: the “devotee of equality,” whom he describes as “a manifold,” “containing within himself the greatest number of patterns of constitutions and qualities,” an excess of

freedom that culminates in an unrestricted “liberty ... [where] the purchased slaves, male and female, are no less free than the owners who paid for them.” Invoking a Platonist dread, this concept of infrastructure’s criticality – movement beyond proper bounds – inverts the Lucretian clinamen into the imagination of disaster. It becomes, then, a speculative aesthetics of a potentially lucrative, motivating catastrophe whose objective is the restoration of a hierarchically ordered, unchanging universe.

The term “infrastructure” did not enter the English language until the course of intergovernmental discussions over the construction tender for the shipping port in Tangier, Morocco, in 1922. The next year, Tangier was declared an “international zone” under the joint, colonial administration of France, Britain, and Spain. Before this, “infrastructure” was an inconspicuous, technical term used by French-speaking engineers, referring to railway tracks and signaling but, notably, not to train stations. Even so, it remained an obscure term until some time after the close of the Second World War, and did not assume its present significance until after the wars in Southeast Asia in the mid-twentieth century. In 1950, the UK’s minister for defense defined infrastructure as “the material backing to enable the higher command to function and forces to be deployed,” and was greeted in Parliament with accusations of using an esoteric, foreign language. By the late 1950s, however, the term becomes pivotal to transatlantic understandings of warfare – especially so in the theory of “falling dominoes.” It involved a shift in theories of force and what it is that matters in the course of a war where there are no boundaries. Among the more famous proponents of “the art of war” – an older term for operational theories of warfare – were Antoine-Henri Jomini, Henry Lloyd, and George Gray, who had served as Britain’s colonial administrator in South Africa, New Zealand, and Australia.

It might be noted here that the association of infrastructure with utility or welfare, its conceptualization in the humanities and social sciences, is far more recent than its history in engineering and military theory. From the late 1970s, the social sciences begin to grapple with a question about the physics of movement – the movements of populations beyond regular forms, beyond borders. It is on that basis that infrastructural concepts begin to make their way into government policy and statistical models as a metrics of uncertainty and risk, or prêcarité, if you prefer. In national security, the concept of critical infrastructure is a way of modeling what happens when parts of a network break down or fail, of determining which points are essential to the functioning and preservation of a system.
Diagrams from Baron Antoine-Henri De Jomini's book The Art of War (1854).
This involves speculations on the continuity of a system (such as the “continuous transmission of power”) and, at the same time, it links theories of warfare to welfare policy as a question set in the matrices of insurable and uninsurable ways of living, disaster management, and so on. But it nevertheless begins as a theory of warfare.

Art of War 2: Geopolitical “Slapstick”

In a 1954 press conference at the close of the war in Korea, then-US President Eisenhower famously set out the theory of the falling dominoes. “You have a row of dominoes set up,” he said, “you knock over the first one, and what will happen to the last one is the certainty that it will go over very quickly. So you could have a beginning of a disintegration that would have the most profound influences.” Eisenhower’s illustrated warning on the contagious influence of communism was not the first time that an argument for a just and necessary war would be pressed upon an audience through tropes of fragile interdependence, proximity, and inevitable collapse – the combined theamtics, in short, of criticality and infrastructure. Stanley Hornbeck, President Roosevelt’s chief adviser for Far Eastern Affairs in the State Department, had previously described geopolitics as the delicate, interwoven lines of a textile: “Disturb this fabric at any point,” he warned, “and you produce disturbances throughout its entirety.”

The theory of falling dominoes and its embedded descriptions of a fragile interdependence had already been at the center of US foreign policy for almost half a century. The domino metaphor already shaped understandings of containment and sequential collapse during WWII, when it was invoked by President Truman and his advisers in an effort to justify US military action in Greece, Iran, and Turkey, as in US opposition to Azerbaijani independence in 1946. It was used to bolster the case for US support for the coup in Guatemala in 1954, and would go on to shape US military thinking about Latin America. In Eisenhower’s speech, the argument ran as follows: if South Vietnam were lost to “the Communists,” the rest of Southeast Asia would inevitably follow. Eisenhower’s predecessor, Truman, had gone to war in South Korea under the flag of falling dominoes. In 1950, as the US and its allies went to war in Korea so as to reassert the post-WWII carve-up of Southeast Asia at the thirty-eighth parallel, then-US Secretary of Defense Louis Johnson had argued that “the fall of Indochina will undoubtedly lead to the fall of the other mainland States of Southeast Asia.”

Decades later, in the 1980s, President Reagan conjured up the theory of falling dominoes to argue for military and paramilitary intervention in Latin America, insisting that “unless Congress at least doubled military aid to Salvador [to defeat the communists], then Mexico could ultimately be affected and Soviet-supported governments would then be on the doorstep of the United States.”

The imaginary of proximate, modular pieces of extended imperial possession teetering on the brink of system-wide collapse was, however, by no means restricted to the US. The British commissioner-general in Southeast Asia, Malcolm MacDonald, had similarly argued in late 1950 that “If Indochina holds, all holds.” The Soviet Union also had its own version of the domino theory, which it called upon to warrant military intervention against the uprising in Hungary in 1956. As then-First Secretary of the Communist Party of the Soviet Union Nikita Khrushchev had insisted: “If the counter-revolutionaries [in Hungary] did succeed and NATO took root in the midst of Socialist countries, it would pose a serious threat to Czechoslovakia, Yugoslavia, and Rumania, not to mention the Soviet Union itself.” Thus war in Indochina as elsewhere was as much about the fabric of Cold War geopolitical blocs as it was concerned with the neocolonial reconfiguration of postwar international maps, as with French efforts to regain control over its pre-WWII empire against anti-colonial insurgencies in Vietnam – a war that would run and run from 1946 to 1975. A discarded draft for a speech by Truman in 1947 warns of “a chain of events the consequences of which are still unfathomable.”

The theory of falling dominoes is a theory of inevitable, sequential occurrences that, unlike the “chain of accidents,” conceives the initial event – the knocking over of the first piece – as cryptic; but, like the “chain of accidents,” the theory of falling dominoes posits the space-time of the base event as undefined and arbitrary, the world it alludes to one of proximate interdependencies and causes. Instead of the game-theoretic presentation of strategic choices that assigns an immanent, interactive role to players within a game, there is instead one extrinsic, causal instance or event that knocks over a piece, any piece. The geopolitical theory of falling dominoes is a theory of the effect of collapse on contiguous pieces, the depiction of chain-reaction or “chain-of-accidents” concepts and models borrowed from industrial processes (assembly lines and associated concepts of error, failure, and accident) and nuclear physics (chain reaction), inductive logic and mathematical physics. It serves as a vivid depiction of sequential, mechanical collision and causation involving the contiguity of modular objects, one where the initial node is no longer a node within a game of strategic choices but an
event that can be explained as either intentional or non-intentional. The first node is nevertheless construed as kinetically, inevitability determinative of the endgame by dint of an interdependence brought about by physical proximity, arrangement, and mechanical laws. The attribution and explanation of motive powers thereby shifts from the intrinsic properties of a thing to the mechanical impacts upon proximate things, from the deductive form of the syllogism to reasoning by induction, since the “domino show” implicitly serves as an experimental proof of the base step in inductive logic (if a fixed but arbitrary domino falls, then so on). Contemporary supply-chain logistics elaborates on this initial shift in understandings of movement, connection, and causality through the addition of one or more Cartesian coordinates and therefore introduces complexity in risk profiling, along with the topological restraint of preserving functions through continuous movement and transmission. But this theory of circulation and movement did not emerge recently or even in the twentieth-century.

Art of War 3: Moving Armies and Continuous Transmission

In his 1838 book *Precis de l’Art de la Guerre* (*The Art of War*), Jomini says that “after war began to be waged without camps,” the science and art of military logistics took shape through official publications concerned with the detail, ensemble, and dispositions of military force. By contrast, in Carl von Clausewitz’s view, “marches, camps, ... cantonments,” and questions concerning the “maintenance of the military force” are not the decisive elements of warfare but instead subservient branches of the military and the state. Military infrastructure serves the sovereign will but is not to be confused with its extension, which is instead represented on the battlefield, according to Clausewitz, by the ordered hierarchical ranks of officers. According to Clausewitz’s magnum opus, war is neither physics (“the mechanical arts”), nor the fine arts, but a clash of wills. Jomini is instead the chief exponent of a logistical or operational theory of war, “the art of moving armies” and “making war on the map.” Where Clausewitz is concerned with the chain of command, Jomini ponders an elaborate chain of causes. One favors doctrine, the other standards. Jomini emphasizes a complex chain of causes rather than the singular, almost divine-like cause that floats outside and above the field of battle. This makes it possible to stretch one’s theory of causation to include the presumably irregular or uncommon, the accidental, nonlinear, chaotic, inessential, or intransitive in ways that the predicable course of reasoning in Clausewitz cannot. It ushers in a nascent version of complexity alongside a military theory in which infrastructure rather than political will is seen as decisive to the conduct, facility, and, not least, the very meaning of warfare. And crucially, it yields a theory of indefinite war against an indistinct enemy which is, as it happens, the condition and meaning of “frontier wars which never ended” and the war beyond borders.

Jominian warfare begins from contingent base points, from the very thing that Clausewitz sought to eliminate as accidental or inessential to the course of reasoning scientifically and philosophically about warfare. Clausewitz’s army is debilitated by the loss of the queen, unable to continue after the loss of the king. Indeed, in Clausewitz’s theory of war there is no war where there are no kings – this, as it happens, is the point of Clausewitz’s famous (often poorly paraphrased) dictum that war is the continuation of politics by other means. What counts as decisive in Jomini’s war is not a sovereign or a voluntarist concept of decision but the effective transmission of force upon points. Accomplishing “operational complexity” (the capacity for the destruction of infrastructure), previously defined as “going behind enemy lines,” figures as more decisive to the course of war than capturing the sovereign. Jomini’s vocabulary hinges on a discussion of “positions” and “dispositions.”

Unlike Clausewitz’s contest of wills, Jomini’s theory combines elements – notably, that of the Napoleonic-Newtonian mass, Henry Lloyd’s *lignes d’operations*, and Dietrich von Bülow’s geometry – to conceptualize a *logistikon* that (unlike any of these) can be disconnected from the agency of the state because its functional significance lay in its capacity to link (programmable) operations with regulation or code, and in a way that emphasized Sadi Carnot’s preoccupation with the thermodynamic calculus of a continuous transmission of power. Jomini’s contribution is not in the concept of *lignes d’operations*, which remained close to that of Lloyd and Bülow. It is rather in the treatment of zones and lines of operations as a dynamics of forces reliant upon critical points that, unlike the Clausewitzian theater of war, are not synonymous with the command center. That which is crucial to the continuous transmission of power, or conversely, that whose destruction makes that transfer discontinuous, is the concept of criticality as it is more or less understood today. Where Carnot’s experiments in thermodynamics were concerned with deriving abstract formulations of optimal performance from the workings of machines (waterwheels, the steam engine), so Jomini strove to elaborate a theory of (decisive) criticality and infrastructure.
A Clausewitzian wins the war by destroying the enemy’s will as embodied in the capacity for strategic decisions. A Jominian wins the war through the effective application of force at “decisive points.” Queried as to what constituted a “decisive point,” Jomini’s replied: “It could be a road junction, a river crossing, a mountain pass, a supply base, or an open flank of the enemy army itself.”

**Art of War: Class and Complexity**

Lenin regarded Clausewitz as “one of the greatest writers on the history of war, whose thinking was stimulated by Hegel.” But it is Gramsci who takes up the concepts of “war of position” and “war of maneuver” in the context of his criticisms of Rosa Luxemburg’s 1906 pamphlet “The Mass Strike, The Political Party, and the Trade Unions” – referred to by Gramsci as “one of the most significant documents theorizing the war of maneuver in relation to political science.” The terminology since attributed to Gramsci comes from Jomini’s *Art of War*. It is there that “the system of positions” is distinguished from the “pivots of maneuver” or “pivots of operation.” For David Egan, “acknowledgment of Gramsci’s influence on revolutionary theory cannot itself be based on the novelty of these concepts” and, further to this, “it is the modern war of maneuver … which is associated with complexity.” There are implications for how the debates between Lenin, Luxemburg, and Gramsci are approached, not least because of Gramsci’s argument that the “war of position” (the attainment of national-popular hegemony) is best suited to the conduct of class struggles in developed capitalist countries.

While it is the case that the “war of maneuver” includes an assumption of causal complexity, it is not, however, my view that “war of position” and “war of maneuver” correspond to “premodern” and modern stages in capitalist development. To the contrary, Jomini’s approach is a theory of warfare in frontier and colonial circumstances; its understanding of causal complexity emerges from the scattering or nonexistence of well-defined, bounded principalities which give rise to something like a Westphalian system. “Clausewitz’ text lacked the deconstructive analysis of frontiers that the Jominian literature offered,” as John Darwin suggests. The “modernism” of Jomini’s approach does not reflect the pinnacle of a linear, stadial history but, instead, is indicative of a shifting threshold between periphery and center – much like fascism in the 1920s brings an eliminative, colonial violence into early-twentieth-century Europe. At the same time, Gramsci elaborates on Lenin’s definition of spontaneity as the absence of a cogent political will (or sovereignty), which both understand as indicative of a higher level of development. For Gramsci, spontaneity is the absence of organization and characteristic of the “history of the subaltern classes,” whom he saw as lacking a conscious sense of linear time, liable to fall upon tradition and for this reason understood as a force that can be appealed to through an affirmative recourse to Sorelian nationalist myth. By contrast, Luxemburg’s argument concerns the attribution of causal priority and the simplification of complexity that arises from a dichotomy between spontaneity and organization – some sixty years before the publication of Hayek’s “Theory of Complex Phenomena.”

The immediate target of Luxemburg’s criticism is what she described as an “abstract, unhistorical method of observation” that treats “the mass strike [as] a purely technical means of struggle, which can be ‘decided’ at pleasure and strictly according to conscience, or ‘forbidden’ … according to decision.” Put simply, the tactics or methods of struggle are not the instruments of political will as they are from a Clausewitzian perspective. As Luxemburg puts it, “the element of spontaneity” plays a role, not because struggles are less advanced, but because there is present in every instance of struggle a complex range of “factors [that] react upon one another in such a way that no single act can be arranged and resolved as if it were a mathematical problem.”

But if much of this reflects a Jominian understanding of complex, material causality, it is notable that where Hayek’s theory of spontaneous order differs from Luxemburg’s is also where her concept of revolution diverges from Jomini’s preoccupation with the continuous transmission of power. Hayek followed in the steps of Adam Smith and Francis Hutcheson in arguing that political regulation infringed on the teleological unfolding of the foundational and natural laws of the *oikos* (the presumably analogous and statistically aggregated households, landed estates, and companies in the wealth of nations). Hayekian “price signals” are meant to furnish a providential, prudential guide for the managerial heads of the household – Smith’s “invisible hand.” In this, Smith and Hayek elaborate on from the Medieval Scholastics’ understanding of economics as *oikonomia*. But if, in *The Accumulation of Capital*, Luxemburg insisted that the circuit of capital (the extended reproduction of total social capital) was a necessarily open system, her characterization of revolution is remarkable. “The revolution,” she says, “is not a maneuver of the proletariat in an open field, but a fight in the
midst of the incessant, crashing, displacing, and crumbling of the social foundation.” To which she adds that “the element of spontaneity plays such a pre-dominant part, not because the Russian proletariat are ‘uneducated,’ but because revolutions do not allow anyone to play the schoolmaster with them.”

Implicit in Luxemburg’s approach is a sense for the divergence between the classical logic of properties and that of algebraic functions that arguably reflects her training as a mathematician. What I take from Luxemburg’s insights is that the “creative instant” may indeed be radically open but it is not cut adrift from conflicts over foundations. Still, as such, it also suggests an opening in the seemingly tautological circuit that, in law and economics, legitimates property claims but, at the same time, therefore also marks a contested threshold of appropriation that may (or may not) restore the foundation of property rights. That is, it involves an apparatus of exploitation (that is also a method of observation, experiment, and measure) in which utility is not the underlying, primordial substance that indicates a metaphysical concept of life (one that obscures the abstract encoding of this or that “way of life”). Rather, it involves a historically specific process of appropriation, the entry or switching points of “socially recognized standards of measure” that selectively foster ways of living, and whose logistical move from contingent base points in both colonial and frontier circumstances is called forth by the relative absence of well-defined, bounded categories that otherwise presumably ground the categorical steps of the common forms of oikonomia.

**By Way of a Conclusion**

Throughout this discussion, a mutually reinforcing distinction has been drawn between the logic of property and that of appropriation. There is in other words a distinction made between the categorical logic that obtains in and rationalizes economic and legal concepts of property rights by resorting to ostensibly well-founded yet metaphysical premises without sure foundation, and on the other hand the relational, contingent, complex, pragmatic, and nonlinear logic of infrastructure that is capable of integrating estimates of uncertainty and stochastic movements in frontier circumstances. Theories of the change that does not change are the hinge between property and appropriation – a reminder, then, that there is nothing inevitable about the circuit of capital, nothing assured about the movement from C to C’. Along those lines, I have not treated movement or the *infra* as the phenomenal
George H. Mendell (Lippincott, 1862), 252–53.

63 Carl von Clausewitz, On War (Penguin, 1832).

64 Jomini, The Art of War, 69.


68 Jomini, The Art of War, 135–38.


72 Gramsci, Selections from the Prison Notebooks, 196.


75 Luxemburg, Reader, 198.

76 Luxemburg, Reader, 198.


79 Mitropoulos, Contract and Contagion, 117.