Mark B. N. Hansen. *Feed-Forward: On the Future of Twenty-First-Century Media.* Chicago: University of Chicago Press, 2015. 320 pp. $27.50 (paper), ISBN 978-0-226-19972-6; $89.00 (cloth), ISBN 978-0-226-19969-6.

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Electronic media historically have been recording technologies, inscribing data into archives of the past. Both this inscription process and its resulting archives typically have been visible, readable, and largely understandable. Many of today's newer media systems, however, collect data invisibly, and, instead of archiving them for future reference, these media present the data more immediately to the user for the purposes of influencing the present, the next moment, the immediate future.

The sensors in my smartphone, for example, are, as I write, noting my general lack of movement as well as the beautiful weather outside, so that when I break from this task and check my phone I will be presented with this information, the cultural context of which will remind me of the perils of an academic's sedentary existence and likely prod me into athletic shoes and out the door. This is not data I necessarily will require to be stored for future perusal and analysis. It is simply information that has contributed to my perception of the moment, an *addition* to any similar information I could have gathered from the feeling of my stiff joints or the sight of clear, sunny skies. Either way, the data affects my sensing of the world, my perception of it, and ultimately my agency within it.

This equating of flesh-sense and electronic-sense within perceptual experience is part of the move made by Mark B. N. Hansen in his latest bold perspective on our relation to networked technologies. *Feed-Forward: On the Future of Twenty-First-Century Media* is carefully titled. The concept of feed-forward—as opposed to feed-back, an action crucial to cybernetic understandings of technologies and even interpersonal communication—is central to Hansen's take on the purpose and function of new media systems. The book's subtitle, too, telegraphs an important clue if read correctly: *On the Future...* does not indicate another authorial prediction of media technologies' trajectories from a marketing, investment, or cultural viewpoint; rather, Hansen's ambitious project seeks to illuminate and describe the futurity inherent in the actual functioning of new media systems—that today's sensing tech offers a "shift from a past-directed recording platform to a data-driven anticipation of the future" (p. 4).

Hansen's is an important emerging perspective, though media-studies readers should note that this is a work of dense, highly speculative theory. Hansen is engaging chiefly with the process philosophy of Alfred North Whitehead (1861-1947) in order to adapt it into a framework for understanding human relations in an increasingly technical world. Whitehead is a tough nut to crack—Hansen justly refers to "his at first glance forebodingly formal metaphysical scheme" (p. xi)—though, as Hansen notes, he's also something of a new scholarly sensation. *Feed-Forward* arrives amid a recent trend in scholarship resurrecting the late philosopher's work to suit current contexts; after Gilles Deleuze and Bruno Latour, notable recent "Whiteheadians" include Didier Debaise, Judith Jones, and Jorge Nobo, each of whom Hansen engages with deeply here.[1] Hansen's project, however, is one of the more innovative uses of Whitehead thus far, stemming as it seems from an understanding of the historical context—Whitehead's ideas surfaced amid an era of great interest in and concern about the

first wave of electronic mass-media systems—and of the potential adaptation of a philosophy born of the previous century to negotiate this century's understanding of atoms versus bits.

A quick primer on Whitehead is required (with the caveat that I am a media-studies communication scholar, not a philosophy expert): like Gilbert Simondon's or Martin Heidegger's, Whitehead's is a *process* philosophy as opposed to one of *being*. Whitehead steers around the epistemological and subject-positioning traps of substance-oriented thinking, outlining instead a world in which there are no objects, only processes that sometimes stabilize into what we've come to recognize as people, places, and things (so that a stabilized entity acting as an object in one context may act as a subject in another). This reality is not composed of inert stuff defined by space and time; rather, it's an equation of events, what he calls "actual occasions," each of which experiences its entire past and present as well as anticipating its future. When an occasion ends, it becomes a fixed datum seeding future events. Whitehead calls the whole cycle "concrescence," a process similar to Heidegger's "becoming" or Simondon's "concretization."[2]

Two of Whitehead's claims—that actual occasions anticipate the future and that events become data—are important to Hansen's remolding of subjectivity. In Whitehead's world, humans do not have an exclusive or even privileged claim on subjectivity; instead, a human is merely a datum among all others. We see the world in a particular way not because we are an autonomous subject inserted into it, evaluating it, and making independent decisions about it, but rather because we (our bodies, our evaluations, our decisions) are part of the overall processes that make the world present based on everything that has happened up to the current moment. The sensory data that informs our perception of that moment is now generated by fleshy organs *and* electronic equipment, and, according to Hansen, neither is privileged. Whether we utilize the electronic data or not is irrelevant: it's being produced now irrespective of our particular subjectivities. What matters ultimately is how we act on it.

It is a theory that should elicit rich conversations among other theorists conceiving agency as distributed between both humans and nonhumans. In this book, he engages some of these, such as Jane Bennett; conspicuously absent perhaps is Bruno Latour. Hansen has used Latour as a launching point before but rarely engaged directly with his take on nonhuman agencies.[3] That may

be by design, as the second-order systems theory presented here is far less constructivist than Actor-Network Theory (ANT) and seems to be aiming far beyond it. While Hansen often describes twenty-first-century media as an ANT-like system that "expands agency beyond the subject-centered perspective" (p. 63), he is attempting to de-*center* human subjectivity—but not to *diminish* it. Specifically countering the prefix of posthumanism,[4] as well as Friedrich Kittler's "purposely polemical and highly contentious claims that digital technologies" are "ruthlessly inhuman," Hansen insists that the feed-forward aspect of media is "a veritable reinvigoration of the human," that it is an "upside" for humanity (pp. 73, 19, 252). Twenty-first-century media do not make us into something *post*-human; they assist in making us *extra*-human. They facilitate not just human-computer interaction (HCI); they ramp up the potential of *human-human* interaction and understanding.

That's a bit more *rah-rah* than Hansen states outright, but it's a clear undercurrent to a theory that nonetheless steers away from a humanocentric cosmology of media and toward an ecology of sensory apparatuses in which we participate—"a shift from a media system that addresses humans first and foremost to a system that registers the environmentality of the world itself, prior to, and without any necessary relation with, human affairs" (p. 8). The media are designed to function in an environment already in process, one into which humans must fit themselves. As stated above, certain features of my smartphone are sensing the environment in which they have been implicated regardless of whether or not I or anyone perceives and acts on the data they generate. The fact that I possess the additional information with which to, using the Whitehead terminology on which Hansen structures his argument, *prehend* my next *potential* occasion in the world makes me a more vibrant and affective actor in the world.

Media-studies scholars may find *Feed-Forward* challenging reading not only because of the headiness of its philosophy (Hansen at least employs a helpful feature common to philosophy texts: repeating and restating his thesis *ad infinitum*) but also because of Hansen's lack of concrete examples of his ideas. The book presents a worthy theory of technology but rarely discusses actual technology. He refers constantly to broad notions of, say, "multi-scalar computational networks and … intelligent sensing technologies ranging from environmental sensors to the smart phones and other portable devices we now carry with us as a matter of course" (p. 23), but he never downloads his theories into any of those

actual devices. He primarily cites art installations that are less easily translatable to real-world, everyday, actual occasions between humans and existing media. Here's hoping scholars are now busy at work applying this understanding of feed-forward media to studies of, say, the Fitbit, the Netflix recommendation algorithm, smart-car wayfinding software, or other such technologies, sensing the environment and feeding that data forward into just-to-come decisions and predicted occasions.

Hansen's systems theory also could be applied to two other investigations: first, of the more insidious, social-control aspects of predicting and directing future actions he describes as inherent within twenty-first-century sensory media; and second, of the invisibility of the processes he describes in these media. In explaining the latter, Hansen works from an assumption that consumers "neither control, directly enjoy, or even have access to" media's sensory capabilities and processes (p. 17)—a claim that today's user-centered designers and makers could marshal in arguments against consumers' considerable alienation from the production of the very technologies expanding the worldly sensibility Hansen is illuminating.

Notes

[1]. On "Whiteheadians," see Isabelle Stengers, *Thinking with Whitehead: A Free and Wild Creation of Concepts*, trans. Michael Chase (Cambridge: Harvard University Press, 2011), 6.

[2]. Process philosophies in the European canon bear remarkable resemblance to ancient Asian philosophies, specifically Taoism. There are moments in Hansen's book that are remarkably Taoist: "How can we assess, let alone find the language to talk about, something in which we, higher-order human agents, are only tangentially or peripherally, and even then only subsequently, belatedly, implicated?" (p. 81) is practically a restatement—from a wondrous point of view, albeit one seemingly resigned to the assumption of European structuralism that words must be found *at all*—of the first lines of the Tao te Ching ("The tao that can be told is not the eternal Tao. / The name that can be named is not the eternal Name. / The unnamable is the eternally real. / Naming is the origin of all particular things" [trans. Stephen Mitchell]). For insight into Whitehead's parallelisms with Taoism, see William Meacham's "Tao te Ching Ontology," 2010, `http://www.bmeacham.com/whatswhat/TaoTeChingOntology.html`. For a look at how Whitehead fits into the overall European model of process philosophy, watch for Grant Maxwell's *The Dynamics of Transformation: Tracing an Emerging World View* (Nashville: Persistent Press, forthcoming).

[3]. Mark B. N. Hansen, "System-Environment Hybrids," in *Emergence and Embodiment: New Essays on Second-Order Systems Theory*, ed. Bruce Clarke and Mark B. N. Hansen (Durham, NC: Duke University Press, 2009), 113-142.

[4]. If Hansen is post- anything, it's post-phenomenology. That requires clarification, though, as *Feed-Forward* and the bulk of Hansen's work thus far rest squarely on the foundation of phenomenology's considerable evolution. Even while claiming that his project charts a course for the "post-phenomenological afterlife of phenomenology" (p. 27), he connects the late writings of Edmund Husserl, usually cited as the fountainhead of the field, with explications of more recent phenomenology from Czech philosopher Jan Patočka and media theorist Vilém Flusser. An overarching goal of *Feed-Forward*, Hansen says, is "rethinking the role of phenomenology in the context of twenty-first-century media" (p. 253).

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