Review Essay: The Material Turn:
Making Digital Media Real (Again)

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Toward the end of Don DeLillo’s Cosmopolis, Eric Packer, the novel’s main character, deliberately shoots himself in the hand. This act, as simple as it is extreme, is one of Packer’s last acts and signals his transition from a high-flying denizen of the information age to a human being of flesh, blood, and bone. DeLillo writes:

But his pain interfered with his immortality. It was crucial to his distinctiveness, too vital to be bypassed and not susceptible, he didn’t think, to computer emulation. The things that made him who he was could hardly be identified much less converted to data, the things that lived and milled in his body, everywhere, random, riotous, billions of trillions, in the neurons and peptides, the throbbing temple vein, in the veer of his libidinous intellect. So much come and gone, this is who he was, the lost taste of milk licked from his mother’s breast, the stuff he sneezes when he sneezes, this is him, and how a person becomes the reflection he sees in a dusty window when he walks by. (p. 207)

Eric Packer’s epiphany offers an unlikely yet oddly prescient window into the manner in which technology, especially digital media technology, is being “re-thought” within the context of contemporary critical theory and scholarship. No longer is the “virtual” the primary vehicle for academic flights of fancy. In its stead is a concern for the actual “stuff” of media—the nuts, bolts, and silicon, so to speak. The material, it seems, is suddenly back in vogue.

One could speculate about the reasons for such a “material turn.” No doubt the bursting of the digital bubble in the late 1990s curtailed the enthusiasm for the virtual life. Equally pertinent is the by now common realization that globalization and the information economy are in fact indebted to some very physical realities,
especially those concerned with matters of labour markets and working conditions. And to be overtly cynical, perhaps some of the early boosters of cyberspace and the virtual life are beginning to literally feel their age—the creaking of bones, the sagging of skin, and the waning of once youthful energies. There is nothing more material than our own mortality.

However one wishes to contextualize it, the material turn is once again making its mark within recent works of interest to media and communication scholars. Among these is Katherine Hayles’ *Writing Machines*, a rather slim volume that is part of MIT’s “Media Works” series. At the heart of the book is a rather straightforward question: “Why have we not heard more about materiality?” Hayles poses this question as a means to outline her “media specific analysis” (MSA), which she describes as a “kind of criticism that pays attention to the material apparatus producing the literary work as physical artifact” (p. 29). Hayles’ point might appear rather obvious and redundant, especially since McLuhan’s famous slogan that need not be repeated here. However, one must keep in mind that Hayles is writing from within the context of literary studies and also partially in response to the community of scholars employing literary methods (broadly speaking) to theorize and understand specific phenomena, notably hypertext. In both cases (although less so in the case of hypertext), the emphasis is on content (that is, the text) or the fate of that content within the apparatus of a particular media technology. Literary studies, at least according to Hayles, has failed to recognize that the actual stuff of the book matters in ways that are actually quite profound. “Lulled into somnolence by five hundred years of print, literary studies have been slow to wake up to the importance of MSA. Literary criticism and theory are shot through with unrecognized assumptions specific to print” (p. 30). These assumptions, as Hayles demonstrates throughout her book, are grounded in the materiality of print itself, which paradoxically have been ignored throughout the long history of literary analysis and criticism. “With significant exceptions, print literature was widely regarded as not having a body, only a speaking mind” (p. 32).

Hayles’ media specific analysis involves paying attention to the “interactions between physical properties and a work’s artistic strategies.” Materiality for Hayles is thus an “emergent property” that “depends on how the work mobilizes its resources as a physical artifact as well as on the user’s interactions with the work and the interpretive strategies she develops—strategies that include physical manipulation as well as conceptual frameworks” (p. 33). To underscore the importance of materiality, Hayles worked with graphic designer Anne Burdick to create a book that can be appreciated as both a physical object and a container for ideas. The book’s cover is lightly corrugated, giving it a certain tactile quality that a smooth cover would lack. The edges of the book employ a simple trick. Bend the book one way and the word “writing” becomes visible. Bend it the other way and “machines” becomes clearly visible. Within the book, Burdick employs a variety of fonts and effects to emphasize (and sometimes obscure) certain points and ideas. To distinguish between the fictionalized and theoretical sections, the former uses the typeface “Cree” whereas the latter employs “Egyptienne.” In instances
where the fictional merges into the theoretical, the typeface also mutates into something that Burdick calls “Creegyptienne.” Admittedly, only after I read the “designer’s notes” at the end of *Writing Machines* did the use of the different typefaces come to my attention. Much more obvious were the other effects, which ranged from underlining words to distorting the text with an effect akin to looking through a peephole. The effects are not entirely successful, due perhaps to the size of the book itself, which makes some of Burdick’s efforts illegible. This is especially the case with the reprints of the various texts that Hayles carefully analyzes. Mind you, this may be exactly the point. The materiality of a medium is never so clear as when it breaks down or fails to communicate.

Once again, some readers may object that such efforts to emphasize materiality are nothing new in the world of communications studies or literary studies, for that matter, and that Hayles’ representation of herself as a type of intellectual explorer of uncharted territory may appear a bit overdramatized, to say the least. Indeed, I should mention at this point that *Writing Machines* is written as a kind of academic *Bildungsroman* in which Hayles employs the artifice of a fictionalized version of herself (“Kaye”) to take the reader through the major stages of her academic development in an effort to better ground her obvious enthusiasm and passion for media specific analysis. Accordingly, the chapters of the book alternate between critical essays or analyses and quasi-fictionalized accounts of Kaye’s journey through the world as a professional academic. The majority of theoretical material is structured around careful readings of several literary or artistic works that have been instrumental in Hayles’ (or Kaye’s) formation of MSA. These include M. D. Coverley’s hypermedia *Califia*, which Hayles credits as being one of the first works that solidified her contention that literary works needed to be evaluated “from an integrated perspective in which all components became signifying practices” (p. 41). Equally transformative is Hayles’ experience with two print works, the first of which is Tom Phillip’s *The Humument*, an artist’s book that involved physically manipulating a Victorian novel, and the second is Mark Danielewski’s *House of Leaves*, a more accessible work that combined multiple narratives with contemporary techniques in layout and design. The other two works are electronic, one being Talan Memmott’s landmark *Lexia to Perplexia* and the other an installation created by two of Hayles’ graduate students at UCLA, Adriana de Souza e Silva and Fabian Winkler.

*Writing Machines*’ oscillation between the critical and fictional mode does not always work, and although I have been a long-time admirer of Hayles’ intellectual acuity, some of the passages within *Writing Machines* were less than convincing. She is clearly not a writer of fiction, and the overreliance on clichés and pat phrases (“the speculation sent chills down Kaye’s spine”) remind me of my undergraduate days as a student of creative writing, when enthusiasm took precedence over craft.

That said, the decision to alternate between semi-autobiographical reflections and critical analysis is not entirely without merit or success. For one, it has the effect of rendering complex ideas into an approachable and enjoyable package—
producing in effect a type of academic “potboiler” in which ideas, theories, case studies, and opinions are woven into a dramatized representation of an intellectual journey. Whether intentional or not, the autobiographical pretence also underscores the theme of materiality by situating the theoretical discussions within the context of lived reality.

Alex Galloway’s *Protocol: How Control Exists After Decentralization* also embarks on what could be called a material turn and offers an intriguing parallel to Hayles’ media specific analysis. What is particularly welcome about Galloway’s approach is the fact that “the network” is not being understood as a metaphorical construct, but rather, as Eugene Thacker emphasizes in the introduction, as a set of “material technologies, sites of variable practices, actions and movements” (p. xiii). In this respect, Galloway situates his discussion of the Internet and the World Wide Web within the context of material history and ideology and as something grounded within the ebbs and flows of human life and activity. Equally welcome is Galloway’s insistence about and careful elucidation of how the Internet’s apparently non-hierarchical structure cannot and should not be equated with uninhibited freedom or a counterforce to control and regulation. “I argue that the Internet is distributed not decentralized and that it is in fact highly controlled despite having few if any central points of control” (p. 25). The key ingredients to such overarching and stable control are the universally recognized technical standards and programming languages that constitute the heart of the Internet and the Web, namely HTTP, TCP/IP, and HTML. These computer protocols constitute a “formal apparatus,” or a “totality of techniques and conventions that affect protocol at a social level, not simply a technical one” (p. 55). Furthermore, protocol functions as “a language that regulates flow, directs netspace, codes relationship, and connects life forms. It is etiquette for autonomous agents” (p. 75).

It is around this recognition of control that an interesting and perplexing dilemma arises, one that Galloway goes to considerable lengths to examine and unpack.

The story goes that the Internet is rhizomatic. On the one hand, the Web is structured around rigid protocols that govern the transfer and representation of texts and images—so the Web isn’t “an acentered, nonhierarchical, nonsignifying system” as is Deleuze and Guattari’s rhizome. But on the other hand, the Web seems to mirror several of the key characteristics of the rhizome: the ability of any node to be connected to any other node, the rule of multiplicity, the ability to splinter off or graft on at any point, the rejection of a “deep structure,” and so forth. (p. 61)

Part of Galloway’s response is to “consider protocol in its political sense, as a pseudo-ideological force that has influence over real human lives” (p. 81). Here Galloway enlists the ideas of both Foucault and Deleuze, particularly the former’s concept of bio-politics and the latter’s arguments regarding control. By combining the two, Galloway argues that “protocol is an affective, aesthetic force that has control over life itself” (p. 81). Furthermore, “life, hitherto considered an effuse, immaterial essence, has become matter; due to its increased imbrication with protocol forces (via DNA, biopower, and so on . . .)” (p. 82). Galloway grounds this
idea by engaging with Marx’s *Capital*, focusing in particular on what he terms “aesthetic materialism” (p. 89). Galloway writes: “*Capital* is an aesthetic object. The confluence of different discourses in *Capital*, both vitalistic and economic, prove this. The use of vitalistic imagery, no matter how marginalized within the text, quite literally *aestheticizes* capitalism. It turns capitalism into media” (p. 102). The natural evolution of so-called aestheticized capitalism is an environment in which “life itself has become a medium” (p. 112) and where human life is considered and acted upon in terms of “quantifiable, recordable, enumerable, and encodable characteristics” (p. 113). Among the results is a natural “home” for protocol as the primary means by which life and matter are controlled, regulated, and structured.

It should be made clear that Galloway does not equate protocol with institutional, governmental, and corporate power but rather as a force that “gains its authority from another place, from technology itself and how people use it” (p. 122). This is an important observation because it draws further attention to technology’s co-determinate role in the continued evolution of our life world—a world that includes not only the biological and social strata of human beings but also the much larger (i.e., infinite) structures of the world and the universe itself. Such an observation resonates with Mark Hansen’s evocative book *Embodying Technesis*, which similarly argues that technology can be understood as an active and tangible agent in the shaping of experiential reality itself (that is, all reality and not just human reality).

Drawing from the critic Walter Benjamin, Hansen argues that technology functions as a “material force of natural history” through its role as an “agent of material complexification” that necessitates a “corporeal and physiological adaptation” on the part of human beings (p. 234). Thus, according to Hansen, theorists must also consider the way in which specific media technologies “complexify” both human life and the world in which we live. It is for this reason that Hansen advocates an approach that emphasizes physiology as opposed to linguistic constructions, thereby redirecting the “linguistic turn” to the aforementioned “material turn.” There is more to media than discursive constructions, and technology does more than just influence modes of representation and communication. Rather, as Hansen asserts, “technology impacts our experience first and foremost through its infrastructural role” and thus “informs our basic ways of seeing the world” (p. 147). Technology, then, is an interwoven part of human culture itself, a dynamic part of the whole experiential realm of the human condition and thus more akin to a law of nature rather than a law of society.

Such conclusions yield an inevitable question: what of resistance? If protocol, as Galloway has defined and positioned it, is indeed such a “natural” force that impacts and structures much of our contemporary life world, then is there any way in which to envision and enact political acts? Or is resistance simply futile, to echo the “Borg” of the *Star Trek* franchise? Galloway’s response inspires hope—resistance is not futile. It is, however, in need of a major rethink. Drawing from the work of the Critical Art Ensemble (CAE), Hakim Bey, and the recent writings of Antonio Negri and Michael Hardt, Galloway advocates a form of resistance that
actively employs the strategic opportunities of protocol as exemplified in particular by the hacking community.

As Hardt and Negri write about the protocological system of control they call Empire: Empire cannot be resisted by a project aimed at a limited, local autonomy. We cannot move back to any previous social form, nor move forward in isolation. Rather, we must push through Empire to come out the other side. By knowing protocol better than anyone else, hackers push protocol into a state of hypertrophy, hoping to come out the other side. So in a sense, hackers are created by protocol, but in another, hackers are protocological actors par excellence. (p. 158)

Hackers embody the essence of “tactical media” that is the major topic of the book’s sixth chapter. Again drawing from the work of the CAE and others, Galloway examines “tactical media as those phenomena that are able to exploit flaws in protocological and proprietary command and control, not to destroy technology, but to sculpt protocol and make it better suited to people’s real desires” (p. 176). In this respect, the combat zone, so to speak, is one that positions centralized hierarchical powers on one side and distributed, horizontal networks on the other. As Galloway is careful to point out, the network side is not uniformly populated by well-meaning heroes. “Drug cartels, terror groups, black hat hacker crews, and other denizens of the underworld all take advantage of networked organizational designs because they offer effective mobility and design” (p. 206). It is this dark side of protocol that often garners the most attention, especially in the media, with computer viruses, hacking, and terrorism taking centre stage. However, as the book’s final chapter on Internet Art makes clear, protocol can also be a genuine creative force that has the very real potential to direct technology into a “closer agreement with the real wants and desires of its users” (p. 206). Indeed, as the book moves toward its conclusion, Galloway’s rhetoric becomes almost utopian. “Protocol then becomes more and more coextensive with humanity’s productive forces, and ultimately becomes the blueprint for humanity’s innermost desires about the world and how it ought to be lived” (p. 245). Such lofty thoughts are quickly dampened by the book’s final caveat: “My goal here in this book has been not to come down cleanly and say that protocol is either good or bad . . . but rather to chart some of protocol’s distinctive characteristics so that any concerned person can better decide how to evaluate and critique a given protocological technology in a specific historical context” (p. 246).

Taken together, Galloway, Hayles, and Hansen speak to the need to address technology in terms that consider its role in the ongoing material complexification of our lives. Such a move, at least in the mind of this reviewer, is welcome because it further usurps the drive to privilege discursive constructions and the positioning of media as primarily vehicles for content and ideology. We coincide with our machines in a manner that is fleshy, messy, and unruly. That we can come to this realization by reading books as opposed to shooting ourselves is an option certainly worth pursuing.

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