New Media Pharmacology:

*Hansen, Whitehead, and Worldly Sensibility**

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In this essay I critically review the recent argument by new media theorist Mark Hansen on the implications of these technologies for human being. This imbrication of these technologies and human being has been an abiding interest for Hansen, [1] but in his *Feed Forward: On the Future of Twenty-First Century Media* and related papers what has drawn my attention is his use of the philosophy of Alfred North Whitehead to argue that these sophisticated digital technologies offer human experience an expansion beyond what has been available to us up to now (Hansen 2014, 2015a, 2015b). While Hansen is more than aware of the predominance of scholarly and popular arguments to the contrary, he makes a case in this work that strikes me as reminiscent of poststructuralist arguments about the potentials that fragmented, distributed, and dispersed agency and subjectivity offer over against the centered and "integrated" human experience storied in humanist and modernist philosophy inherited from the Enlightenment. What he adds, as have others, [2] to that critique is a thoroughly materialist understanding of dynamic matter, drawn from Whitehead, that extends the expansive views of human being found in that earlier work. Turning away from discourses of the "post-human" and "non-human," Hansen offers a radical and hopeful proposal on how to re-think the human subject and experience at the beginning of the new century. My aim here is to foreground that argument and consider its promise.

Twenty-First Century Media and the Human

Hansen distinguishes what he calls "twenty-first century media" as going far beyond the familiar capacity for storage and retrieval of human-prepared information, typical of what Friedrich Kittler (1996) called "old media." These media are data-driven computational processes, guided by networks of algorithms, operating at speeds and with a complexity inaccessible to human perception. They affect human experience without our awareness; not because we are not paying attention, but because we are not able to sense their operation at all using our unenhanced bodily technologies (Hansen 2015a; 2015b; cf. Parisi 2009, 2013).

Shifting focus away from media that directly address and thus foreground the centrality of human consciousness, Hansen claims that these new media *create* and provide humans with consciousness and experience we cannot have without them. They open our awareness of, drawing on Whitehead, the sensibility of the world, of which we are a part; and they "directly shape the sensory continuum" that gives rise to perception and memory (Hansen 2015a:38; and see Clark 2011; Clough 2018).

The conception of old media as prosthetic, which is to say as a diverse and super-efficient enhancement of human capacities, has in general been read to be positive and remarkable, both by their creators and by consumers. But this picture has darkened considerably in the past decade with, for example, Google's extraordinary monopoly of searching and extracting capacities; with social media's massive appeal, facilitating a sophisticated capacity to provide potential consumers to marketers, corporations, and governments; and with the expansion of data

mining and passive sensing that target, without human awareness, an ever-expanding array of activities, actions, and conditions of existence. That is, in summary, "big data" (see, e.g., Clough et al. 2015), existing in "the 'operational present' of sensibility" (Hansen 2015a:4); in the moment/s of their very happening/s and primordial to human consciousness and perception. These media, in their predictive analyses, are created to operate with a certain initiative of their own; in a sense, asking and answering their own questions (Hansen 2015b:107; cf. Parisi 2013).

This is mobile, ubiquitous, or planetary computing and the shift from large to small to nano machines. Rather than recording and "memorializing human experience," as in the age of cinema, these new media record "in the service of connection," have temporally-limited utility, and operate, as noted, beyond human perception (Hansen 2015a:39). Hansen argues that whereas media of an earlier time mediated human experience, the digitality of twenty-first century media require a supplement between their operation and human experience such that this mediation composes "relations *between* technical circuits *and* human experience." The imbrication of media and human is then a mediation of the "technical conditions of mediation itself" (Hansen 2015a:43).

In *Feed-Forward*, the title naming just this sort of mediation, Hansen offers a radically dispersed, multi-layered yet thoroughly relational and materialist picture of agency, experience, and subjectivity that these media enable. Rather than the usual focus on human consciousness and bodily awareness; we think experience as "a veritable plurality of multi-scalar" occurrences fed forward to consciousness, in

effect, bringing "news" to our awareness from what already has happened, in a sense, elsewhere. These range from the mundane of our lives to the "most diffuse environmental dimensions of a given sensory situation" made up of "multiple overlapping levels of [semi-autonomous] sensation" (Hansen 2015a:44; and see Bratton 2016; Hayles 2017).

Hansen insists on the importance of the human and human consciousness as central to this operationality, even if profoundly decentered from the preeminent (if occasionally anxious) place they have occupied in prior media theory and philosophy. He argues that global capital and the state—including the "culture industries"—are rather far ahead of critical scholarship, in service of their respective agendas of consumption and profit, which position consumers as ever more known and knowable by both state and nonstate forces (see Bratton 2016; Clough, 2007; Clough et al. 2015; Hayles 2017; Thrift 2008). At the heart of this capital-and-state-centered operation is the collection of massive amounts of data, not only from social media, passive sensors, and environmental microsensors, but from the explosion of data mining on human behavior of all kinds. Acknowledging capital's advance here, Hansen insists nonetheless that by pursuing a more full understanding of our extant imbrication in these processes, we humans can expand our own experience, *in collaboration with* the operation of these media, aiming to resist their deleterious effects.

His reading of Whitehead's environmental or worldly understanding of agency is central even as he expands or "corrects" certain elements of Whitehead's own complex and sometimes contradictory work. Hansen (2015a:18) sees most

contemporary interpreters of Whitehead to be writing a kind of "philosophical anti-humanism" that, he argues, runs athwart Whitehead's philosophy.

He credits philosopher Judith Jones' (1998) study of Whitehead's ontology for helping him see that the key to understanding the relationship between twenty-first century media, human experience, and subjectivity is to focus on the intensity that constitutes dynamic difference or contrasts that are actually operative throughout the cosmos. Any and all material processes, operative at multiple scales, are part of this background. While seeing the human as very much part of this cosmological understanding, Hansen (2015a:18) also aims to put "the very meaning of the human into question." By seeing human presence in the context of an "environmental outside," drawn to our attention by these new media, he imagines "a veritable reinvigoration of the human." "I hope to show," he writes boldly, that "the human [in these processes] can and must be reformed" (Hansen 2015a:19) rather than marginalized. His particular reading of Whitehead is foundational for his argument.

Whitehead as Media Theorist

The focus of Whitehead's philosophy of organism, written in the early decades of the last century, is the natural world, and his concerns are broadly empirical and congenial to the interests and practice of science. Still, his philosophy is speculative and metaphysical in that he posits the cosmos as made up of entities or forces and moved by processes, many of which cannot be experienced or accessed directly by humans. But humans remain very much a part of the story told. His work has been resurrected in the last few decades by science studies scholars,

among others, to give attention to the largely ignored yet important place of non-conscious matter in the study of the socialcultural, themed especially by the argument—at the heart of Whitehead's work—that the separation of these realms, both in scholarship and everyday life, is an artifact of the dominant but misguided philosophical tradition since Descartes.[3] Whitehead insists that what are typically thought as separate are more accurately and productively seen as hopelessly entwined, from the beginning. In his 1920 *The Concept of Nature*, he lamented this conventional philosophical and scientific "bifurcation of nature" that cleaves the world into a physical realm of, as he put it, "molecules and electrons," on one hand, from a realm of human ideas, perception, and experience: "the greenness of the trees, the song of the birds, the warmth of the sun, the hardness of the chairs, the feel of the velvet," on the other (Whitehead 1964: 30-31).

In a mostly lone philosophical view, Whitehead wrote against this division to insist that *experience,* even "feeling," offers all that exists in the world. "The whole universe," he writes in his 1929 magnum opus, *Process and Reality*, "consists of elements disclosed in the analysis of the experiences of subjects" or, his preferred term, "superjects," used to underscore their processual, additive, and future-vectored composition. Sounding quite like what has come more recently to be called affect, Whitehead (1978:166) characterizes this experience as follows: "The way in which one actual entity is qualified by other actual entities is the 'experience' of the actual world enjoyed by that actual entity, as subject." Central to this process are his concepts of *prehension* and *concrescence*, which account for the existence and

dynamism of his "actual entities," what Hansen (2015a:12-13) calls "the truly real [although speculative] things that lie at the basis of all experience."

In concrescence, these actual entities are ongoingly prehended in a process in which "everything that has been created up to that moment in the development of the universe" is involved (Hansen 2015a:13). Hansen calls this "one of … [Whitehead's] most inspiring and beautiful thoughts—[that] every actual occasion implicates *the entirety of the universe"* in relationality (Hansen 2015a:10, emphasis in original). He adds, not surprisingly, that this claim is "complicated" and "contentious" (Hansen 2015a:12). Donna Haraway (1997:147) has referred to Whitehead's concept prehension as a "reaching into each other in the tissues of the world"; Hansen (2015a:209) calls it a "grasping" some part of the "settled world" in service of the becoming superject. Didier Debaise (2017:48-49) sees prehension as at the heart of "a philosophy of possession, capture, taking up." But the term also names the pushing away of other parts of that same world; that is, *not* incorporating but rejecting or avoiding those elements felt inimical to what Whitehead called "subjective aim." He underlines that such pushing away nonetheless is also relational. His term concrescence, which Hansen seeks to demote in his own reading, marks a coming together or collecting, driven by this ongoing prehension and subjective aim, both "positive" and "negative." As Whitehead (1978:35) famously put it, this is "a becoming of continuity," not a "continuity of becoming."

Whitehead's so-called "neutral" ontology of experience and agency is one of the most important relays to Hansen's argument about twenty-first century media. The position is neutral with regard to the seemingly sacred binaries of human and

nonhuman, animate and inanimate, and subject and object. Whitehead (1978:108, 239) transforms these into a continuum, with one end marked for entities high on what he called "the mental pole"—where high-functioning human consciousness is found—and the other end for those high in terms of "the physical pole," which is much more densely populated, less dynamic, and less complex. All entities in the universe are thought simultaneously in terms of both these qualities. Rocks, for instance, are not only physical actualities; nor is, as he describes, Cleopatra's Needle on the bank of the Thames in London (Whitehead 1964:165). Experience and subjectivity range from one to the other end, but all entities are subjects that/who "have" or "feel" experience. Whitehead refers to the culmination of this feeling, or this having it, as the "datum" of experience, linking the past and future in the present, feeding forward.

We humans surely figure here, but we are joined by an inestimable number of other entities and forces, most of whom are distributed toward the more physical end of the continuum. A Whiteheadean subject or superject thus could be, from Steven Shaviro's (2009:xiii; 2014:85) *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics*, "a dog, a tree, a mushroom, or a grain of sand"; or, as noted above, even "a rock." Objects are subjects and subjects are objects or in Whitehead's terms, actual entities or actual events; even "societies,"[4] the latter term used to name aggregates of other processes/entities that/who constitute the more complex entity in terms of which they are thought. You and I are thus "societies," or, riffing on Benjamin Bratton's (2016) idea, "stacks" of a sort. The experience and subjectivity that Hansen imports into his own argument are figured by these concepts. Not only

does Shaviro's rock feel and experience, but our own subjectivity is always dynamic, fragmented, multiple, and dispersed in the very processes of its not quite "coming together" out of its many material and prehending concressive centers of actual intensity. Such understandings provide Hansen congenial resources for his argument that new media and the human are joined in worldly sensibility.

Some have referred to this neutral ontology as "flat" so as to mark what they see as the reductive effect of this continuum on the entities arrayed (Bryant 2011; DeLanda 2006; cf. Harman 2002). Hansen rejects this term and idea as imprecise, an erasure of exactly what the dynamism, difference, and creativity at the center of Whitehead's philosophy aims to foreground. Drawing on his reading of Jones (1998) and her argument that foregrounds Whitehead's ideas of contrast and intensity, Hansen (2015a:131) insists that such a view misses the very source out of and in which this dynamism of difference and contrast emerges and inheres. To think flatness or reduction here is simply not to see or think Whitehead carefully.

Whitehead's ontology is resolutely anti-idealist—or his sense of ideas is resolutely physical—insisting, in what he calls his ontological principle, that "there is nothing which floats into the world from nowhere. Everything in the actual world is referable to some actual entity. It is either transmitted from an actual entity in the past, or belongs to the subjective aim of the actual entity to whose concrescence it belongs" (Whitehead 1978:244). And all such experience is endlessly becoming, where the "molecules," the "song of the birds," the "physical feelings," and the cognitive and semiotic entwine. The image is of an empirical entanglement—or to use a favorite Hansen term, imbrication—that cannot be parsed without limiting our

understanding of what is, has been, and will be; indeed, without missing a substantial part of that reality, even if "the whole" remains ever illusive and "always smaller than the sum of its parts" (Latour et al. 2012:591; Morton 2010). Jones (1998:100) argues that Whitehead might be called anti-individualist if by that we mean critical of the overwhelmingly dominant framing of phenomena by our language and thought as physically bounded forms with more or less stable and impermeable lines of demarcation. On her view, we might better think of centers of intensity or vibration as the things our concepts name.

This becoming—prehending-concrescing—of a superject, the term underscoring the value added quality of such an entity, moves as part of the same actual or objective world of which the concrescence is also a part, culminating in what Whitehead (1978:88) calls the moment of "enjoyment," "satisfaction," and "transition." More than simply the fact of relationship, Whitehead is interested in the *how* of these connections. His concept "subjective form" highlights the responsiveness or receipt of the vectored energies that move between the entities in question (Whitehead 1967:176). That which is affected and the affecting force are inseparable. While such datum input or experience shapes the range of possible responses, it does not determine how that force is finally received and/or what is done to or with it. In this space of indeterminacy or openness, Whitehead (1978:43, 221) inserts his notion of "decision," marking "*how* that subject feels that objective datum." "Decision" here does not require consciousness and is not limited to humans (cf. Hayles 2017). It is not, Shaviro (2009:57) writes, that we "first perceive what is before us, and then respond emotionally to these perceptions," but rather,

from Whitehead's (1967:215) *Adventure of Ideas,* that "the direct information to be derived from sense-perception wholly concerns the functionings of the animal body." "Perception is first of all a matter of being affected bodily"; it is aesthetic (Shaviro 2009:57).[5] The centrality of affect here leads Debaise (2017:58) to claim that for Whitehead, "The aesthetic becomes the site of all ontology" (and see Morton 2013:15-39).

This is a fully local and singular—although not fully located—story, but it is quite momentary. With its actualization or satisfaction via this decision, the subject/superject "perpetually perishes," becoming then a datum in its own right, with the capacity to be taken up or prehended in a new superjective formation, a next and new actualization (Whitehead 1978:156).[6] Neither I nor the cup on the table where I sit nor the green plant across the room, nor the greenness of that plant are precisely the same from one moment to the next. Moreover, no superject or actual entity pre-exists the moment or moments of its/their actualization/s. Each serial "satisfaction" is a kind of "final unity" of an "actual occasion or experience," marking a point of completion of this process, the moment that yields what Whitehead (1978:212) calls a "stubborn fact," feeding forward; now part of the "settled world," having then lost, according to Whitehead, its creative capacity. From this vector, Hansen takes his book's title.

All such aesthetic processes are drawn toward an intensity of feeling that grows not out of a move toward identity closure or certainty, but rather from and to an open-ended engagement with patterned differences and the future (Whitehead 1967:252). Creativity, a term Whitehead (1967:256-57;238) is said to have coined,

thus relies on "the aesthetic experience of emotional destruction"; "How the past perishes is how the future becomes." And, quoted in Shaviro (2009:70) from *Science and the Modern World*, Whitehead holds "'it is the business of the future to be dangerous.'" This insistence that creativity comes only from the satisfaction of a concrescence—in "destruction" and "perishing"—is a Whiteheadean claim that Hansen (2015b:120) aims to revise in order to bring Whitehead into his own argument; to make Whitehead "*the* preeminent philosopher of twenty-first-century media."

Whitehead and Twenty-First Century Media

Perception is central to Whitehead's philosophy, but like his concepts of experience and subjectivity, this is not perception in the conventional sense of it being centered in human experience or consciousness alone. Rather, perception here is disparate and distributed across "the vast range of the universe's multifarious processes" (Hansen 2015a:149-50). In this, Hansen draws new media and Whitehead together, displacing human consciousness toward the end rather than at the beginning and center of the analysis of perception; built out of and inextricable from what has come before it and on/in which it rests. Human experience is understood as a dynamic culmination or, perhaps better, culminating of complex material processes that variously and partially overlap and that happen, as noted, in diverse scales and movements of time.[7] For Hansen (2015a:150), this complexity is key both to keeping and resituating the human in his story of our relationship to this new media, even if Whitehead has little to say about that relationship. He aims to take this "radical" view from Whitehead and radicalize it

further by critiquing perception—as in Whitehead's radical non-sensuous perception or "perception 'in the mode of causal efficacy'"—as still too human-centered; even too individuated (Hansen 2015b:116).

Although Whitehead writes of two "'pure modes" of perception—the mode of presentational immediacy and the mode of causal efficacy—Hansen recommends that we think of these as part of a common process but distinct in terms of function. The first—presentational immediacy—is consistent with the more conventional understanding of human sense perception, operated through the bodily technology of sense organs and consciousness. Citing Whitehead, Hansen writes that the second, perception as causal efficacy, is "vague" and "ill-defined," and is illustrated, at least in terms of human being, by a sense that reflects on *how* sensations happen or, are achieved. The Whiteheadean (1978:170) citations here, well known, are to our sense that we "see *with* our eyes" and "taste *with* our palates" and "touch *with* our hands."

In Whitehead's scheme, Hansen notes, these two modes of perception share a common ground in that they both address the same datum, meaning the same dynamic and emergent material relationships along this continuum. They come together in hybrid form to yield what Whitehead calls "symbolic reference," constituting a third sort of perception typical of "normal everyday lived experience" or, in Whitehead's (1978:173) words, "the interpretive element" in our lives. Hansen focuses attention on the more obscure, causal efficacy as foregrounding material dynamism; its "power or force" existing quite *"independently of any perceptual operation"* (Hansen 2015a:151; emphasis in original). As such, perception as causal

efficacy is present in all of what Whitehead understood as experience, from the most simple to the most complex; "traced to the constitution of the datum by reason of which there is a concrete percipient entity'" (Whitehead, quoted in Hansen 2015a:151).

With this understanding, perception may be thought much more broadly than when confined to the higher order sense perception typical in human being. As such, it occurs whenever there is a sense of or response to any experience at all, for any entity. This is important for Hansen's argument in that it enables him to substitute the word "sensory" for "perceptual" such that he can think of a continuum of sensory experience inclusive of all worldly materiality, going well beyond conventional philosophy for thinking about sensation (Hansen 2015a:151; cf. Hayles 2017). This perhaps anticipates and enables the post-phenomenological direction his argument takes and that has been a topic of growing interest among theorists of technology and media (cf. Bogost 2012; Clough 2018; Ihde 2010). This sensibility, he argues, massively exceeds human sense perception yet also remains "at the heart of human experience" (Hansen 2015a:152). It is through Whitehead's inclusive understanding of experience that Hansen is able to link his own argument about these new media both to, and to exceed, human capacities of perception in what he calls "non-perceptual sensibility" (and see McCormack 2018).

That argument, consistent with Whitehead's environmental understanding of experience, takes us to Hansen's claim that it is through a critical awareness of our entwinement with twenty-first century media that we can expand our experience beyond what comes to us through our unenhanced sense organs. This enables

experience in the Whiteheadean sense, beyond the human, to be accessible in its "sensory disparateness" (Hansen 2015a:152). Clearly, Hansen here and elsewhere aims to establish an understanding of worldly sensibility that shows it as in excess of the capacities not only of human perception, both conscious and nonconscious, but, as he writes, of "any other perceiving entities," while at the same time shared with or congenial to that "perception"; in short, as experienceable or, to use a Whiteheadean term, actual (Hansen 2015a:153).

Hansen uses the excess of sensibility, consistent with Whitehead's own critique of "modern subjectivism," as the terrain on which human experience and subjectivity, on the one hand, and new media and their technologies, on the other, are entwined (Hansen 2015a:152). Drawing on the Derridean figure of the Pharmakon as elaborated by Bernard Stiegler, Hansen (2015a:50-55) offers a kind of cost-benefit analysis of this meeting between the "poison" of technology and the recompense or remedy it brings us. As benefit, human experience and subjectivity or superjectivity are opened to worldly sensibility in ways heretofore not available. Hansen uses the words "expansion" and "reinvigorate" to characterize his sense of this effect. As for the cost or toxicity effect, since human being has no *direct* access to this realm, it must rely on a particularly complex, indirect, "machinic reference"—rather than Whitehead's symbolic reference involving human interpretation—as the source of this expanded experience. This machinic reference "involves the capacity of sensors to register a plethora of data of causal efficacy…and to present such data, after the fact, to [human] perceptual consciousness" (Hansen 2015a:149). Recall Hansen's claim that this media mediate mediation itself. This, again, is the feed-

forward of his argument and a signature quality of these media relative to human consciousness. It is central to his new media pharmacology.

Citing support from Whitehead's text and reiterating Jones' (1998) argument about intensity, Hansen (2015a:255) shifts Whitehead's extensive continuum into "vibratory continuum," which sews the "real potentiality" of the universe together in an inclusive entanglement of dynamic micromatter that differentially constitutes his worldly sensibility. This reading of the extensive continuum proposes vibrations separate from concrescences and actualities—both central to Whitehead's process philosophy—yet still surely actual (Hansen 2015a:225). The settled world to which the endpoint of a concrescence contributes its datum is itself ongoingly creative; creativity does not end in the satisfaction of a concrescence. Rather, it is in the contribution these technologies and their data make to the sensibility of the world where we see the contrasts and intensities of the present, containing the real potential for open futures in which human being and consciousness are neither paramount nor irrelevant but rather potential and expanded.

Imagining Human Being in "A New Sensory Reality"

Thinking the human as one with Hansen's vibratory continuum and Whitehead's rejection of philosophy that takes nature and culture as separate and distinct is, in Michel Foucault's famous phrase, to "think differently." What I particularly recommend is Hansen's insistence that we neither marginalize human presence and consciousness nor settle for the dystopian readings that portray humans as without resources to move away from, if not fully dim the lures of, the "culture industries" and other capitalist/state forces. He calls this latter a "perverted

pharmacology," serving an excess of toxicity with, at best, *faux* recompense (Hansen 2015a:72).

But how to move toward a more balanced give-and-take in our imbrication with these new media is in no sense apparent, given where we are. Hansen himself seems not sure what specifically to recommend. He turns to performance art, popular culture, and a good deal of philosophy to help us think how to harness the fruits of any "surplus" sensibility these media produce. He might say we are ill-prepared to engage productive strategies that serve the expansion of human experience and consciousness he imagines.

A detailed discussion of media artist Jordan Crandall's 2011 performance piece, *Gatherings* shows us how to see human experience within "the vibratory sensibility of an ever-increasingly technified world" (Hansen 2015a:252). Crandall foregrounds tracking technology, opening the piece enacting the figure of the everyday observer in a public place, watching the world pass by. The scene shifts to an "'observational expert sitting at the interface of an intelligence agency, interpreting movements on images, maps, and screens.'" This figure is displaced or "surpassed by 'the vast reservoirs of datasets' that yield their 'patterns' only to a 'calculative seeing.'" Machinic vision thus displaces human seeing or Whitehead's symbolic reference. Throughout, Crandall narrates changes in his own human subjectivity and experience as they are performed and as a multimedia display of images and sounds, translating the agency of the total environment, plays. Subjectivity here is distributed "across a host of circuits," implicating the human

fully as part of the environment (Hansen 2015a:253, 257). In a sense, all becomes environment.

Crandall writes that tracking "'has shaped an urban environment where movement is understood as strategically calculable…a defining organizational horizon for the movements of the world'" (Hansen 2015a:256). Beyond human experience, Crandall argues that environments themselves become sensors that generate experience, complicating "distinctions between body and space, as well as between human, artifact, and computer.'" He describes "'a fluid regulating agency that registers the world, yet remains hidden from it: a mechanism of awareness as vast as the streets themselves, whose flickering presence it both gathers, reflects, and incorporates'" (Hansen 2015a:257). In place of a single subjective or individual presence that simplifies and unifies, this "principle" of gathering offers an alternate way to understand the world as "'a cognitive and ontological supplement to human agency.'" The significance of Crandall's discursive account of his experience in this dynamic and complex total environment can easily be missed because we may be expecting a more inflated human presence. Hansen might suggest that we are expecting too much, given what options are open to the human and human consciousness in such datafied twenty-first century media environments. What we can "do" in such environments is mostly passive, in his view.

Crandall's allusion to "streets" and his focus on tracking might make us think of another datafied environment much in the popular press: the self-driving car. But media studies scholar Shannon Mattern (2017) calls the questions around this technology "boring" in terms of what it offers drivers and where it leads politically.

Mattern, like Hansen, urges us to turn our attention to how machine intelligence—and in particular for her, digital mapping—can sustain and elaborate human experience rather than feed global capital and surveillance (more individual cars, new markets; the same). And these technologies, from omnidirectional cameras, Lidar sensors, radar, ultrasound, and lasers are themselves modeled on doing what human drivers ordinarily do, only better; too much like an old media prosthetic for human-centered projects.

A more interesting case involving cars and traffic described by N. Katherine Hayles (2017:120-123) in her recent discussion of nonconscious and distributed cognition is the Automated Traffic Surveillance and Control (ATSAC) system in Los Angeles. Covering all of the city and developed over twenty-eight years, the system meets Hayles' criteria of a cognitive assemblage: it is flexible, adaptive, and evolutionary. It has an autonomy but requires human participation. Drawing input data from innumerable sensors, cameras, and detectors, processed by diverse algorithms, it is a massive technical system that requires various levels of human oversight and collaboration, from those who attend the complex computer output to individual drivers and pedestrians' daily routines. While not framed in Hansen's terms, conscious and nonconscious human involvement are critical to its operation, most of which is beyond the capacity of human consciousness to register. And as Hayles (2017:123) notes, it serves the city and its residents with "no direct connection to market considerations." What it does not seem quite to do is to offer the kind of "revision" of human consciousness toward which Hansen gestures in that most of the humans are involved instrumentally and prosthetically.

Hansen's other favored illustration is the recent popular television drama, *Person of Interest,* which he calls an "allegory of our contemporary predictive condition" in its focus on data rather than memory to feel the future (Hansen 2015b:114). *Person's* storyline is of a computer expert who has created a supercomputer for the government in aid of stopping would-be terrorists. Known as "the machine," it collects, collates, and processes all available digital data in service of that aim. It also collects such information for conventional crimes and those involved, but this is considered irrelevant to the anti-terrorist agenda and so is routinely discarded. Having thought beyond and skeptical of the government's aims, its now-resistant maker acknowledges that he built a "back door" to the machine through which he can draw small bits of this discarded information bearing on future events—for example, only a social security number of someone who will be either a victim or perpetrator—so as not to raise suspicion. He recruits a partner and their struggles to use this back-door information—the significance of which they do not fully understand—to "do good" by preventing crime and causing perpetrators to be caught or killed—in effect, serving justice—provide the drama. Hansen (2015b:114) refers to what they do as "superhero fantasy-like resolutions of predicaments involving individuals dehumanized by twenty-first century capitalism." These characters, working collaboratively with the machine, aim to turn its excess or surplus output—incomplete, partial, and inscrutable to them—toward justice for everyman and everywoman, which draws Hansen's attention.[8]

Bratton (2016), in *The Stack: On Software and Sovereignty*, offers both a more detailed and circumspect vision of the human as "User" (and/or, perhaps, the used)

the name he gives to the top layer of six that define his vision of planetary computation (and see Clough 2018 on user). His User is a position that diverse, active agents and forces may occupy, including the human, but neither exclusively nor most importantly so. It's less that Bratton is pessimistic about human experience here— he celebrates the demise of "anthropocentric humanism"—but that he has much more to say about how human users in The Stack or by extension in Hansen's worldly sensibility might be challenged in the project of their reform or expansion. From Paul Virillo he reminds us that new technologies are simultaneously the condition for new accidents, often linked precisely to their very promise (Bratton 2016:13). His analysis is also more explicitly political—or less philosophical—than Hansen's, rarely failing to point to likely dominations by capital, governance, and software itself. He also notes that such dominations may well *feel* expansive to human experience, even if arguably not so, as both Mattern and Hansen also note. Bratton's chapter, the "User Layer," should be read with Hansen's argument, for not only is there arguably a Whiteheadean quality to it (Whitehead does not appear to be named in the book), but his descriptions of both speculative and actual human/media entwinements make data and computation central. Echoing poststructualism and Whitehead, Bratton's (2016:287) User "is defined by what it connects to, not by who or what it 'is'" or is thought to be before that connection.

Bratton (2016:261) offers—as does Hayles' (2017, 129-130) reference to the "MeMachine"—an example of how these media can be turned inward to see our bodies/identities as fully plural via datafication (cf. Foucault 1975). He describes the

Quantified Self Movement and the project of his colleague Larry Smarr, at the center of the world of computation and its technology. Smarr amassed endlessly detailed data on his microbial gut biome and even his own feces, arguably seeing himself as an instance of big data, to the point, Bratton (2016:268-269) suggests, that he began to experience the boundaries of body and self fade into background. Although not framed in terms of vibration, per se, this is a case of the human becoming, by choice, what Deleuze (1991) might call "dividual-ized," apparently in a project to think human differently. Or, in Bratton's (2016:271) more dramatic comment, the "somatic" human individual here "burns brightest in the sharp relief of its own extinguishment." Human consciousness, willingly, is here fed information from an already past and prior microtemporal realm on which that consciousness and the "organic" individual, in a strong sense, depend, resonant with Hansen's vision.

While Hansen marks old media to be prosthetic for humans, Bratton suggests that humans themselves here might better be thought and perhaps "felt" as prosthetic to/for diverse other users or forces. Arguably, Hansen's worldly sensibility itself, as Crandall suggests, then becomes a user working through and with all the complexity of plural subjectivities, ongoingly becoming. While Bratton allows that this can be frightening to humans—of this I think we are convinced—I want to stay with Hansen's claim—not refused by Bratton—that this join also holds the potential to enable "human" in new and expansive dimensions.

A Politics of Sensibility and Its Human Potential

In the final chapter of his book, Hansen (2015a:252) returns to a discussion of Crandall's *Gatherings* to underscore how it exemplifies his sense of the "*centrality*

of the operation of [human] consciousness" within his vision of the operation of twenty-first century media (emphasis supplied). He sees in Crandall's performance signature instances of precisely the feed-forward of data to consciousness that are part of his larger argument. This is, he says, about new ways of human "acting" shaped by the propensity or potential of the situation or environment "as a whole." It gestures toward a pharmacology in which Hansen sees the possibility of some "correction" of the gross imbalance between what we humans *give* to the media industries of capital and to state surveillance and control—while often quite unawares of those gifts—and what we *get* or arguably *could get* from their operation in return.

Reiterating his critique of Husserlian phenomenology, Hansen (2015a:254) insists that taking advantage of such propensity toward a richer human experience requires a post-phenomenological phenomenology freed from an exclusive focus on the experience of a transcendental human subject whose consciousness constitutes phenomena. Rather, it is the sensibility of the total environment itself, inextricable from a worldly sensibility, to which such a revised phenomenology would give its attention. Crandall or a human bodymind, writes Hansen (2015a:253, 256), does "enjoy some privilege" in his/its capacity—while inseparable from that environment—to "express" or "witness" this propensity, even if always only partially and from within that humanness, as revised. The importance to us of such expression has everything to do with the humanness of its source and the interests particular to it.

Crandall's piece grounds a "phenomenology of implication" rather than constitution, Hansen argues—or, better, self-implication—in that he "feels" (Whitehead might suggest) and expresses what he can of his experience of and as part of that total multiply-mediated surround. It is feeling rather than the retreat to a limited, individual intentionality that Crandall experiences, along with his report or expression of that worldly touch that is at the heart of Hansen's precognitive, revised phenomenology and that is the space within which his revised human in twenty-first century media may be found. It is a view of the human—Crandall, in this case—as willing "host" to Whitehead's and Hansen's worldly sensibility.

The constitutive consciousness of traditional phenomenology might still be theorized and studied, but it here becomes "derivative" and "de-presenced" by the prior operations of these new media technologies, feeding forward to Crandall's figure of a gathering of multiple agencies or movements toward possible futures. Consciousness as a sole subject's constitutive capacity "has been forced to relinquish any operational role it may have in creating sensible presencing" (Hansen 2015a:254). Still, human presence is implicated in a particular and important way that, as noted, foregrounds both an important contribution and a distinctive capacity: as one who reports what is felt and seen of this dynamic and complex environment. Crandall uses the notion of "attunement" to describe his own and human participation. Hansen (2015a:258) corrects Crandall's use of the pronoun "I," noting how it is a remnant of a subjectivity that, even as observer/reporter, has become "superjectified" in the very process of gathering quite antedating that "I."

It is in this intentional and self-aware engagement with this dynamic process and its potential that Crandall and Hansen see a new and expansive way of thinking human being in twenty-first century media. It is part of Hansen's pharmacology and requires a transformative openness to difference before it is narrowed and simplified by the resources of extant consciousness. Against the synthesis produced by concrescence and the familiar transcendental subject of phenomenology, Hansen (2015a:265) draws on the late Maurice Merleau-Ponty to say that subjectivity here is the capacity or "power" to sense and be sensed (again, as affect has been defined; and recall Jones' view, above) found throughout the world. Indeed, Hansen insists, this is a capacity of the world itself; to sense itself. The gift to human being from twenty-first century media is to rethink itself as fully part of, hopelessly imbricated in, this worldly confound, with these media technologies operating like new external "organs" enabling us to live our lives in new ways (cf. Clark 2011).

While I am drawn to this hopeful vision, it may indeed be a "hard sell" in view of the prevalence and indeed hegemony of the toxic effects of culture industries' overwhelmingly seductive capture and manipulation of what Hansen calls the "sensible present." He gives attention to the exploitative manipulation by capital and governance to control, direct, and narrow human perceptual experience. Against his proposed politics of sensibility, *that* politics is currently hegemonic and everywhere apparent (Hansen 2015a:197). Yet it is the very "artifactuality" (dare I say the *social* constructedness?) of this imbalanced pharmacology that can be the opening for critical and oppositional intervention against this dominance. As he puts it, the "datafication [and quantification] of sensibility" is [are] not inherently in

service *against* this expansion of human experience or *for* its diminution under the control of the culture and other industries critics describe. The potential that is the causal efficacy of the microtemporal present "is both 'neutral' regarding its future and always excessive" relative to any particular instance of it (Hansen 2015b:125). Paradoxically, this neutrality and excess are the conditions that offer the promise of Hansen's (2015a:268-70) pharmacological recompense and his politics of sensibility.

This speculative empiricism itself might be seen as an instance of an expanded human understanding of our shared embodied materiality with other entities and forces in the universe; and of the inextricable join of, as Haraway put it long ago, the material and semiotic and an extension of Whitehead's critique of the philosophical bifurcation of nature. But Hansen's illustration of Crandall's performance, if erudite and provocative, offers only a speculative beginning. Mattern, Bratton, and others also appreciate this potential for human expansion but are more circumspect. The popular press reports both expansive and reductive implications of media and data technology in our lives, often offered simultaneously. A recent piece in *The New York Times* by a technology lawyer inside the industry asks, "Will Tech Protect My Kids?" (Williams 2017). An African American executive in media technology, she knows that algorithms are often built out of official data; and she knows that law enforcement in the United States is a major consumer of "artificial intelligence and machine learning," likely built from current and past data that reflect racism and injustice. She mentions Hunchlab as one such application that is likely to direct intensified policing precisely to the areas where her 7 year-old

son might ordinarily be found. And so on. The mundaneity of this example might cause it to be ignored, but one fears that an understanding of Hansen's hopeful politics and a sophisticated, nuanced, and wittingly non-instrumental use of such technology, as it garners significant profit for corporations, lags far behind any such appreciation, not to mention expanded experience of human flourishing, to borrow a word from Haraway. What would such flourishing linked to twenty-first century media look like here?

A great deal turns on more critical awareness by human users/used of these media and of the machinic translation of information or Hansen's mediation of mediation for the human agent these media perform. Such awareness by users and critics alike and a willingness to open ourselves to the experience of the total environments Hansen and Crandall describe are key. Scholarly critics might lead the way here, with translations into popular media for interested consumers, but we cannot assume that the human users/used of these media will be able to see or agree with Hansen's estimation of the benefits relative to losses of following him. And what are the translations that link new media's processed readings of the world, inaccessible to our senses, and the output we receive? What kind of human affective attunement to the environments of which we are a part might constitute expansion (Hansen 2015a:258-259)?[9] What is the software or code that sets up those readings and on what social and ethical logics does it operate? Indeed, do we, can we, know?

These and other questions appear at the forefront of a not quite neo-Luddite human resistance to the black-box inscrutability of how these media technologies

provide the data output for human consumption or experience. Beyond the expert projects to make artificial intelligence or machine learning "explainable"—to open, even if partially, the black box of its operations and logics—there is the emerging government and popular demand that laws be created allowing humans either to opt out of having their personal information accessible to such processing or, more relevant to Hansen's argument, that those internal algorithmic processes must be accountable by the humans who create and own/operate them (if possible). So-called A.I.X. research or explainable artificial intelligence is aimed to respond precisely to the demand that humans take responsibility, both ethically and epistemologically, for the results that twenty-first century media provide them and that those experts provide or impress on other humans.[10] And as Hansen notes and his affection for the *Person of Interest* illustration makes clear, while the technology may be seen as neutral with regard to how the worldly sensibility it engages and generates is directed (a claim about which autonomous drone weaponry should give us some pause), the moral and ethical or political/ideological preferences and habits of the human agents implicated with it surely are not. *Person's* protagonists are superheros, Hansen says, but they may as well have been villains, which is something much easier to imagine.

Seeing humans as themselves plural entities and part of assemblages—what Latour (1999) calls "societies"—Bratton (2016:273) reminds us that humans as well as machines can be "subjectivized" by forces external (and internal) to them and thus become resources for those processes and forces, wittingly and not. The theme here of course is to look for and encourage the witting collaboration of humans—

using and developing—"upgrading"—whatever "wits" we can muster so as to collaborate in that subjectivization toward Hansen's proposed expansion, even as we do not direct it. In naming a new possible human task, Bratton (2016:274) writes that "We must save the nonhumans from being merely humans, so that they could show us a different way for us to be both human and not."

How we allow ourselves to appreciate our implication in, and to collaborate with, these extraordinary technologies and the environments in which we find ourselves—that we have created but neither fully control nor understand—no doubt will reveal some of the details that we find hard to see as we look toward Hansen's hoped for pharmacology. Hansen's Whiteheadean vision may indeed be the occasion for humans to see their material kinship with the shifting intensities of difference that Jones says define subjectivity. But then the important question would seem to become, can we see more clearly what our own particularity here—the distinctly human contribution to this dynamic assemblage beyond our gifts to it of data—suggested by Hansen could be and toward what? It is in more elaborated and detailed answers to this question—perhaps following on Crandall's performance and analysis and Hansen's phenomenology of implication—that the proposed recompense for this particular "us" will become more clear.

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Endnotes

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[1] See his *New Philosophy for New Media* (2004a), *Bodies in Code: Interfaces with Digital Media* (2006), and an essay on affect and the video art of Bill Viola (Hansen 2004b).

[2] Donna Haraway (1985, 1997, 2008), Bruno Latour (1987, 1999, 2005), and N. Katherine Hayles (1999, 2005) all have written across the material/semiotic divide. Elizabeth Grosz's (1994) and Peng Cheah's (1996) critiques of Judith Butler's (1993) famous argument about the materialization of bodies is a defining moment in this shift towards the material; carried forward by Patricia Clough (2007, 2010a, 2010b, 2018; Clough et al. 2007) on affect. The early work by Eve Sedgwick (1995) and Brian Massumi (1995) is arguably foundational.

[3] Donna Haraway (1997) and Bruno Latour (see Harman 2009) have been writing with Whitehead for some time. More recently, see Steven Shaviro (2009, 2014), Isabelle Stengers (2011), Luciana Parisi (2013), Steve Goodman (2010), Erin Manning (2009), Manning and Massumi (2014), Nicholas Gaskill and A.J. Nocek (2014), and Didier Debaise (2017), among others.

[4] Whitehead is known and sometimes derided for his idiosyncratic use of words to build the concepts of his thought. In such a strategy, he works against readers' assumptions that they know what he is talking about when he uses such terms, and he also avoids or perhaps aims to avoid becoming embroiled in debates that he sees

as fruitless, such as those premised on various dualisms. Both Latour and Haraway, who draw on Whitehead, appear to have adopted similar strategic practices.

[5] Shaviro (2009:58) cites and discusses William James's theory of emotions as a source for Whitehead's thought.

[6] This subjective experience was for Whitehead fleeting and, in Gilbert Simondon's terms, "singular"; perishing almost as soon as it was realized and then becoming the objective "datum" that could become a vector into a new process of actualization (Whitehead 1978:156).

[7] Jones (1998:91) argues that both time and space are produced from the dynamic intensity at the center of Whitehead's philosophy of organism.

[8] Although with less drama and spectacle, this relationship between an algorithmic process and a human recipient of its product is increasingly common in a wide range of settings and tasks. That process or "machine learning" is created to receive big data sets and look for correlations and probabilities not imagined important or relevant by its human collaborator/s, who of course know something about what they are looking for but not quite what. They then have the task of making sense of what the "machine" tells them, which can be something they neither understand nor anticipated, quite like the protagonists in *Person*. See, for example, the story of a former reporter who created an algorithm to help solve and discover unsolved serial murder cases (Wilkinson 2017).

[9] For earlier insights on machine/computer/human join, see Lucy Suchman (2077) and Sherry Turkle (2011).

[10] In May 2018, the European Union put into effect the General Data Production Regulation (GDPR), which contains these mandates for human accountability (Kuang 2017). In New York City, a new law was recently passed that demands similar accountability, even though various stakeholders were able to notably mitigate its initial force. Its city councilman author quipped, as the law moved toward passage, "If we're going to be governed by machines and algorithms and data, well, they better be transparent" (Powles 2017).