

LOGIC OF THE MANAGERIAL SURFACE

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We have in recent years become rather suddenly astonished and fascinated by a series of basic realities that, in truth, we ought to have already known. We've discovered that global urbanization has barely begun; that the extraction, production and consumption of our so-called 'natural resources' is accelerating, not diminishing; that infrastructures have played a central role in deploying and nourishing a specific model of modernity; that the developing world, if we continue to force-feed it our own practices, will soon eclipse our irreparable mistakes. Most recently we have realized that design, no matter how marginal its agency, is inextricably bound up in all these conditions. We catalog these conditions and express requisite dismay, but seem incapable of initiating an internal historical-philosophical project worthy of their severity.

Instead, the visceral emptiness that attends these circumstances has widened a rift within architectural practice previously demarcated by the two halves of its premillennial self. On one side, a camp that long prided itself on its engagement with architecture's outside is now seemingly so paralyzed that it cannot but revert to the same ironic disaffection that has tyrannized it for a generation ("...and make no mistake: irony tyrannizes us"¹). Exhausted, enriched, and institutionally entrenched: a river of ambivalent reportage masquerading as research continues to flow from a weightless, wry smile.

Across the chasm, balancing the equation, sits a second faction. Their backs are turned to the first group. Wanting only to extend their mentors' quest for autonomy, they have surrendered themselves ever more fully to automatism, perhaps hoping to remain forever amused and mesmerized by their toys, as though nothing has happened; as though innovation or fabrication were uncontroversial terms; as though tools do not also break the worlds they make. Rote technical acumen thus passes for architectural theory.

Strung across the widening void between these two positions (which in fact are no longer really positions at all, but merely postures) hangs a disconnected cacophony of "ecological practices": landscape urbanists, infrastructuralists, technophilic urban organicists, and even a curiously atavistic retrenchment of the regional human sciences. All wanting to assert superiority over the dilettantism of "green design," the only shared characteristic among this step-family of alternatives appears to be their tacit allegiance to a collection of clouded ambitions: that we ought preserve, or "sustain" something called the natural environment; that we need more energy-efficient objects in order to minimize our environmental impact; that design, particularly at the scale of urban landscapes, ought to be approached as a form of aestheticized environmental management; that "to bring the knowledge

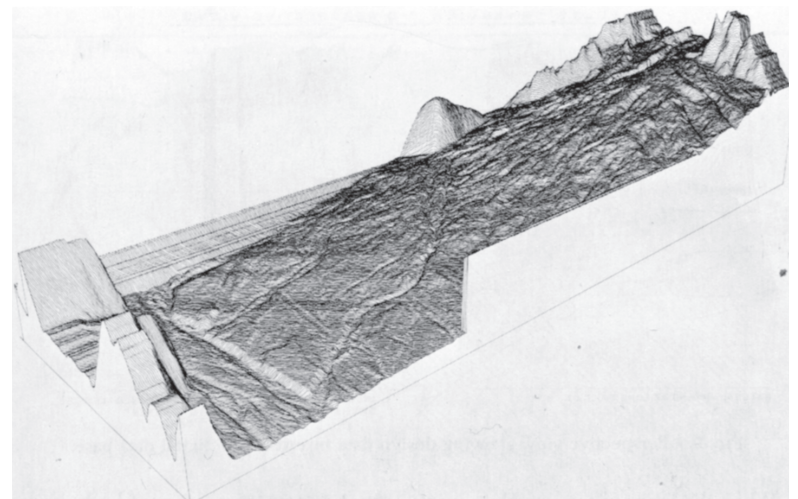
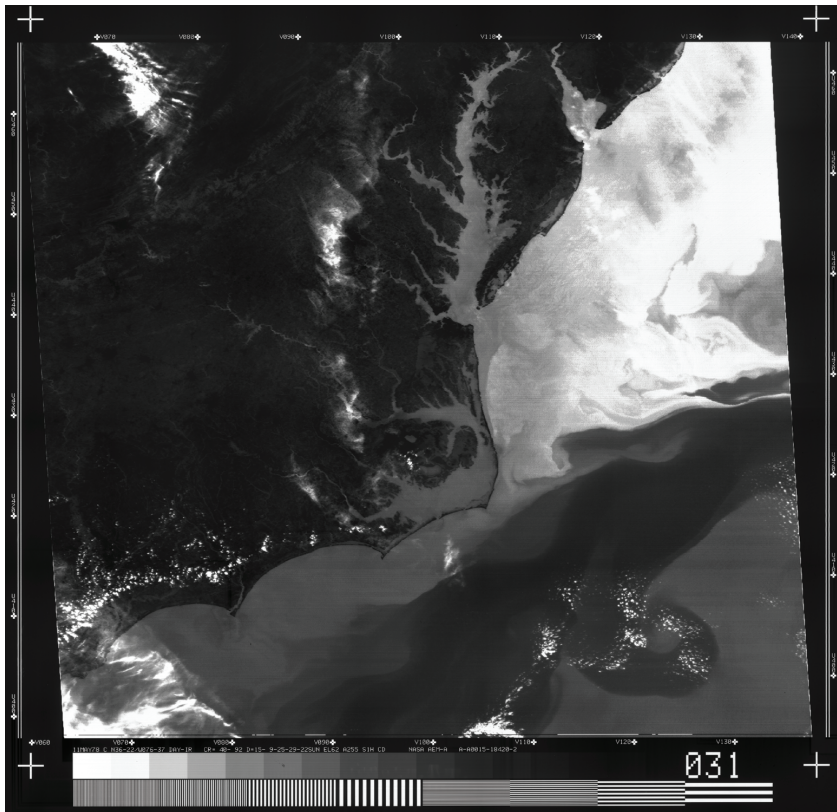
of scientists and engineers to bear on a question is to necessarily resort to the unquestionable laws of nature"²; and finally that the key to all these objectives lies in coupling the biophysical knowledge outlined by the ecological sciences with the eventual perfectibility (or at least gradual improvement) of urban and architectural technologies.

That we so readily gravitate towards these principles proves our anachronistic devotion to the dogmas of modernity; certitudes that have imploded under the weight of their own objective past, forming a tapestry of socioecological nightmares that easily disprove the simple truths by which the modern psyche motivated itself just a half-century ago: growth, progress, productivity, efficiency, development, innovation, expertise... "Coins which have lost their pictures and now matter only as metal."³

Amidst the false clarity of those depreciated ideas linger two exhausting questions, one layered beneath the other: First: what does it mean to conceive of architecture, landscape, and urbanism as forms of environmental management? Not: "how might our prescribed managerial tasks best be carried out?" Nor: "what are the most effective and efficient methods and techniques?" Those are questions far too easily answered, with bravado and certainty. Rather, what does it mean today, in this moment, after the bankruptcy of progressive modernity, for the design fields to situate themselves along the precarious seam between environmental-scientific knowledge and neoliberal bureaucratic practices?

This first difficulty approaches impossibility when we admit to a second, more concealed question: what happens when the language and concepts we've used throughout modernity to distinguish between kinds of environments—specifically between those we've called 'natural' and others we've called 'artificial'—loses its metaphysical bearings? When we are forced, in other words, to admit that the modern conception of nature—the stable, objective, naturalized nature of modern science; "that originary, absolute, essential reference, about which people dream"⁴—has epistemically evaporated, having all along been a concept-technique for eclipsing an older, less predictable, less manageable metaphysics; a brilliant compensatory strategy for preserving theoretical purity in the face of practical inconsistencies? Refracted across ever more complex entanglements of politics and hardware (or more precisely, political hardware), the entire category of "the natural" has revealed itself as always-already suffused with the assumptions and rationality of scientific civilization, which conceals and governs without mercy the volatile space of representation from which its objects emerge.⁵

Consequences spread outwards from that refraction. No lon-



left: An 1978 satellite radiometer image of the Eastern United States, captured as part of NASA's Heat Capacity Mapping Mission, an experimental satellite program that observed thermal conditions for two years. The images indicate temperature ranges from white (hottest) to black (coldest).

above: An early example of the digital terrain model, in which the "continuous surface of the ground" is represented by "a large number of select points with known xyz coordinates."

ger able to take up its position as an immutable datum, as the counter-referent by which other theories measure their own fitness—theories of "sustainability," of "performativity," or "biomimesis" (notions which have never been more than elliptical self-negations; birth-defects of primary scientization)—the epistemic collapse of naturalized nature takes with it an entire lexicon of terminology that, for want of its precious anchor, has been rendered so vague as to be theoretically useless: "All techniques are artificial; this banality, however, does not imply that techniques are metaphysically distinct from or opposed to [naturalized] nature in any ontological way."⁶

"It is not without penalty that the word 'ecology' is so ambivalent that everything from back-to-the-land sentiments to hyper-technologism can find a place and rank in it."⁷ Our penalty is non-sense. Our penalty is a circular and frail theoretical armature that lags badly behind, and scarcely understands, the very techniques it advocates. Our penalty is to have become either self-disillusioned or self-distracted parodies of ourselves.

Our language sows disenchantment within us, and mocks itself behind our backs—a condition that will persist so long as we demand that the modern concept of nature serve as the irreducible denominator beneath our reasoning, where it can do nothing more than distribute an obstinate emptiness beneath our most prized signifiers: most obviously environment and ecology, but also the entire domain of the supposedly unnatural: the social, artificial, built, constructed, and synthetic, as well as precious distinctions such as inside and outside, landscape and urban, organic and processed... The list recedes to the horizon, until a sad cycle of dissolution bursts forth, revealing at once the hollow thickness of our confident but self-referential language.⁸

In the twilight of those idols there is only one thing to do, "and that is to go even deeper,"⁹ towards the recreation of a "philo-

sophical language within language,"¹⁰ in which the imposing cosmology of modern nature is rotated on its axis and reversed—made to run backwards, as it were—through a kind of inverted (or anti-) phenomenology that paces patiently through our instrumental worlds, looking all the while to describe both what lies beneath our reasoning and what kinds of beings we are becoming.

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The two figures above can serve as entry points. The figure on the left was published in late 1978, in an essay on the "Satellite Detection of Urban Heat Islands." Produced using a high resolution satellite radiometer, it portrays thermal fields across the Eastern United States in shades of gray ranging from black (warmest) to white (coldest).¹¹ There is nothing remarkable about this particular figure. It merely stands as an early example of a form of representation—imaging (by which we mean the conversion of the continuous visual field of lived experience into a statistical field comprised of discrete electrical charges)—that has not only come to dominate our conceptions of nature and ecology, but also has reoriented and restructured the entire scientific-bureaucratic apparatus that today takes 'the environment' as its object of concern.

The second figure, on the right, also dates to the late 1970s, to an obscure technical report on "Production Mapping with Orthophoto Digital Terrain Models." It marks an early expression of certain instrumental arrangements crucial to the emergence of a fully automated electronic surface: "a statistical representation of the continuous surface of the ground, by a large number of selected points with known xyz coordinates." Noting that a convenient representation of the surface of the earth is a common requirement for engineering, scientific, and military problems, the report contends that such problems could be most efficiently handled by producing "terrain data in a form which the electronic

computer understands.”¹²

These figures shared no specific relationship in their time, belonging instead to wholly separate technological projects. Despite their crudeness to our eyes today, however, we can now detect in their features the faint signs of a nascent collision, or fusing, between two distinct genealogies—electronic imaging and electronic modeling—that has become during the past two decades an explicit instrumental program within both the ecological sciences and the practices of environmental management.

It is a coalescing that has given birth to a *managerial surface*: an expanding repertoire of techniques and instruments that together form an utterly novel space, simultaneously real and theoretical, between conceptualization and materiality. It is a statistical-electrical control space, in which an environment is defined exclusively by that which can be represented as information in the form of discrete electrical signals (data)—signals that now serve as the raw armature around which our conceptions of ecology are fashioned.¹³ In it the long history of perspectival depth—itsself a geometrical-mechanical simulation of ocular space—is replaced with the concept of resolution, a statistical-electrical simulation of pure visual continuity, in which “mathematical analysis and natural phenomena do not so much correspond as they merge indistinguishably.”¹⁴ The world is rendered at once ideally dimensionless and infinitely thick: a “varying two-dimensional Gaussian surface superimposed on a planar...background.”¹⁵

Neither an object nor an idea, the managerial surface is a *reciprocity*, an electrical exchange among ideality, visibility and materiality, incessantly establishing conduits between scientific knowledge and bureaucratic desire; between truth and power; between our statistical view of nature and a seemingly insatiable modern compulsion towards the “explication” of space.¹⁶ Because it has so completely altered the field of intelligibility within which our fantasies of management and control are played out and simulated, the managerial surface engenders an entirely new mode of environmental intervention, which at present is not so much erasing our former methods as swallowing them whole.

Put differently: we have recently passed a kind of pivot point, or schism, in the history of both the formation of environments and in their ongoing regulation and maintenance, inseparable from the emergence of a new form of environmental representation. On one side lies a logic of environmentalism whose principal method of intervention was infrastructural—viz., linear, material, mechanical, essentialist, and deductive—and which corresponded to a progressive phase of modernity that has now drawn to a close for all but the most devout among the engineering clergy. Marked by a relentless “geometrical organization of the shortest route,”¹⁷ this infrastructuralism is a uniquely modern sociopathology that relies on an implicit strategy of externalization, and on an unfounded belief in the existence of an outside within the globe.¹⁸

On the other side of that schism is a different interventionist approach—electrical, populationist, and surficial (though not at all superficial)—tethered to a radically different space of probabilistic representation, opened up by a coordinated electronic signalization of the perceptual and material fields.

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Stark distinctions between the mechanical-infrastructural and

the electrical-surficial appear against the background of two definitions. First, a simple explanation of statistics, from an introductory manual on the topic: “statistics is the technology of extracting meaning from data...of handling uncertainty and making inferences about the unknown.”¹⁹ Statistics is a technology for deploying a modernity, for marshaling the efficacy of probabilistic reasoning wherever pure determinism proves insufficient.

Next: a specific definition of ‘life’ at once both familiar and disquieting to our sensibilities. Despite the nearly comical metaphysical reductivism it requires, let us provisionally agree with much of contemporary science that life is neither more nor less than “a property of the *organization of matter*.”²⁰

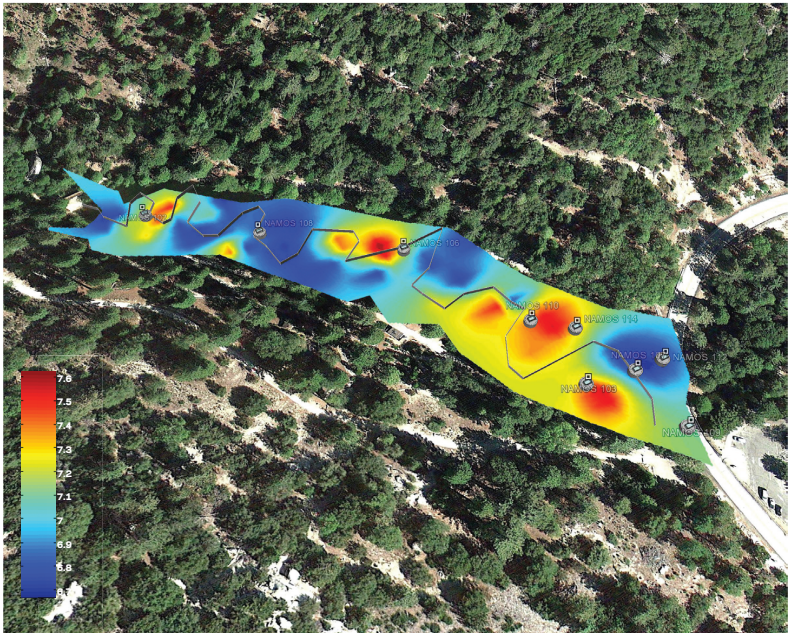
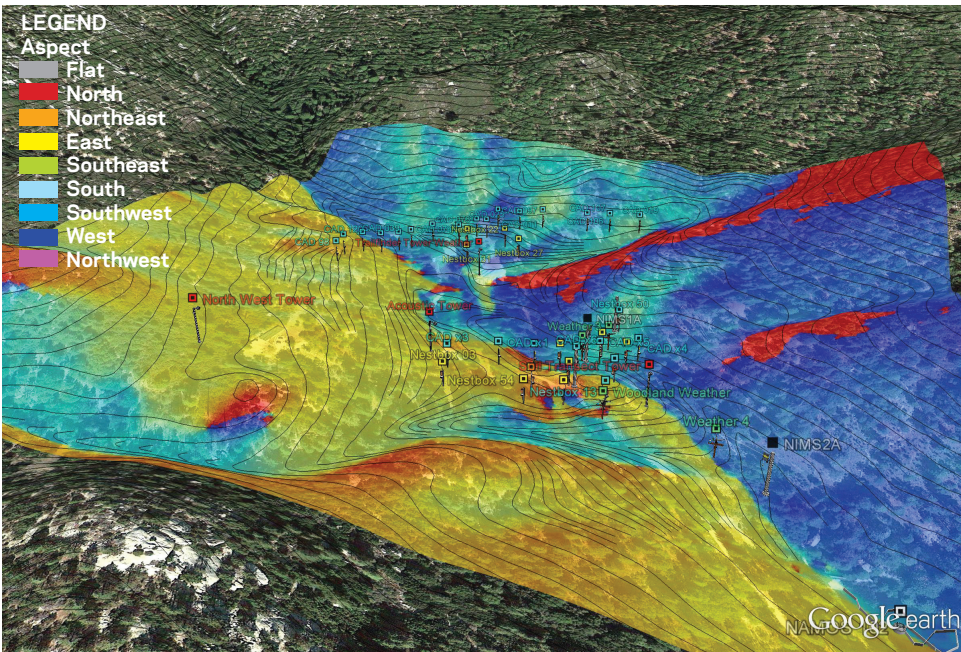
With those in mind, consider first the case of the “James Reserve,” an experimental ecological research center southeast of Los Angeles, where a technique known as “embedded network sensing” is being explored with unusual rigor and intensity. Whole populations of sensitive automata—devices that through some manner of their design are coupled with, and responsive to, changes in their surroundings—have been deployed and linked together in one of the most comprehensive regional monitoring networks yet constructed. All elements “communicate with one another telemetrically,” transmitting “real-time information to a centralized data model,” through which it is automatically crossed with larger geospatial information.²¹ Within the space of the model events and objects are correlated with one another, probabilities and causal hypotheses are formulated, etc.:

“Twenty-four hours a day, year-in, year-out, they could measure every conceivable variable of an ecosystem or a human body, at whatever scale might be appropriate, from the nanometric to the continental... They would act in concert, sharing the data that each of them gathers so as to process them into meaningful digital representations of the world. Even when the scientists were busy elsewhere, the webs would go on analyzing events autonomously, modifying their behavior to suit their changing experience of the world.”²²

Concealed within a language of scientific ecstasy are two essential characteristics of the managerial surface. First, electronic control has little concern for the concept of scale. The geometrical infrastructures of Modernity were organized specifically to compensate for the friction of distance. Scale posed a special class of problems that assumed a position of priority within their deployment. But scale is of no special concern within the managerial surface; it no longer dictates the parameters of intervention.

As soon as the mode of communication among parts was, through electronic transmission, made commensurate with the rate at which events themselves seemingly unfolded—that is, as soon as the principle of ‘real time’ was instrumentally established—scale ceased to demand any special consideration. It does not disappear as a consideration altogether, but rather within this logic all of its traditional contents—distance, magnitude, proportionality, momentum, mass, etc.—are subsumed within a more indiscriminate numeracy, adrift amidst a growing tide of figures and possible correlations with biological, climatological, and economic metrics, each demanding causal reassurance from the others.

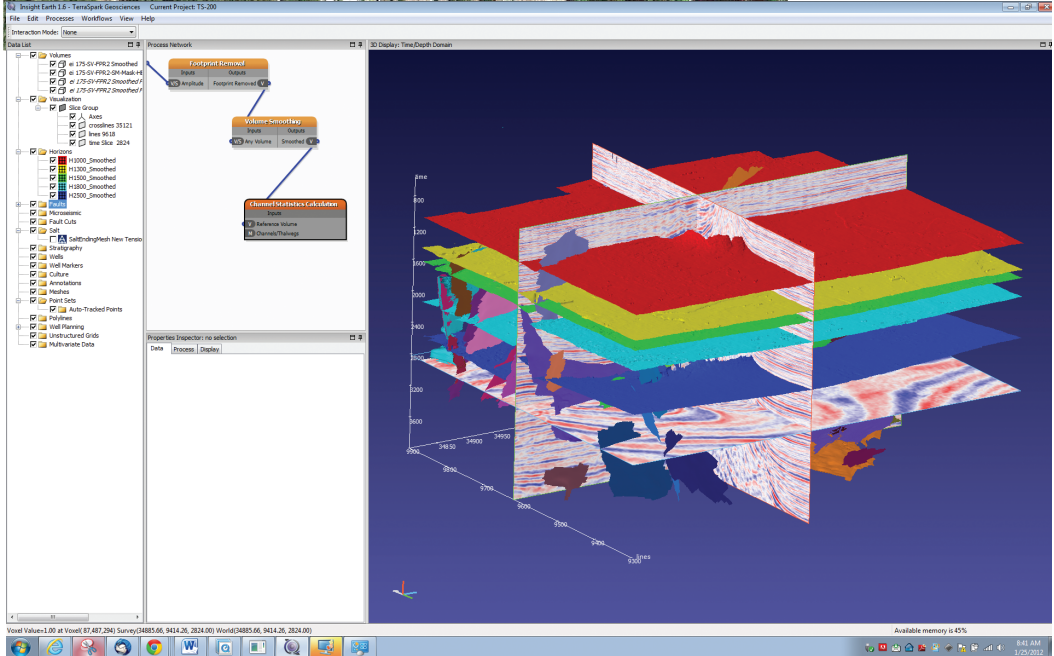
A second general feature is also directly related to the telemet-



The James Reserve: an effort to integrate the biometric monitoring of a territory with its electronic simulation.

above:GIS layers, shapefiles and polygons outputted from programs such as ESRI's ArcGIS can be displayed in Google Earth. Topographical variables such as slope steepness and aspect affect micro climate conditions (for example, the red, north-facing areas receive less sunlight during the day). The use of basic GIS layers, and more complex ones (such as vegetation and soil-type maps) will "allow users to look at a variety of information types simultaneously." Topographic contour lines are shown in black, drawn as vectors in Google Earth.

left: Model overlays of fluormetry (measure of aquatic floral density) created from in-situ sensors and robotic transect data. As 'data streams' from sensor systems are directly entered into a common database, 'spatial modeling' and statistical biometrics will be simultaneously generated for the Google Earth interface.



above: An extraction well at Fresh Kills. Hundreds such wells are deployed throughout the "remediated park" in an effort to capture and contain the methane gas emitted by the decomposing waste just below the surface. Systemic monitoring takes place within a centralized database.

right: "Platforming" across discrete seismic datasets towards a unified model.



ric "communication among the parts." It concerns the mode of regulation specific to the managerial surface. Infrastructural interventions dealt with uncertainty by designing for maximum and minimum thresholds (as with, say, river channelization, which involves establishing the periodicity and range of a known flood corridor). The managerial surface aims to tailor its responses to uncertain events on a drastically reduced time scale: again, ideally in 'real time,' which is first and foremost the time of the series.²³

In this sense, and in stark contrast to primary-modern infrastructuralism, the managerial surface is probabilistic rather than deterministic, statistical rather than geometrical, inductive rather than deductive. It is for want of this instantaneous (viz., statistically-significant) response rate that the principle of automation ceases to require justification, achieving instead the status of a truth within the moral register of the managerial surface, which relies on the coordination of sensitive automata for its very existence as a possible interventionist strategy.

For an even more fully realized example of the managerial surface, look to the example of Fresh Kills landfill on Staten Island. More precisely, consider the ongoing project of "rehabilitating" Fresh Kills landfill as an urban landscape. What mode of environmentalism—described in the official project literature as a process of "in situ management over time"—now governs Fresh Kills? That is, divorced from the questions surrounding the real efficacy of this restoration project, how are its imagined goals being pursued?

What we find at a place like Fresh Kills, residing just beneath its grassy slopes and bird sanctuaries, is a telemetric monitoring apparatus so dense that there is in fact no location within the

project that escapes the possibility of being cataloged, supervised and regulated. "Highly engineered," shot through with "sophisticated systems in place to collect and treat...byproducts and to protect both public health and the environment," it is a surface that escapes the ocular-centric history of landscapes and joins instead a gathering contemporary psychopathology of postindustrial oneirism:

"It is anticipated that it will take a minimum of thirty years before gas production and settlement associated with decomposition cease and leachate fully drains from the site. As these processes occur, there will be a continuing need for regular maintenance, monitoring and evaluation of the site and systems that have been put into place—primarily the final cover, landfill gas (LFG) and leachate systems, and the extensive network of monitoring wells. It is essential that access to these systems be preserved during this time for inspection, maintenance and repair."²⁴

Managerial discourse of this kind—which revolves around the adaphoric vagaries of so-called mitigation strategies and actuarial risk assessments—secretly and unintentionally discloses the fact that Fresh Kills, like the rest of life (Fresh Kills is merely the opening wedge of more generalized tendencies in our professions) now sits both within and once-removed from modernity. It no longer feigns at managing or solving the initial pressures of modernity confronted by the nineteenth century city (demographic, juridical, epidemiological, sanitary, etc.), but rather is oriented around the sudden need to now manage the most substantial consequences of our prior methods of "successful" management—all the nega-

tive externalities of the modern managerial posture (waste, toxicity, byproducts, pollution) which are being continually expelled by modern infrastructures, and which have in truth always outpaced our strategies of confinement and concealment.

This shift marks a decisive conceptual change in what it means to manage an environment, and distances us finally from all previous disciplinary considerations of that practice, which did not (or could not) foresee its consequences for the design fields.²⁵ It corresponds to the increasingly reflexive character of modernity more generally, and constitutes the third and perhaps most fundamental general feature of the managerial surface: that the environments produced through its logic are quite well aware of modernity's catastrophic tendencies, precisely because it is their prescribed task to somehow compensate for those self-produced failures.²⁶ Their charge, by design, is to somehow extend, under any circumstance, the limitless expansion of so-called civilization, and for that reason they must somehow be made to dream in the language of solutions while remaining wide-awake to the historical absurdity of that very discourse. Deployed under the banners of remediation and restoration, the inevitability of failure underlies their carefully planned births, and adds to their joyous inaugurations an actively repressed sense of disappointment and dread.

A continual telemetric exchange between emergent techniques of electronic representation and networks of electronic intervention, aimed at harnessing and marshaling ever greater material-mechanical control, against the background of technoscientific instrumentality and beneath the alibi of statistical reasoning: this is the managerial surface; this is what it means today to manage an environment.²⁷ Can we now grasp the extent to which all of modern environmental logic has in fact become a kind of *autoenvironmentalism*?

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But what is the logic of this new environmentalism? What does it want? In the first place it is a novel compulsion towards synthesizing a kind of universal format into which the continuity of lived experience might be forever divided into discrete, measureable, manageable units. It asks that we seek out the interstices between as-yet disparate control surfaces—some raster, some vector, some in situ—that we might fashion statistical-electrical sutures across them. This platforming process involves first finding, in statistical-representational space (code), the seams in various kinds of data sets and file formats, and then developing algorithms to ultimately automate as far as possible the translation of those discrepancies into a single model, or at least into ever-fewer models.

At the same time, it is a logic that entails the fabrication of ways of life complicit with this idealized model. Through an ever-quickenening movement among statistical operations that coordinate the distribution of matter in real time, populations and topographies are massaged towards the perfection of their own simulations at an exponential rate. Far more than simply a species of "logistics," the managerial surface is a conditioning of possibilities that preauthorizes logistical reasoning by naturalizing its facticity, by arranging, in advance of any logistical intervention, whole families of historical a priori that will come to constitute the field within which those processes take place. Smoothing the malleable pathways between life-as-organized-matter and its

discernable potentials, managerial logic does not concern itself with establishing the (epistemological) legitimacy of our contemporary "statistical view of nature"²⁸—on this point it is more or less agnostic—but simply aims instead to discover avenues by which that form of reasoning can be made factual; avenues along which life can be opened up, rearranged, and made to conform to certain kinds of goals.

Within this vision, the techniques of environmental management are designed not around the limitations of life, but rather precisely the opposite: life itself is made operational (the managerial surface is an operational theater) and brought in line with other kinds of demands: quality control, local epidemiology, just-in-time delivery, labor overhead and refrigerated shipping costs. Unlike the geometrical infrastructures of the nineteenth and twentieth centuries, which were tasked with "regulating the naturalness of [a] species within an artificial milieu,"²⁹ today our managerial posture demands that all of life be displaced to a condition *beyond* the natural and the artificial, to an ontological plane where such distinctions no longer make sense, and can no longer interfere with the choreographing of matter. In this way it reveals a more sophisticated grasp of the auto-antonymic character of environmental reasoning than that found in our present theoretical postures.

One goal, then, of the managerial surface, if only implicitly (if only automatically) is to drive that regularity and predictability down below the population, into the processes of individuation, by refashioning (according to a drastically reduced timeframe) the beings of which it is comprised. For this reason we can point to a certain disappearance of management as it moves from the older, geometrical forms into a domain of ascalar surfaces.³⁰

The sublimation of managerial tasks, their imbrication within the fabric of life itself, involves a movement away from geometrical methods in two directions simultaneously. Management has become at once infinitesimally small and imperceptibly large, simultaneously molecular and global—a twin disappearance into a being and nothingness expressible only through ones and zeros. Through its reciprocal deportment it now resides simultaneously in the species and in its milieu, comprising through this double movement a new, universally formatted habitat for the living.

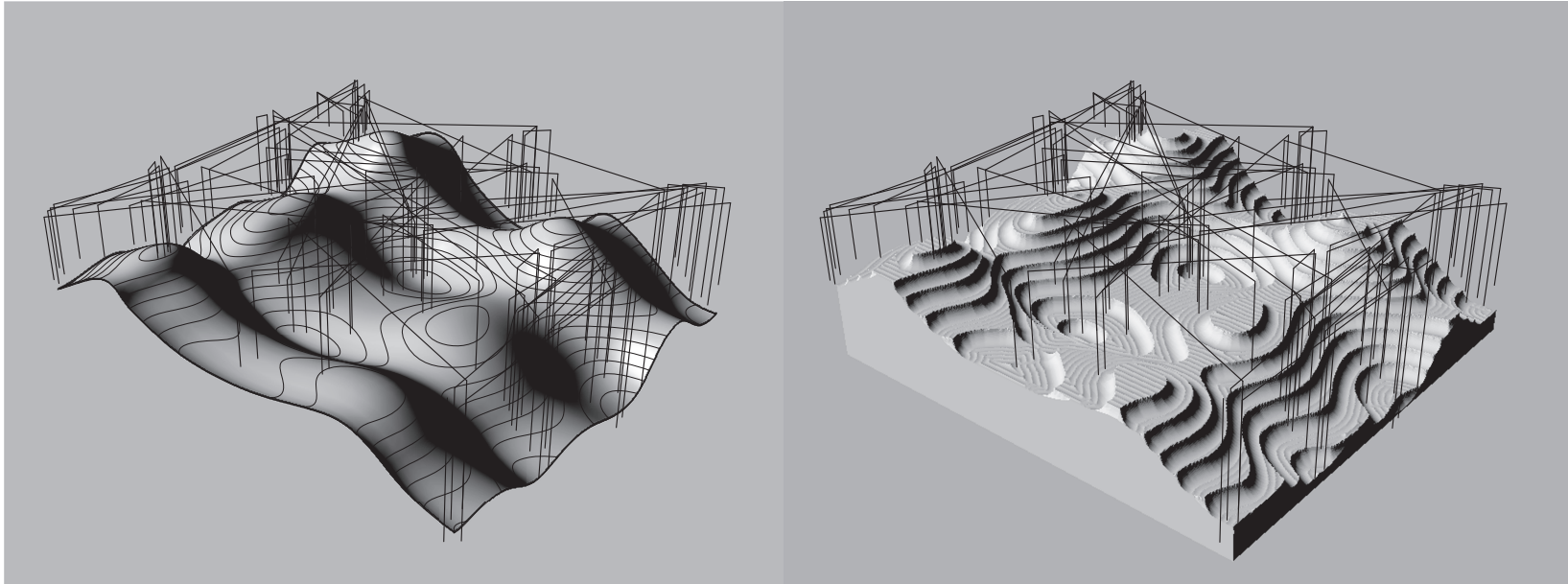
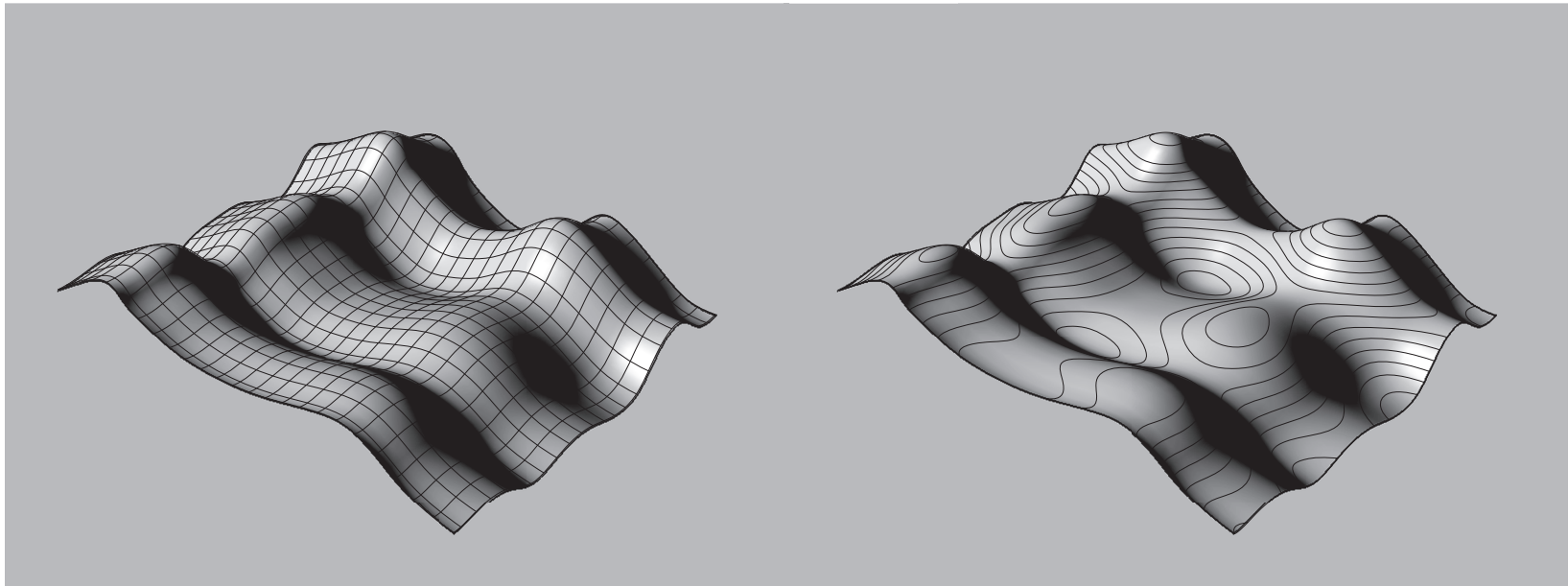
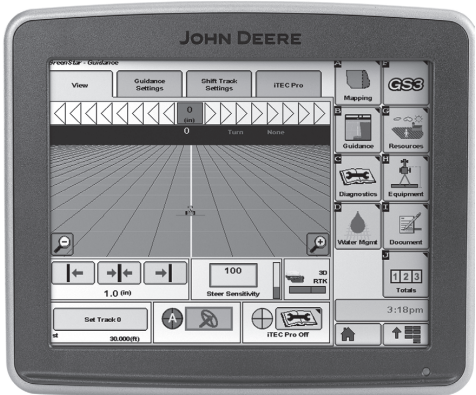
For proof, one can look to contemporary agribusiness, where the geodesic and the genomic are actively merged with astonishing efficacy. Precision farming (the aim of which is to "optimize plant growth and farm profitability by adjusting treatments to suit the variable biophysical conditions that occur within the agricultural field") brings an entire suite of technologies and data stacks—GPS satellite positioning and automatic guidance sensors, geospatial information data, yield-monitoring and variable-rate sensing equipment—to bear upon "the field," transforming that object into a metastatic tableau utterly resistant to primary ocular comprehension.

Within this absurdly regulated terrain, we find the ontological ends of our newly topological representational prowess. The egg-to-death time of the common poultry chicken has now, through genetic modification and breeding strategies, been reduced to roughly six weeks, down from the more than twelve weeks previously conferred by its "naturalness." Each individual is electronically marked at birth so that its growth, health, and eventual position in the supply chain might be closely supervised. In the



above left and top: Precision Farming: GPS “yield management” instruments aimed at signaling the already-mechanized agricultural field.

below: The now-ubiquitous architectural control surface, which displaces all of design practice to an as-yet undiscovered coalescence of philosophy and hardware, where depth is supplanted by resolution, scale is subsumed within a generalized topology, and the limitations of materiality are made subservient to the possibilities of electronic representation.



technique referred to as robotic weed control, we encounter an even more purified set of control loops. Sensorimechanical field hands, able to differentiate among various species according to their (extra-ocular) spectral signature, dispense variable doses of toxins in discrete locations, eliminating not only weeds but in some cases serving to “purify” the stock species by selecting out only the most genetically-desirable individuals.

Genetic identification and georeferenced location, brought side-by-side with close electronic coordination among genetic experimentation, atmospheric regulation, and biotic monitoring; localized managerial intensities, fit with increasing perfection within their scalar opposite: the regional, the territorial, the global.³¹

The managerial surface carries with it a metaphysics all its own that fantasizes of the moment in which that old, soon-to-be-forgotten, pre-modern conception of nature—“primordial nature,”³² inexplicit, willful, wild, impulsive: not merely uncomprehended but (for its blindness to being) wholly incomprehensible—is finally effaced, forever refracted into the tranquility of regulated discontinuity. Constantly forming and reforming new ways of being-in-the-world (ontologies that will by definition confirm our probabilistic conjectures and subsequent measurements), the managerial surface does not so much cause as it engenders these ways of life, inseminating them, arranging their preconditions, and then supporting them on all sides, bringing certain ways of life to the foreground while pushing others to the disposable periphery of modernity.

If our lives appear ever more amenable to statistical modeling, it may be due in part to the fact that the world is being quite literally refashioned by statistical processes. “We are being remodeled...”³³ Or, more specifically, being is being remodeled—inwardly and outwardly—through processes that expose the confidence of our delusional engineering bravado to an unsettling proposition, whispered in the minor philosophies of ‘skeptical fools’ since the beginning: that “perhaps science and technology have always had far more to do with exploiting potentials than revealing essences.”³⁴

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Design today knows all too well the tremendous capabilities of the managerial surface, precisely because it is genealogically related to the mode of representation that reigns sovereign in our daily practices. Despite its triumphal disciplinary pervasiveness, the electronic control surface does not in any way belong to architecture. Precisely the opposite: contemporary “digital design”—no matter its stylistic or ideological pronouncements—belongs to it. The architectural control surface is an infinitesimal slice of an enormous and expanding panorama of feedbacks, all reconfiguring the practices and demands of management and control around a probabilistic worldview.

From the first moment of contact, there has been a curious comingling of scalar experimentation, wherein architectural production has become decidedly topological in character, while treating the landscape as a tooled and uniformly scripted object. (The collapsing of scale within design methodology being merely a symptom of the technical disdain with which that concept is treated by control processes more generally.)

What this rough genealogy reveals is that the seemingly disparate approaches to architectural production mentioned at the outset—including the two most dominant schools of thought

within current practice, which have in fact sparred over the past four decades regarding the proper role of architectural practice with respect to larger, external conditions—are of course today unified at a most fundamental level: within the very composition of their disciplinary subjectivity, which rotates around and is more or less constituted through an intense experimentation with the electronic control surface.

Statistical-electrical control perforates and invests (both theoretically and materially.) It is a process of investment, and it has invested our discipline and our practices so thoroughly, and so neatly, and in so many quiet places, that we neither see it nor see past it, but rather see with it.

Tooling, scripting, performativity: the passive neutrality of such language conceals anxieties surrounding the fact that just as design has had to acknowledge its complicity in the aesthetics of warfare, it must now come to terms with an aesthetics of management, whose archive—which constitutes the very essence of modern environmentalism—is no less beautiful or brutal.³⁵ This task has nothing at all to do with the refutation of false advertising of a cynical public relations campaign, dispensing, ad nauseam, the dull ecstasy of green consumption: unadorned common sense can guide that activity.

Rather it consists in examining the intimate psychohistorical relation of modern managerial-scientific representation to that which is silently posited in it: the principle that life itself is best conceived not so much as the fragility of being, or the enigma of desire, or the rich mystery of existence, but instead simply as a function of the organization of matter. It involves uncovering, in the spatial politics of neoliberalism, an ongoing transposition of the obsessive-compulsive underside of bureaucratic desire into the concepts of environmental management, whereby all space becomes a theater of war; whereby the desire for speed, efficiency and control exist as unquestioned values; whereby “the Earth became the common enemy.”³⁶ Specific to our own recent disciplinary history, it involves discerning the points of contact between the concepts of autonomy and automation.

Urbanists, automatists, and professed environmentalists: partners in a politics of aesthetics that once animated architectural theory, but which has now been electrochemically value-engineered into an abyss of reflexive anachronism. Today they remain, playing a discursive shell game, concealing a fact that lobotomizes their shared language: that the potentiality of the managerial surface, the sum of its telemetric possibilities, has become the silent epistemological backdrop for all design practice. Its genealogy now entwines and binds design reasoning down beneath perception, within the mundane but consequential details of disciplinary subjectivity. Claims to difference are summarily upended by their implication in an instrumental lineage that has engulfed them, guilty by association with a family of technologies that are today only regarded unhistorically and apolitically.

Nature—or more specifically, the question of what is natural—has always been primarily a matter of representation. Our techniques have reconfigured the space of representation beneath our reasoning, and our mode of intervention in the world has undergone a fundamental change. We can no longer assume any distance or delay between life and its representation. Nor can we be confident, however, that the reduction of that gap, or the

grand project of finally eliminating it once and for all, is moving us at all closer to the dreams of Progressive Modernism.

Still, we continue to rehearse a worn-out equation, in which modern infrastructures and bureaucracies enthymematically “manage the environmental impact of the built environment,” and where statistical reasoning simply enables us to “see through the mists and confusion of the world.”³⁷ Ironically, we still posit this nostalgic formula as a solution, as though it were somehow our last, best hope for collective survival; as though the very notion that life is first and foremost a problem to be solved does not itself belong to a configuration of modernity we must now somehow learn to transcend.

An entirely new political field is now laced silently throughout this modern environmental mythos—an electrical neofeudalism in which our present theories and methods are, for their naïveté and myopia, potentially dangerous confidants. The regime of lucidity established by the modern technosciences is collapsing, but we must continue to live within it by resisting the rote scientization of all ecological sensibilities. The great promise of something like ecological design rests not in its ability to fashion terminal and partial palliatives for sustaining our degenerate modes of civilized existence, but in its capacity “to create concepts that are always new,”³⁸ to foment a disposition towards existence that does not materially undermine itself; to stimulate a sincere and audacious competition among various conceptions of life; to navigate the well-financed efforts to render the city more “SENSEable,” which have, paradoxically, erased the city as a sensible political field.

Isn't this where the work now lies? In fashioning a way of seeing, an orienting schema, a platform for contemplation and disobedience, or at least a primitive compass for moving about purposively within these new frameworks? In finding and capturing within our language and thought another order of agency, another degree of freedom within a milieu that by design aims to organize, govern, administer, monitor, record, and securitize that freedom?

Absent that effort we remain in frigid freefall, our language and thought always-already returned to us, at once lucid and incoherent, confident and vacuous, a glittering and hollow doubling of all that it claims to explain.

NOTES

- 1-David Foster Wallace, “E Unibus Pluram: Television and U.S. Fiction,” in *A Supposedly Fun Thing I'll Never Do Again: Essays and Arguments* (Back Bay Books, 1998).
- 2-Bruno Latour, “A Cautious Promethea? A Few Steps Toward a Philosophy of Design (With Special Attention to Peter Sloterdijk)” (Keynote lecture, History of Design Society, Falmouth, September 3, 2008).
- 3-Friedrich Nietzsche, “On Truth and Lie in an Extra-Moral Sense,” in *The Portable Nietzsche* (Penguin Books, 1977).
- 4-Georges Canguilhem, “Nature dénaturée et nature naturante,” in *Savoir, faire, épérer; les limites de la raison* (Bruxelles: Publications des Facultés Universitaires Saint-Louis, n.d.), 71.
- 5-Bruno Latour, *We Have Never Been Modern* (Harvard University Press, 1993); Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Harvard University Press, 2004); Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, 1st ed. (Harvard University Press, 1999); Ulrich Beck, “Anthropological Shock: Chernobyl and the Contours of the Risk Society,” in *Ecological Enlightenment* (New Jersey: Humanities Press, 1995); Isabelle Stengers, *Invention Of Modern Science*, 1st ed. (Univ Of Minnesota Press, 2000).
- 6-Paul Rabinow, *Marking time: on the anthropology of the contemporary* (Princeton University Press, 2008), 25.
- 7-U. Beck, A. Giddens, and S. Lash, *Reflexive modernization: politics, tradition and aesthetics in the modern social order* (Stanford Univ Pr, 1994), 27-28.
- 8-C.f. “Design provides the synthetic key to connect ecology with an urbanism that is not in contradiction with its environment,” in Mohsen Mostafavi, Gareth Doherty, and Harvard University, *Ecological Urbanism*, 1st ed. (Lars Müller Publishers, 2010). Or:

- “Sustainable design aims to eliminate completely through skillful, sensitive design the environmental impact of the physical objects and services of the built environment,” in Jason F. McLennan, *The Philosophy of Sustainable Design* (Ecotone Publishing Company LLC, 2004).
- 9-Latour, *Pandora's Hope*, 23.
 - 10-“...not just a vocabulary, but a syntax that attains the sublime, or a great beauty.” Gilles Deleuze and Felix Guattari, *What Is Philosophy?* (Columbia University Press, 1996), 8.
 - 11-R. Michael Hord, *Digital image processing of remotely sensed data* (Academic Press, 1982).
 - 12-William H. Young, “Production Mapping with Orthophoto Digital Terrain Models,” *Photogrammetric Engineering and Remote Sensing* 44, no. 12 (December 1978): 1521-1536.
 - 13-The phrase “statistical-electrical control” is meant to both encompass and exceed a family of more narrow technical concepts to which it is related, such as “control engineering,” “systems engineering,” “automatic control,” and even “dynamic programming,” or “optimal control”—all of which, despite being well-defined in the technical literature, nonetheless fail to capture their own epistemological and ontological reverberations. See S. Bennett, “A brief history of automatic control,” *IEEE Control Systems Magazine* 16, no. 3 (1996): 17-25.
 - 14-Michael Lynch, “The externalized retina: Selection and mathematization in the visual documentation of objects in the life sciences,” *Human Studies* 11, no. 2-3 (1988): 201-234. See also: John J. May, “The Becoming-Energetic of Landscape,” in *New Geographies, 2: Landscapes of Energy* (Harvard Graduate School of Design, 2010), 30-31.
 - 15-R. Michael Hord, *Digital Image Processing of Remotely Sensed Data* (Academic Pr, St Louis, Missouri, U.S.A., 1983).
 - 16-Peter Sloterdijk, *Sphären 3.: Schäume* (Suhrkamp Verlag KG, 2004).
 - 17-James Der Derian, *The Virilio Reader*, 1st ed. (Wiley-Blackwell, 1998).
 - 18-John J. May, “Infrastructuralism: The Pathology of Negative Externalities,” *Quadrants Parainfrastructures*, no. 262 (n.d.): 5-9.
 - 19-David J. Hand, *Statistics: A Very Short Introduction* (Oxford University Press, USA, 2008), 1-2.
 - 20-See C. G. Langton, *Artificial life: An overview* (The MIT Press, 1997); C. G. Langton, others, *Artificial life* (Citeseer, 1992). Emphasis mine.
 - 21-For example, a system of networked “nest boxes” provides “continual, periodic sampling, giving information such as: percentage of time a bird is incubating her eggs, the number of eggs at any time during the incubation period, the amount of time the father bird returns to the nest, and any number of other questions.” <http://www.james-reserve.edu/index.html>
 - 22-Declan Butler, “2020 computing: Everything, everywhere,” *Nature* 440, no. 7083 (March 23, 2006): 402-405.
 - 23-On “the problem of the series,” see Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France 1977-1978*, 1st ed. (Picador, 2009).
 - 24-http://www.nycgovparks.org/sub_your_park/fresh_kills_park/html/about_the_site.html#landfill
 - 25-Banham, *Architecture of the Well-tempered Environment*, 2nd ed. (University of Chicago Press, 1984).
 - 26-“Scientific civilization has entered a stage in which it no longer merely scientizes nature, people and society, but increasingly itself, its own products, effects and, mistakes. Science is no longer concerned with ‘liberation’ from pre-existing dependencies, but with the definition and distribution of errors and risks which are produced by itself.”
 - 27-See also, May, “Infrastructuralism: The Pathology of Negative Externalities.”
 - 28-Morris Kline, *Mathematics in Western Culture* (Oxford University Press, USA, 1964).
 - 29-Foucault, *Security, Territory, Population*, 21-22.
 - 30-This disappearance is now often mistakenly taken as evidence that the very practice of management itself has reached its end (see, for example, Alan Murray, “The End of Management,” *wsj.com*, August 21, 2010, sec. Management, <http://online.wsj.com/article/SB10001424052748704476104575439723695579664.html>), when in fact the details of managerial processes are simply being relocated. That said, we can agree with Murray when he says that “‘modern’ management is nearing its existential moment.” Which is to say, something is coming to an end—the era in which bureaucratic organizations (public or private) comprised of human actors oversee the managerial prowess of modern geometrical infrastructures.
 - 31-It would of course be supremely naïve to assume that these methods will somehow remain ethically constrained, and in fact some resolution of the problem of animality may well arise not from the political extension of so-called “human rights” to nonhuman lives, but rather through the technical extension of agricultural management practices to human collectives.
 - 32-Friedrich Nietzsche, *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs*, 1st ed. (Vintage, 1974), 172-173.
 - 33-Peter Sloterdijk, *Neither Sun nor Death* (Semiotext(e), 2011), 28.
 - 34-Rabinow, *Marking time*. Or: “We’re going to see scientific results that are correct, that are predictive, but are without explanation. We may be able to do science without insight, and we may have to learn to live without it. Science will still progress, but computers will tell us things that are true, and we won’t understand them.” http://www.nytimes.com/interactive/2010/11/09/science/20111109_next_feature.html?ref=science
 - 35-See, for example: John Harwood, *The Interface: IBM and the Transformation of Corporate Design, 1945-1976*, Quadrant (University of Minnesota, 2011); Michael Osman, “The Managerial Aesthetics of Concrete,” *Perspecta* 45 “Agency” (forthcoming).
 - 36-Michel Serres, *The Natural Contract* (University of Michigan Press, 1995), 10.
 - 37-Hand, Introduction.
 - 38-Deleuze and Guattari, *What Is Philosophy?*, 5.