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#2 *Ecologies of Change*

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ECOLOGIES OF DISCLOSURE: ON AESTHETIC COMPOSITIONS OF TECHNICS AND LIFE

"Renegotiating data ecologies through trees, soil, and pigs' lungs," by Thomas Bjørnsten and Jan Løhmann Stephensen, models an anthropocenic epistemology suitable to our present-day scientific and environmental situations. Their analysis of three artworks that integrate earthly compounds, organisms, and information technologies offers a preliminary aesthetic program for coming to terms with our contemporary and composite world picture and contributes to a recent surge of interest in ecocritical aesthetics.[1] The first of the three works considered by Bjørnsten and Løhmann is *The Environmental Sentinel* (2014–2016) by Frances Whitehead. This permanent installation in Chicago deploys 453 apple serviceberry trees as living sensors, whose sensitive and variable blossoming cycles will allow them to register environmental changes. As the authors put it, the "trees function as the prime interface between intangible fluctuations of temperature [and] air quality." Human observers not only perceive these changes; in a sense, they also become an element in the apparatus of disclosure, both as indirect agents of climate change and as living links in a system of bio-

1 Ursula Heise, *Sense of Place and Sense of Planet: The Environmental Imagination of the Global,* New York, Oxford University Press, 2008; the special issue on ecocriticism of *Qui Parle* 19, no. 2, Spring/Summer 2011; Henry Sussman (ed.), *Impasses of the Post-Global: Theory in the Era of Climate Change,* Vol. 2, Ann Arbor, Open Humanities Press, 2012; Tom Cohen (ed.), *Telemorphosis: Theory in the Era of Climate Change,* Vol. 1, Ann Arbor, Open Humanities Press, 2012; Nicholas Mirzoeff, "Visualizing the Anthropocene", in *Public Culture,* 26 (2), 2014, pp. 213–232; and Heather Davis and Etienne Turpin (eds.), *Art in the Anthropocene: Encounters Among Aesthetics, Politics, Environments and Epistemologies,* London, Open Humanities Press, 2015.

technical relay and perception. The second work considered, the British artist group YoHa's installation *Coal Fired Computers* (2010), makes visible the work, labor, data, disease, and environmental degradation that powers and produces our information machines. In this piece the artists relied on a century-old British coal engine to power a computer that reads off data concerning lung disease suffered by third-world coal miners. The coal engine stands in as proxy and reminder of the enduring role of coal, much of it mined in the Southern hemisphere, in powering the plants that serve the electrical grids of the Northern hemisphere and its information infrastructures. A set of pig lungs attached to *Coal Fired Computers* expand and contract as the computer works, serving an avatar for the organs of human laborers halfway around the world. This Rube Goldberg apparatus is no less absurd and irrational than the real but invisible environmental and human costs of computing it displays. Bjørnsten and Stephensen's final case, Martin Howse's *Earthboot* (2012–2014), uses a specially configured adaptor to refunction telluric currents in the earth as inputs for booting up a computer. This piece establishes a material and logical recursion whereby "the processed and refined materials of the computer's circuits are re-connected with the soil and the raw minerals that originally went into the production of it." On their own these three works each offer miniature composition of earth, life, and technics. Considered together, however, they form the elements of an ecology of epistemic disclosure.

Bjørnsten and Stephensen ask whether artworks can make the complex entanglement of technology and earth more tangible and concrete in contemporary artworks. In an age when thousands of climate scientists backed by the United Nations and endorsed by the Nobel Prize Committee seem unable to persuade the public and politicians about the need for action on climate change, it is a tall order to demand that a few works of art make much of a difference in public perception of climate debates. Yet in recent decades, the fields of art, aesthetics, and architecture have played a signal role in registering and announcing the disintegration of our planetary order. As a site of special interest for Bjørnsten and Stephensen – namely the intervention of digital and electronic technologies that upset traditional forms of material and organic continuity – art criticism has shown special sensitivity to emerging epistemological crises. For example, in a now classic 1976 statement on video art, critic Rosalind Krauss argued that "it seems inappropriate to speak of a physical medium in relation to video."[2] According to Krauss, the real-time feedback of video and other electronic media allowed a near-total detachment from the materiality

2 Rosalind Krauss, "Video: The Aesthetics of Narcissism", *October* 1, Spring 1976, p. 57.

and endurance that undergirded classical arts. These classical arts had

> "much more to do with the objective, material factors specific to a particular form: pigment-bearing surfaces; matter extended through space; light projected through a moving strip of celluloid."[3]

Electronic relays figured a radical break with these earthly materials and their durable indexes. In another seminal text from that period, literary critic Frederic Jameson argued that dispersed networks of communications and computers participated in a much wider exhaustion of depth, reflection, and materiality in postmodern art and architecture. Krauss and Jameson were too sophisticated to embrace naïve technological determinism, and each emphasized psychological, economic, and historical factors that undergirded the apparent discontinuities of digital media with the earth. Yet they captured with sensitivity and insight a much wider alarm over the seeming insubstantiality of digital and electronic media, the substitution of index for pixel, the replacement of materials by mathematics, and the introduction of new modes of instaneity that short-circuited all appeals to matter and context.

This aesthetic anxiety directed at digital and electronic arts registers broader modem ambivalence over the relationship of modern technology to earth. At least since 19th century social engineers credited information technologies and improved communications with the potential to overcome the limits of time, space, and material embodiment. This inspired notions of electrical transcendence that spread through the popular and political imagination of the late 19th and early 20th centuries.[4] Such visions took on the trappings of rational science after World War II. At this time mathematician Norbert Wiener publicly championed the idea that information sciences broke with material constraints that governed all previous modes of human understanding. In the emerging epoch, he argued, "[i]nformation is information, not matter or energy. No materialism which does not admit this can survive at the present day."[5] Wiener proposed

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3 Ibid, p. 52.

4 For an overview of this discourse, see Carolyn Marvin, *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century,* New York, Oxford University Press, 1988, pp. 191–235. However, this argument took a variety of forms. For the American context where equality and autonomy of regions was seen as a component of technological liberation, see Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America,* New York, Oxford University Press, 1964, pp. 208–219. For the French context, where uniformity across space was more highly valued, see David Harvey, *Paris, Capital of Modernity,* New York: Routledge, 2005, pp. 203–213.

5 Cited in N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, Chicago: University of Chicago Press, 1999, p. 14.

cybernetics as a new master science for describing the specific laws of this quasi-autonomous, informatic sphere.[6] Even critics of this worldview, such as the German philosopher Martin Heidegger, accepted its underlying assumptions. In writings between 1935 and 1965 he praised traditional works of art, such as the sculpture or temple, for "let[ting] the earth be an earth" by allowing the stone, pigments, and gods themselves to be disclosed in the care of artistic craft.[7] He contrasted this earthliness of the work of art to modern technologies, like orbiting satellites and cybernetic machines, which he identified with the drive to rise above the earth and its things.[8] Despite an arguably mystifying manner of description, Heidegger's concern resonates with a concrete and fairly common experiences. Looking at the Telstar Satellite radio sets, he detected an informatic drive to overcome the limits of matter and the body. Unlike traditional art that worked with earthly materials to bring forth earthly scenes, information technologies seemed to simply command, traverse, and display at will, according to scientific laws divorced from everyday experience.

Underlying these various instances – anxieties about the insubstantiality of electronic arts, fantasies of overcoming the limits of time and space, fears of the chasm between traditional arts and modern technologies – is the inability to appreciate earth, technology, and human action as part of a common framework. The work of art, where human representation and techniques meet with the endurance and resistance of materials, emerges as a kind of flash point in the unhinging of the world. Among the traditional activities of aesthetics to bring forth entities for experience, typically by the joining of materials with technical skills. Aesthetics and the work of art register with acute sensitivity the transformations in materials associated with technical and informatics media. Here the rupture in materiality finds a natural staging, through studied artistic techniques aimed at bringing material forth for experience. And yet, as the site where materials and technics meet, the work of art seems like a natural place for reworking this rupture – not for eliminating it, but for figuring these emerging compositions. The work of art is, in this sense, the site for figuring

6 Norbert Wiener, *Cybernetics: Or, Control and Communication in the Animal and the Machine*, Cambridge, MIT Press, 1948.

7 See Martin Heidegger, "The Origin of the Work of Art," in David Farrell Krell (ed.), *Basic Writings,* San Francisco, Harper, 1977, p. 172. The original is italicized but it seemed inappropriate to reproduce that here, in such a briefly excerpted quote.

8 On cybernetics, see Martin Heidegger, "The End of Philosophy and the Task of Thinking", David Farrell Krell (ed.), *Basic Writings,* San Francisco: Harper, 1977, esp. p. 434; and on modern technicity as deracination, see Martin Heidegger, "Only a God Can Save Us: The Spiegel Interview with Martin Heidegger," in Heidegger, *The Man and the Thinker*, trans. William J. Richardson, Chicago: Precedent Publishing Co., 1981, esp. p. 56.

epistemologies equal to matter, technics, and our current modes of living.

Into the rupture opened up among classical arts, materials, and new technologies, Bjørnsten and Løhmann presented the aforementioned ecological artworks. In their references to a "double relation between technology and Earth," "a field somewhere in between earth, technology and unruly software," "the strata of the earth reterritorialized as technology," and a "linkage between technology and earth that sidetracks the directional logic of algorithms and computational processes," they offer these artworks as a site for re-articulating technology, earth, and human experience. Their point is not a vulgar materialism and social constructionism, where all entities could be traced back to the laws of physics and human intention. Such an analysis would fall back upon exactly that naïve unitary picture shattered by the rise of the networks of science and further challenged by the technical mediations of climate science. Instead, Bjørnsten and Løhmann present us with works of art that incorporate a series of ruptures and relays into their techniques of aesthetic disclosure. Observers of the *The Environmental Sentinel* witness the incorporation of living organisms into a system of data relay and display, even as what it displays – the growing effects of climate change, as registered by the blooming of trees – forewarns the observer of irreparable changes in the environment for sustaining earthly life. *Coal Fired Computers* captures the belonging of the information machines to an ecology of earthly waste that produces data, computers, and disease alike. *Earthboot* may for a moment exploit the energies of the earth for its operating system, but the result is mostly scrambled imageries and erratic computational behavior, which also serves as a reminder of the profound distance between these modes.

These artworks and their analysis result in what I would term 'an ecology of disclosure,' wherein variegated elements merge as elements of a common network of relay, exchange, and participation. Ecology here refers to composite systems of relays among artificial and organic elements. As Erich Hörl avers,

> "[c]ontrary to all of the ecological preconceptions that bind ecology and nature together, ecology is increasingly proving to epitomize the un- or non-natural configuration that has been established over more than half a century by the extensive cybernetization and computerization of life."[9]

9 Erich Hörl, "A Thousand Ecologies: The Processes of Cybernetization and General Ecology," in Diedrich Diedrichsen and Anselm Franke (eds.), *The Whole Earth: California and the Disappearance of the Outside*, Berlin, Sternberg Press, 2013, p. 122.

This notion of ecology is not a rejection of the aesthetic remarks on rupture by Krauss, Jameson, and Heidegger; rather, it marks their incorporation into a fuller portrait of how earth, technics, and experience consolidate *despite* and *in the face of* such ruptures. In so doing, these works constitute a modest contribution to articulating a new aesthetics of experience equal to our world today.