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## COMPLEXITY AND CONTRADICTION IN INFRASTRUCTURE: ON SCHUMACHER-TRUMP HEGEMONY

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In the coming months and years, many essays will be written and links shared on the most visceral forms of violence made evident by the presidency of Donald Trump—the sexism, racism, homophobia, virulent nationalism, crass oligopolism, and the preemptively paranoid pose that will become characteristic of the United States’ hypertrophied organs of surveillance and control. In architecture’s own band of the political spectrum, the utterances, or to be more precise, outbursts, of Patrik Schumacher over the last few years must take pride of place as discursive preambles to this month’s inauguration. In his casual responses to Brexit and the brutal realities overwhelming much of the world in the aftermath of the 2008 financial crash—from housing shortages to attacks on public education—Schumacher critically mischaracterized “thought” for a form of ideology that took the most formulaic tenets of “neoliberalism” and gave them a veneer of realism, even flesh. This discourse is not just insensitive—it is corrosive of the very thinking that helps weave the social together.

After a recent media backlash that appeared to temper the undue megaphone some of us gave him, it seemed like Schumacher's rhetorics might finally recede into the ash heap of architectural history. Alas, Trump changes this complacent assessment. For in Schumacher the hyper-managerialist, the systems-theorist, and the archi-entrepreneur, we have, in pseudo-inverted fashion, the necessary seeds for the kind of thinking, or rather, for the kind of moral beliefs and illogical operations, that allow for something like Trump to awaken and thrust its roots into the soil of society.

In other words, understanding Trump requires understanding Schumacher—not as people, but as historical phenomena. Schumacher embodies architecture's love affair with a neoliberal script of productivity at all costs, of relentless managerial optimization, and of a division of labor whereby architects disavow their critical faculties to become mere operators in a market for purely instrumental design services. This script is inherently—historically—tied to the rise of Washington Consensus policies in the 1970s, which led, among other things, to widespread de-democratization, privatization, financial deregulation, and the crushing of labor.

But we already know this. Schumacher's ideological soliloquys over the last few years have almost become a soothing background noise, a comfortable “bad object” against which to measure our own architectural civility. Given the election of Trump, however, we need to abandon any self-satisfied certainties and ask: are we thinking critically enough? By which I really mean: what kind of architectural thought, amused over the spectacle of Schumacher, missed the possibility of Trump?

In fact, it seems to me that we failed to take Schumacher, or rather his persistence, seriously enough. In his repetitive calls for a new world architecture, “parametricism,” we failed to see the totality of which his compulsions were an expression. In fact, it was always right in front of us—a macho mentality of control masked by an obsession with functional operating systems, governed by automatized heuristics and axiomatics; an architecture of meaningless flows; a politics of the city subsumed within a fixed set of procedures mediated by technocrats and bound, suffocatingly, by moralistic economic rules—the totalizing vision to which his architectural project uniquely gives form.

But, despite appearances, Schumacher is more typical than he is exceptional. For example, two key dimensions of his rhetoric, the universalizing, if not actually planetary, scale at which he pitches his ideas, and the focus on managerial ethos, systems, and tools that makes it a project of governmentality, have recently also come together in another architectural fashion: a turn toward “infrastructure” that is bound to have consequential scholarly and professional ramifications

Notes as endnotes.

over the next few years. This turn, however, stretches far beyond the narrow confines of Schumacherist parochialism—all the way to the Trump presidency—offering us a more sober context in which to address the intellectual challenges of thinking global managerialism and contemporary proto-fascism in a single frame.

In this conjuncture, Keller Easterling's excellent *Extrastatecraft: The Power of Infrastructure Space* provides an opportunity to consider one element of this larger problem: that of the relation between managerial systems and the study of infrastructure. In a spirit of critical self-reflection, then, we might be able to question Easterling's findings and intellectual framework in light of Trump—not directly in his proto-fascistic dimensions but rather as the unexpected underside of a hyper-managerialized society.

For Trump is a warning call to think, and act, ever more critically. In the emerging literature on infrastructure we see a desire for understanding systems—a desire, ultimately, not unlike Schumacher's—but the question of how infrastructures relate to the key dimensions of power and subjectivity are often cast as secondary. Without an understanding of the hegemonic articulations of infrastructure—its *particularizing universalizations*, so to speak—our knowledge of infrastructures, and more crucially, the infrastructures of knowledge that subtend both them and us, might not survive in the wake of Trump.

## II

When we hear “infrastructure,” we might imagine highways, railroads, dams, subway networks, ports, or shipping containers. But as an emerging body of scholarship shows, infrastructure is also about the operating systems that govern the functioning of these massively complex assemblages of objects and organizations: from scripted protocols like international energy agreements, to the national institutions, corporations, policies, and financial practices set up to coordinate them, to the rhetorical, symbolic power of statehood, progress, rationality, and other markers of subjectivity.

As Brian Larkin put it in a recent survey, “What distinguishes infrastructures from technologies is that they are objects that create the grounds on which other objects operate, and when they do so they operate as systems.” It is this character of systems nested within systems, the potential promise to articulate multiple material and symbolic levels at once, that perhaps accounts for the present fascination with infrastructure. In its various modes and shades, recent infrastructural literature grapples with systems and complexity, with connecting the very large with the very small, mixing the quantitative with the qualitative. At the same time, it tries to describe how different layers of experi-

ence and causality are intermeshed, from the political to the poetic.

But in attempting to articulate the systemic with the contingent, the organizational with the heterogeneous, this literature is, often unwittingly, also writing its own philosophy of history. Whereas structuralist conceits like the dialectic of a material base determining a cultural superstructure once constituted a kind of ground for the humanities and social sciences, over the past four decades the causal relation between “agency” and “structure” has been repeatedly de-reified, deconstructed, and topologically reconfigured into all manner of hybrid and indeterminate assemblages, actor-networks, hyperobjects, atmospheres, emergent entities, deviant subjects, apparatuses, and *dispositifs*. “Infrastructure” appears to be yet another iteration of this onto-epistemological dance, indefinitely displacing the underlying historical problem of what constitutes a “totality”: what causes stability and change and how to identify the “what” and the “how” of this dynamic?

This question is more than simply methodological or semantic. In apprehending history as a problem akin to that of infrastructure itself—that is, as an operating system of systems, each with a particular functionality to be recursively decoded, one in the other—thick descriptions, narratives of control or lack thereof, and their supplementary unintended consequences, ensue. In the detailed and eclectic multiplicities that emerge from such accounts, often it appears as if power has been distributed systemically, *a priori*, by virtue of the systems themselves, with no mediating antagonisms or fundamental pressures.

An earlier critical theory may have interpreted this apparently immaculate conception of power as the telltale sign of capitalist ideology: an imaginary semblance of contingency, orchestrated as a market and appearing, finally, in the form of phantasmagorical commodities. But it isn't necessary to condemn infrastructural assemblages as ideological fetishes to appreciate the political impasse they can generate, in the flesh and in scholarship. They do not negate the totality of some preconceived historical development so much as re-enact it each time the infrastructural is invoked or deployed as, primarily, a quasi-stable managerial system.

The political valences of infrastructures emerge not just in their configuration as sites of physical translation mediated by modes of managerial expertise but in the power of translation itself—a potential we may also term “hegemony” in its broadest sense as the patterning of co-optation and consent. How this potential, including its resonances and resistances, is leveraged, constitutes a politics that far exceeds the managerial realm. It configures collective ways of life, ways of seeing, thinking, and feeling, distributing them spatially through both material processes and processes of subjectification. When this

power potential coalesces around a certain “common sense,” shared language, or set of standards or frameworks, it can become hegemonic, but only—and this is crucial—in as much as its “sense” is able to legitimize the prevailing real and imaginary mechanisms of control: coercive institutional apparatuses, unrepresentative parliaments, manipulated markets, juridical protections only for the wealthy, unequal access to basic resources like housing, health, and education, etc. Thus it is that modern infrastructures, tied intrinsically to the dynamics of nation-states and capitalism as forms of social organization, also fundamentally organize both the distribution of these mechanisms of control and their overall “sense”—not through repression but through desire. Infrastructures truly embody aesthetic forms of modern power.

This hegemonic power doesn’t reside in infrastructures because they are managerial, in ideological terms. In fact, the reverse is true: managerialism is hegemonic because modern infrastructures operationalize, pre-empt, co-opt, channel, and distribute—that is, they *manage power*—by design. Managerialism is the lingua franca of modernity, overwhelmingly contouring our limits and potentials, and infrastructures are its organic forms. What matters is not the causal relation between agency and structure, figure and ground, but the power relations infrastructures naturalize and encode as they systematically reproduce these very categories as a kind of “sense,” as regimes of translation. As such, infrastructural scholarship predicated on describing systems must be careful not to elide what those systems systematically misapprehend, misconstrue as equivalences, or fictionalize as commensurable and essentially translatable.

While architectural histories rarely address the problem of hegemony, it can be argued that architecture was also instrumental to American-led neoliberal hegemony in the twentieth century, in both the politico-aesthetic terms discussed above and through the deployment of more direct militaristic and capitalist manifestations of power. In this alternative historiography, some common “heroes” in architectural history—Cedric Price, Archigram, Christopher Alexander, or Robert Venturi and Denise Scott Brown, to name a few—are only collateral counterpoints, the *cultural* “freedom fighters,” to those architects more organically welded to the US military-industrial complex, such as Buckminster Fuller and Nicholas Negroponte.

However, what the election of Trump betrays, and what Schumacher has come to illustrate, is the precarious instability of this dichotomy between cultural and state power; between the architecture of civil society (grounded in freedom and the market) and the architecture of the state (grounded in force and control). Claiming continuity with the postwar avant-gardes—through rhetorical, institutional, and professional affiliations—Schumacher in fact fulfills the radicalization

of a neoliberal hegemony that, post-1989, found itself unexpectedly triumphant. As the resources previously allotted to the Cold War flooded newly energized projects of hegemony—i.e., the Project for the New American Century that culminated in the second Iraq war; the European Union’s deepening integration through the channels of financial capital—the faux market eclecticism first celebrated by Venturi and Scott Brown in the charming figure of Las Vegas could now go truly global. “Complexity and contradiction” acquired an infrastructural scale. The global system appeared to “run itself” seamlessly and automatically on the hegemonic wings of market freedom.

But as events post-2008 have shown, culminating with Trump, the idea that a kind of self-evident, vernacular “freedom” (learned, paradigmatically, from Las Vegas) could be simply scaled up to circulate through the arteries of a now “global free market” is a fallacy, a cover-up for the necessary inequalities that such an infrastructural system actually requires. Schumacher picked up the mantle of this hegemonic project, insisting, despite the ever more extreme cognitive dissonances, that the systemic inequalities should not be reversed but, in fact, radicalized. Schumacher begot Trump.

### III

Buried in a footnote of Keller Easterling’s *Extrastatecraft: The Power of Infrastructure Space*, one finds this same architectural-infrastructural genealogy—the familiar cast of Cedric Price, Christopher Alexander, and Nicholas Negroponte—if, however, sanitized from its constitutive role in the postwar hegemonic order. While other disciplines have been discussing infrastructures for the past two to three decades as intrinsically political-systemic objects, architecture has only recently begun to consider them in this way. *Extrastatecraft* is no doubt one of the best and most thorough examples in this effort so far, seeking to show how infrastructures configure a contemporary world of overlapping and competing networks of sovereignty—an “extra” layer of technology and governance that describe “the often undisclosed activities outside of, in addition to and sometimes even in partnership with statecraft” (15). As we will see, much hinges on this qualification of normalized exceptionality implied by *Extrastatecraft*’s title. At stake is how we ought to account for, think, and ultimately contest the Schumacher-Trump hegemony as only the latest incarnation of a much deeper historical infrastructure—that of deadly, rationally irrational systems.

The book is elegantly built around three “evidentiary chapters,” charting contemporary case studies crucial to the growth of infrastructural space: the “free zone phenomenon, broadband mobile telephony in Kenya, and the ISO’s global management standards. Each

is a crossroads of transportation, communication, management, trade, and development networks” (20). Interspersed between these detailed case study chapters are three other “contemplative chapters” on “an expanded repertoire of form-making, history-telling, and activism. Together they consider the art of designing interplay between spatial variables—an interplay powerful enough to leverage the politics of extrastatecraft” (21).

In fact, Easterling’s ambitious proposal is for a new theory of political-design activism that would work at the infrastructural scale—a new qualitative and quantitative context for architectural intervention. Taking the multiple geopolitical incommensurabilities and fault lines made evident by infrastructures that traverse different technical, legal, political, and spatial jurisdictions, she sees potentials for the strategic retooling of the systems in place. This is as much a design opportunity as a matter of political expediency in the face of what are deemed ineffectual modes of resistance grounded in structuralist critiques: “Well-rehearsed theories, like those of Capital or neoliberalism, continue to send us to the same places to search for dangers while other concentrations of authoritarian power escape scrutiny. Moreover, the less dramatic or upstaged histories—regarding the growth of international organizations, the division of the radio spectrum, or the creation of satellite, fiber-optic, and mobile telephony networks—have often been treated as bureaucratic or technical footnotes, despite the long-term impact these developments have had on our lives” (22).

The core of this move away from what she calls “declarative activism” and toward a more granular approach is predicated on Marshall McLuhan’s famous dictum that “the medium is the message.” Seeing the city as an informational matrix inseparable from infrastructure as its carrying medium suggests that architects may gain agency by exploring not the formal qualities of discrete buildings but rather their underlying mediating systems: “There are object forms like buildings and active forms like bits of code in the software that organizes building. Information resides in the, often undeclared, activities of this software—the protocols, routines, schedules, and choices it manifests in space.” Such information discloses itself in physical movements, operations, dispositions, and programs that activate space in determined ways. As such, “McLuhan’s meme, transposed to infrastructure space, might be: the action is the form” (14).

Focusing on underlying systems and practices usefully expands architecture beyond the discrete formal object. However, this doesn’t necessarily guarantee an easy decoding of the politics of the city. On the contrary, as Easterling writes, the contemporary world order uncovered by infrastructure space is “a wilder mongrel than any familiar Leviathan for which we have a well-rehearsed political re-

response.” In such conditions, “rational, resolute, and righteous” political responses, “while cornerstones of dissent, are sometimes less consequential than the discrepant, fictional, or sly.” Easterling offers instead a hacktivist ethics for architecture, a set of stealth tools that take infrastructure as Trojan horse to infiltrate, infect, and inflect the otherwise fluid but clunky systems that govern us. “Infrastructure space tutors a shrewder, cagier counter to the lubricated agility of most global powers—an alternative extrastatecraft” (23).

The first chapter historicizes the expansion of “Free Trade” zones the world over, especially since the 1970s. Marshaling an impressive amount and diversity of supporting research, Easterling offers an analysis of the zone as an unintended consequence of the developmentalist policies of the early postwar period: from instruments for national growth to safe havens for global capital. Zones are formed by “host” countries creating exceptions to their own sovereignty in which certain labor, fiscal, and environmental laws don’t apply (34). This paradoxical formula was originally encouraged by intergovernmental development agencies as a way to spur foreign investment, with the idea that gradually the zone would cease to be an “ex-urban” enclave and become re-fused with the host state. However, since the 1970s and ’80s, zones have tended rather toward their radicalization as sites of exception that have not necessarily aided the growth of their host nations, even as they grow internally at exponential rates, to the benefit of their foreign investors.

The type of urbanism developed by free trade zones offers a new incarnation of the phenomenon of ultra-commodified and spectacularized space. But whereas a previous generation of scholars analyzed this in terms of the postmodern theme park or the problem of simulation, the emphasis here is on the intersection between the legal frameworks necessary for attracting foreign capital through selected regulatory breaks—“incentivized urbanism”—and the zone’s functionality as integral to the revolution of global logistics—the “Export Processing Zone”—over the past half-century. As these two vectors converge, fusing “the park” as speculative amenity with “the park” as global industrial platform, a new kind of city is born of “container ports, off-shore financial areas, tourist compounds, knowledge villages, IT campuses, and even museums and universities” (36).

But the zone’s novelty as an object for infrastructure studies is not so much its homogenized global urbanism as its paradoxical form of sovereignty. Easterling is careful here not to trade in the metaphysical oppositions that would make a universal archetype of this situation (as in the work of Giorgio Agamben), rather pointing to the ironies and irrationalities that pervade it. While zones are often characterized as advanced and streamlined, “world-class” environments for a global



managerial class, offering “a clean, relaxed, air-conditioned, infrastructure-rich urbanism that is more familiar to the world than the context of its host country,” this veneer of cosmopolitanism in fact shrouds persistent and insidious forms of violence, whereby “the masquerade of freedom and openness turns very easily to evasion, closure, and quarantine” (67).

This hidden violence takes a particular toll on labor and the environment. But, despite Easterling’s explicit acknowledgement of this at various points, the overall focus is less on the oppression of laboring populations and environmental ruin as it is on the potentials a “hacked” zone might offer as a site for a new kind of architectural activism. If it is already structured around “pirates, terrorists, and traffickers of all kinds,” this suggests the possibility of infiltrating, sabotaging, or adjusting its ends and priorities (68). Tweaking laws, frameworks, and standardized elements of infrastructure, “incentivized urbanism” itself might be, after all, the vehicle of democracy it purports to be: “Rather than giving away national assets in exchange for the zone, a more transparent bargain with foreign investment uses the existing city as a medium of information and intelligence—the other half of an interplay that leverages more infrastructure and resources.” Playing the game of global capital more slyly, a refashioned zone “might proudly offer *selected* economic incentives as well as the symbolic capital that attends higher labor and environmental standards” (69).

The other “evidentiary” and “contemplative” chapters reaffirm the ultimately reformist nature of this project. Jettisoning the highly situated and historical analyses of the case studies, the theoretical chapters develop a speculative vocabulary and repertoire for architectural-infrastructure hacktivism. In the evidentiary chapter on Kenya, for example, Easterling follows the highly complex market assessments, negotiations, regulations, and technical solutions brought to bear by villages, cities, national parties, intergovernmental organizations, and multinational corporations, suggesting there was nothing ultimately deterministic in the way Kenya acquired a broadband network. Rather, infrastructural development appears as a fundamentally contingent technopolitical affair that does not respect *a priori* reifications such as the “private” and the “public,” thus allowing unexpected reciprocities to emerge—“like ... a complex poker game in which, on occasion, players strategically allowed other players to win” (110). In the end, while history itself shows a mixed record, Easterling imagines a kind of win-win equilibrium that might one day conform a more transparent, open market that would seamlessly match local needs with those of global capital. “The Kenyan citizen’s access to information is then balanced against the world’s access to Kenya’s resources” (136).

The following chapter, “Stories,” delves deepest into method-

ological claims and postures, addressing the question of ideology directly. Pinning her objective on three classic sites of ideology critique—military nation-building, economic liberalism, and universal exchange—Easterling aims to debunk the ways such “master narratives ... claim infrastructure as a mascot,” cautioning that these stories “are often decoupled from what the infrastructure space is actually doing in its more complex context on the ground,” thus delivering “predetermined expectations concerning social and cultural behavior.” Dismissing them as “Enlightenment or modernist tautologies,” Easterling advocates demystifying these ideological approaches to instead reveal “the less sensational or less totalizing histories of extrastatecraft” (138).

While using anecdotal examples from the other chapters, the case studies of this chapter are addressed primarily as ideologies, not as historical realities—that is, the analysis is pitched at the level of discourse and rhetoric. As such, Easterling delves into literature commonly associated with each “story,” finding specular doubles and resonances among, for example, RAND strategists and radical left thinkers like Michael Hardt and Antonio Negri, both of which, she argues, tend toward reductive “binary thinking” (147–148).

“More disturbing than a binary competitive stance” Easterling notes, “is its cooperative reciprocal stance. [The zone] is not a means by which nations attack each other, but a means by which both state and non-state actors cooperate at someone else’s expense—usually the expense of labor” (148). This, however, isn’t meant to invoke class struggle or displaced migrant populations as historical drivers. What is important is the game-theory-like behavior of “the players,” (149) the fact that they ultimately form a network that can be leveraged and thus, like the zone itself, perhaps even cheated through its own logics. Eschewing the grand strategies of *realpolitik* as much as the explanatory frameworks of *Empire*, but also eliding her own explicatory use of game theory—a quintessential imperial discourse of American hegemony—Easterling is rather more interested in trying to cut the knot between what are, for her, the positively disaggregated and individualistic dimensions of liberalism qua political philosophy, from liberalism’s more complicated history as a set of normative economic sciences. In this effort she aligns with the theses of Bruno Latour, claiming that what the indeterminate and ultimately open nature of geopolitical affairs suggests, is that “liberalism is freedom from ideology itself” (160).

Turning back toward history, chapter five traces the expansion of a standard, the elusive ISO 9000 on “quality management,” as a figure for the growth of the private nongovernmental organizations that set the metrics and functions that underlie and serve to optimize, modern infrastructures. The International Standards Organization, “a global

**meta-organization” based in Geneva, Switzerland, and founded in 1947, captures this role perfectly. As Easterling recites, with the typically galloping crescendo of a Latourian litany,**

CREDIT CARDS, ALL 0.76MM THIN, SLIDE INTO SLOTS AND READERS ALL AROUND THE WORLD. SCREW THREADS CONFORM TO A GIVEN PITCH. EVERY MAKE OF CAR SHARES THE SAME DASHBOARD PICTOGRAMS. BATTERIES WITH CONSISTENT DURATIONS ARE SIZED TO FIT ANY DEVICE. BOOKS, MAGAZINES, MUSIC, AND AUDIOVISUAL WORKS ARE INDEXED WITH ISBN NUMBERS. PAPER SIZES AND THE MACHINES THAT HANDLE THEM ARE STANDARDIZED. RFID TAGS, TRANSSHIPMENT CONTAINERS, TRUCKS, CAR SEARS, FILM SPEEDS, PROTECTIVE CLOTHING, BOOK BINDINGS, UNITS OF MEASURE, PERSONAL IDENTIFICATION NUMBERS (PINS), AND FASTENERS OF ALL KINDS CONFORM TO GLOBAL STANDARDS. (171)

**Though multiplicity does not necessarily convey clarity of articulation, it is in this chapter that *Extrastatecraft*'s programmatic heterogeneity comes closest to describing something like “hegemony,” the construction of a “common sense,” without ever stating it as such. While formally developing a genealogy of managerial discourse through the ISO standard, the chapter also weaves factual information about the operations of international institutions, the phenomenology of managerial aesthetics, and incisively satirical Koolhaasian axioms: “Quality lends to infrastructure space part of its inherent disposition—a drive to habituate without specific content. Perhaps nothing could be more powerful” (187). If this methodological variety, diversity of content, and sharp tonal conversions are somewhat perplexing at points, it is perhaps this very formal heterogeneity that enables Easterling to capture something of the importance of the aesthetic within infrastructural systems. Assembling polyvalent sources and examples, an archaeology of management theory and practice portrays the absurdist constellations of desire and rationality, romantic idealisms and material insecurities, that hold together the fragile construction of culture, technology, and capitalist globalization that is contemporary managerial discourse.**

#### IV

**And yet, in both the empirical and more literary registers as in the more directly programmatic chapter with which the book ends, one is left with the lingering question of whether this dual approach of thick description, “following the actors themselves” as Latour would say, and**

the operative effort to set a specific agenda toward a kind of internationalist anarchical entrepreneurialism, doesn't ultimately reflect and reproduce the very world it seeks to reform.

At best, this is a world Saint-Simon could only have dreamed of, governed by capitalists, engineers, and technocrats, through the insipid protocols and barely masked will-to-power that passive-aggressively animates them—an iron cage only cosmetically disrupted, when not directly fueled by, neoliberal techno-utopianism. At worst, it is the world built by American hegemony through decades of soft and hard power—which, while being a world of deep ideological distortions (i.e., the “story” of American exceptionalism) is nonetheless full of actually enforced violence. Forever sliding between these two dimensions, which are anything but antithetical, conspicuously lies Bruno Latour, real heir to Saint-Simon's vision, and whose particular blend of science and technology studies, antisocialist sociology, and pragmatic anthropology allows for the merging of all relations to coalesce into a single, pseudo-secularized reality from which there appears to be no escape. We may call this form of realism a responsible social-democratic regulationism, a necessary cunning for modern governmentality, the knowledge infrastructure of a risk society, or a contested ecology of things, but in the end, the focus is squarely on a world tied together by a managerial ethos, encoded in managerial systems, for managerial optimization, serviced by a professional managerial class, at the service of global capital—if occasionally permeated by hacktivists-cum-architects-cum-entrepreneurs.

In what reads as a manifesto, the final chapter, “Extrastatecraft,” displaces the previous dichotomy between open dissent (“declarative activism”) and stealth hacktivism, to suggest the two must be considered as weapons in the same struggle. The playful techniques discussed—“gossip, rumor, gift-giving, compliance, mimicry, comedy, remote control, meaninglessness, misdirection, distraction, hacking, or entrepreneurialism” (213)—aim at developing a more expedient form of activism adequate to the ironies of infrastructure. But also, and quite against the strategy of actual operational embeddedness developed throughout the book, they suddenly portray their real power as one that redraws cultural and aesthetic boundaries at the symbolic level. Rancière is invoked as theorist of “discrepancy” between what is said and what is done (rather than his more oppositional “disagreement”), as is the performative value of “counter-narrative” (215). While this dramatic shift in the plane of analysis, from programming to performance, might be read as a hedge against the obvious risks of co-option involved with actually entering the murky politics of infrastructure, the point is well taken. Modern capitalist infrastructures are about hegemony: about the orchestration of perception, about how

systems themselves recursively produce and channel the desires of the many to the advantage of the few.

But this hegemony is not just about complexities and contradictions inherent in standards, contracts, cables, satellites, and the paradoxes of sovereignty in a slowly changing post-Westphalian world. It is also about the overwhelming power of capital as a determinate historical and geopolitical force—the very “foreign investment” so casually repeated time and again in the book, that all countries compete for, by design, under a neoliberal world order remarkably united in its normative ways of seeing and thinking. It is about the insidious infrastructural power to configure this metric (denominated in US dollars since around 1915), its de facto global language (English) and culture (Excel-Apple-matter-of-factness), so that it becomes almost invisible, leading to situations of artificial scarcity in the name of certain nationalist exceptionalisms, deadly struggles over markets, and rigid behavioral assumptions about groups and individuals. Capital is a global phenomenon, both monstrous and real at once.

How its infrastructures work, for whom, and why, will surely be the subject of many other realist, critical architectural histories to come. But if we want the new literature on infrastructure to confront the impasses sketched out here, and in the process to help mount a credible opposition to a new age of American exceptionalism, violence, and oppression, perhaps we'd do well to learn to think, historically, about how life is configured outside the managerial boardroom and its endless operational systems. It is not that the logics of the factory, the field, the street, the war room, the festival, the housing estate, or the gated community—that only fallaciously can be made to stand outside the boardroom—are essentially less alienating or “real.” The point is precisely that in our historicizing of how managerial infrastructures design, connect, and operate between these and other spaces, the challenges of translation they contain—substituting logics for languages, entrepreneurs for workers—will always necessarily privilege systems of power and transparency rather than justice and difference. To make these accounts as technically detailed as possible, but also as inclusive and sensitive to actually existing solidarity, dissent, forced equivalences, and structural determinations, is our best defense against authoritarian hegemonies—of the Schumacher-Trump variety or otherwise—and our best chance at thinking a truly different world.



1. See for example Patrik Schumacher, "Brexit: A Chance to Roll Back the Interventionist State and Unleash Entrepreneurial Creativity," *Architect*, July 8, 2016, <http://architect.com/features/article/149956426/brexit-a-chance-to-roll-back-the-interventionist-state-and-unleash-entrepreneurial-creativity-op-ed-by-patrik-schumacher>.
2. I myself formed part of his megaphone, if critically. See *The Politics of Parametricism: Architecture and Digital Technologies*, ed. Matthew Poole and Manuel Shvartzberg (London: Bloomsbury Academic, 2015). On the recent Schumacher backlash, see for example Oliver Wainwright, "Zaha Hadid's Successor: Scrap Art Schools, Privatise Cities and Bin Social Housing," the *Guardian*, November 24, 2016, <https://www.theguardian.com/artanddesign/2016/nov/24/zaha-hadid-successor-patrik-schumacher-art-schools-social-housing>; Phineas Harper, "It Is Time to Stop Listening to Patrik Schumacher," *Dezeen*, November 28, 2016, <https://www.dezeen.com/2016/11/28/opinion-phineas-harper-stop-listening-patrik-schumacher-deregulated-privatised-city>.
3. For one of the most far-reaching and engrossing accounts of this socio-political-economic revolution, see Gretta Krippner, *Capitalizing on Crisis: The Political Origins of the Rise of Finance* (Cambridge, MA: Harvard University Press, 2010).
4. It is not that this architecture, or even this ideology, automatically begat Trump. If only it were that simple. Rather, it is what we might be missing by not thinking critically enough about it. It is our own obsession with the neoliberal script—and thus, our ways of thinking about its architectural products—that we need to carefully reconsider.
5. Brian Larkin, "The Politics and Poetics of Infrastructure," *Annual Review of Anthropology* 42 (2013): 327–343, 329.
6. While in architecture the turn to infrastructure in the terms outlined here is quite recent, in other disciplines—such as science and technology studies, history, media theory, and anthropology—there has been a longer arc and a considerable historiography now exists. For some useful surveys, see: Paul N. Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, ed. Thomas J. Misa, Philip Brey, and Andrew Feenberg (MIT Press, 2003); Paul N. Edwards, Geoffrey C. Bowker, Steven J. Jackson, Robin Williams, eds., "Introduction: An Agenda for Infrastructure Studies," *Journal of the Association for Information Systems*, vol. 10, no. 5 (May 2009): 364–374; Timothy Mitchell and Anupama Rao, eds., "Life of Infrastructure," *Comparative Studies of South Asia, Africa, and the Middle East*, vol. 34, no. 3 (January 1, 2014). The following list includes other various representative (by no means comprehensive) examples in different fields. Science and technology studies: Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (MIT Press, 2010); Thomas P. Hughes, *Networks of Power: Electrification in Western Society, 1880–1930* (Johns Hopkins University Press, 1983); Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (Verso, 2011). History and sociology: Marc Linder, *Projecting Capitalism: A History of the Internationalization of the Construction Industry* (Greenwood Press, 1994); David E. Nye, *American Technological Sublime* (MIT Press, 1994); Deborah Cowen, *The Deadly Life of Logistics: Mapping Violence in Global Trade* (University of Minnesota Press, 2014). Media theory and history: Richard R. John, *Network Nation: Inventing American Telecommunications* (Belknap Press of Harvard University Press, 2010); Armand Mattelart, *Networking the World, 1794–2000* (University of Minnesota Press, 2000) and *The Invention of Communication* (University of Minnesota Press, 1996); Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real* (Fordham University Press, 2015); Cornelia Vismann, *Files: Law and Media Technology* (Stanford University Press, 2008); Joseph Vogl, *The Specter of Capital* (Stanford University Press, 2015). Anthropology: Stephen Collier, *Post-Soviet Social: Neoliberalism, Social Modernity, Biopolitics* (Princeton University Press, 2011); Julia Elyachar, "Phatic Labor, Infrastructure, and the Question of Empowerment in Cairo," *American Ethnologist*, vol. 37, no. 3 (July 2010): 452–464; Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria* (Duke University Press, 2008). Urbanism: Neil Brenner, *Implosions/Explosions: Towards a Planetary Urbanism* (Jovis Books, 2014); Manuel Castells and Peter Hall, *Technopoles of the World: The Making of Twenty-First-Century Industrial*

*Complexes* (Routledge, 1994); Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Routledge, 2001).

7. The challenge to the dialectic and other structuralisms is too broad a topic to address here (though it may be helpful to consider that while all dialectics are relational, not all relations are necessarily dialectical). For some more substantial critiques and alternative explicatory models or methodologies, see for instance: Michel Foucault, *The Archaeology of Knowledge* (New York: Routledge, 2002); Gilles Deleuze, *Difference and Repetition* (New York: Columbia University Press, 1994); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (New York: Oxford University Press, 2007); Eve Kosofsky Sedgwick, *Epistemology of the Closet* (Berkeley: University of California Press, 2008); Donna Haraway, *Simians, Cyborgs and Women: The Reinvention of Nature* (London: Free Association Books, 1991); Dipesh Chakrabarty, *Provincializing Europe: Postcolonial Thought and Historical Difference* (Princeton, NJ: Princeton University Press, 2000); Peter Sloterdijk, *Spheres* (Los Angeles: Semiotext(e), 2011).

8. On the advantages of studying historical stability as a correlate of change, see Charles S. Maier, *In Search of Stability: Explorations in Historical Political Economy* (New York: Cambridge University Press, 1987).

9. Which is, nonetheless, a problem. As Brian Larkin notes, “discussing an infrastructure is a categorical act. It is a moment of tearing into those heterogeneous networks to define which aspect of which network is to be discussed and which parts will be ignored. ... Taken thoughtfully, it comprises a cultural analytic that highlights the epistemological and political commitments involved in selecting what one sees as infrastructural (and thus causal) and what one leaves out.” Larkin, “The Politics and Poetics of Infrastructure,” 330.

10. The history of managerialism is, perhaps not surprisingly, itself quite managerial. We might identify two main strands: one is straightforwardly that of business history, a historiographic line which often begins with Alfred D. Chandler Jr.’s *The Visible Hand: The Managerial Revolution in American Business* (Cambridge MA: Belknap Press, 1977), and

involves management theory “gurus” like Peter Drucker; the other is more critical and courses through Marx, Veblen, Weber, the Frankfurt School, and others. Functional sociologists and economists of the postwar period, from Talcott Parsons to (Schumacher’s hero) Niklas Luhmann and Kenneth Arrow also made their imprint by systematizing techniques of biopolitical management according to the precepts of neoliberal philosophies and policies. This convergence between government policy, economics, management, and systems thinking has been the fulcrum of many influential histories and theories, both critical and conservative, from Herbert Marcuse, C. Wright Mills, and J. K. Galbraith, to Daniel Bell, Ulrich Beck, and Jürgen Habermas. My personal favorite, for its literary as well as philosophic depth, is Jean-François Lyotard’s *The Postmodern Condition: A Report on Knowledge* (Manchester: Manchester University Press, 1984). What all these different postwar accounts share is a preoccupation with the dynamics of governing through techno-managerial expertise. See for example Timothy Mitchell, *Rule of Experts: Egypt, Techno-politics, Modernity* (Berkeley: University of California Press, 2002); S. M. Amadae, *Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism* (Chicago: University of Chicago Press, 2003); Ulrich Beck, *Risk Society: Towards a New Modernity* (London: Sage Publications, 1992).

11. Hegemony, in its post-Gramscian declension, doesn’t necessarily imply a determinate power relation but rather a geopolitical or social arrangement that tends to an immanent orchestration of co-option, compliance, or acquiescence, such as the generalization of a certain language or metric that undergirds the terms of a particular social interaction. See for example, Michael Geyer and Charles Bright, “Regimes of World Order: Global Integration and the Production of Difference in Twentieth-Century World History,” in *Interactions: Transregional Perspectives on World History*, ed. Jerry H. Bentley, Renate Bridenthal, and Anand A. Yang (Honolulu: University of Hawai’i Press, 2005), where they describe “hegemony less as a top-down project of command and obedience than as an interactive process that is made and remade by enlisting ‘opinion’ and cultivating consent. In this conception, hegemony is a practice, a complex transaction, and a continuing negotiation over the



terms of domination and subordination. It is the process by which a capacity to dominate is 'realized' on the ground, among real people, in place after place. Hegemony works when top-down force meets bottom-up struggles for self-assertion or renewal, and some kind of *modus vivendi* is achieved. It is through such fleeting and conjunctural moments of accommodation that 'regimes of order' are forged. Although this term may suggest a stability, even solidity, that is unwarranted, such passages of tenuous structuring need to be understood as something distinctly more than force on the one hand and resistance on the other, and their effects need to be analyzed in terms of the continuing interplay of deepening integration and proliferating difference that characterizes the history of globalization." Geyer and Bright, "Regimes of World Order," 204–205. For the full spectrum of the contested meanings and history of "hegemony," see Perry Anderson, "The Antinomies of Antonio Gramsci," *New Left Review* 1/100 (November–December 1976); and also Perry Anderson's forthcoming *The H-Word: The Peripeteia of Hegemony* (Brooklyn: Verso, 2017).

12. On this risk, see for example Emily Apter, *Against World Literature: On the Politics of Untranslatability* (Brooklyn: Verso, 2013).

13. See for example *A Second Modernism: MIT, Architecture, and the "Techno-Social" Moment*, ed. Arindam Dutta (Cambridge, MA: MIT Press, 2013).

14. Such as Schumacher's discourse on freedom, connections to the AA, and Zaha Hadid's mentorship—a historical genealogy and epistemology that directly links him to the artificial civil/state dichotomy in architectural history outlined above.

15. The wrenching irony with this history is that the kind of ordoliberalism Schumacher evangelizes was born precisely out of the wreckage of fascism in Germany. Yet, the historical dynamic is similar: ordoliberals sought to institutionalize a "social market economy" that would keep socialism at bay. While this worked well for West Germany during the early postwar years, thanks, in great part, to the hegemonic insurance of the Marshall Plan, no such support system was available to most countries after 2008—though it was to capitalists through the various bailouts. On this early postwar history see Michel Fou-

cault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978–79* (Basingstoke: Palgrave Macmillan, 2008); on its articulations post-2008, see Maurizio Lazzarato, *Governing by Debt* (Los Angeles: Semiotext(e), 2015).

16. Keller Easterling, *Extrastatecraft: The Power of Infrastructural Space* (Brooklyn: Verso, 2014), 84, fn. 15.

17. For recent infrastructural literature in other fields, see footnote 6. The architectural scholarship on infrastructure is still quite limited, though there are many titles in the works. Antecedents to thinking about infrastructure in architecture lie mostly subsumed within the historiography of technology and urbanism. For some "classics" relevant to infrastructure, see Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (New York: Norton, 1975); Lewis Mumford, *Technics and Civilization* (New York: Harcourt, Brace and Co., 1934); Antoine Picon, *French Architects and Engineers in the Age of Enlightenment* (Cambridge: Cambridge University Press, 1992); Reyner Banham, *The Architecture of the Well-Tempered Environment* (Chicago: University of Chicago Press, 1969), and *Megastructure: Urban Futures of the Recent Past* (New York: Harper and Row, 1976); Rem Koolhaas, "The Generic City," "Bigness, or the Problem of Large: Manifesto," and "Whatever Happened to Urbanism?" in *S,M,L,XL*, ed. Rem Koolhaas and Bruce Mau (New York: Monacelli Press, 1995). For some recent approximations connecting infrastructures, systems, and politics, see Aggregate Architectural History Collective, *Governing by Design: Architecture, Economy, and Politics in the Twentieth Century* (Pittsburgh: University of Pittsburgh Press, 2012); John Harwood, *The Interface: IBM and the Transformation of Corporate Design, 1945–1976* (Minnesota: University of Minnesota Press, 2011); Benjamin Bratton, *The Stack: On Software and Sovereignty* (Cambridge, MA: MIT Press, 2016).

18. "Incentives vary in every location but might include: holidays from income or sales taxes, dedicated utilities like electricity or broadband, deregulation of labor laws, prohibition of labor unions and strikes, deregulation of environmental laws, streamlined customs and access to cheap imported or domestic labor, cheap land and foreign ownership of property, exemption from import/

export duties, foreign language services, or relaxed licensing requirements.” Easterling, *Extrastatecraft*, 33–34.

19. See for instance, the section “The Zone Prefers Non-State Violence,” Easterling, *Extrastatecraft*, 53–58.

20. “The infrastructural operating system is filled with well-rehearsed sequences of code—spatial products and repeatable formulas like zones, suburbs, highways, resorts, malls, or golf courses. Hacking into it requires forms that are also like software. Different from the object forms of masterpiece buildings or master plans, these active forms operate in another gear or register, to act like bits of code in the system.” Easterling, *Extrastatecraft*, 73.

21. Easterling glossing Bruno Latour and Vincent Lépinay, *The Science of Passionate Interests: An Introduction to Gabriel Tarde’s Economic Anthropology* (Chicago: University of Chicago Press, 2009), in Easterling, *Extrastatecraft*, 159.

22. “Technical and management standards are instructive if only because they have, in a matter of decades, changed the way people across the world talk to each other while also strengthening a layer of influential intermediate authority operating in between the market and the state.” Easterling, *Extrastatecraft*, 202.

23. Indeed, “stories” are historically central to how American hegemony understands and actually projects itself, the power of the sword almost always inseparably alloyed with that of the pen. See Perry Anderson, *American Foreign Policy and Its Thinkers* (Brooklyn: Verso, 2016).

24. Not that Latour can be seamlessly connected to American hegemony. But his style of thought is, even while challenging it, historically indebted to another hegemonic constellation: managerial engineering at the service of industry and the state in the great French tradition of *l’Etat ingénieur*, from Colbertism in the seventeenth century to the planned economy of the postwar welfare state, to its later “partnership” with global capital, post-1980. See for example, Alain Desrosières, “Managing the Economy,” *The Cambridge History of Science*, ed. Theodore M. Porter and Dorothy Ross (Cambridge: Cambridge

University Press, 2015).

25. Capitalist regulationism, which is not Easterling’s avowed project but underlies her framework, is undergoing something of a renaissance post-2008, as experts puzzle over how to manage the paradoxes of a highly de-regulated global capital in a world still structured primarily around national sovereignty. See for example the work of the Institute for New Economic Thinking: [www.ineteconomics.org](http://www.ineteconomics.org). A brief history of the idea of capitalist regulation and its practices (sometimes overlapping with traditional social-democratic corporatist reformism, sometimes undoing it from the left or the right, but always as a re-programming of the politico-economic tenets of liberalism), would usually begin with John Maynard Keynes’s work—see for instance *Essays in Persuasion* (1931; New York: Classic House Books, 2009)—and course through the French “regulation school,” i.e., Michel Aglietta, *A Theory of Capitalist Regulation: The US Experience* (London: NLB, 1979). The work spawned by Foucault’s explorations of “governmentality,” published from his lectures at the Collège de France, also intersects with this project, adding both a science and technology dimension as well as a sensibility toward its psychological and aesthetic qualities. See for instance *The Foucault Effect: Studies in Governmentality*, ed. Graham Burchill with Colin Gordon and Peter Miller (London: Harvester Wheatsheaf, 1991).

26. In an uncanny twist, Easterling almost predicts the possibility of a Donald Trump presidency: “When targeted, the powerful wander away from the bull’s-eye, arranging for shelter or immunity elsewhere. They may successfully propagate a rumor (e.g., that there is evidence of WMD, that climate change is a hoax, that Obama is not a US citizen) to capture the world’s attention. Switching the characters in the story, they may even come costumed as resisters. Goliath finds a way to pose as David.” Easterling, *Extrastatecraft*, 212.

27. Jacques Rancière, *Disagreement: Politics and Philosophy* (Minneapolis: University of Minnesota Press, 1999).

28. On the coupling of contemporary systems and desire, see Maurizio Lazzarato, *Signs and Machines: Capitalism and the Production of Subjectivity* (Los Angeles: Semiotext(e), 2014).

29. For a remarkably direct challenge to neoliberalism's operations and the democratic potentials they negate, see Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (Brooklyn: Zone Books, 2015).

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