CHAPTER THREE:
EMBODIED DIGITAL AESTHETICS

I. Overview

Throughout this dissertation I lodged a methodological critique of art history's general resistance to art and technology, but more specifically to new media forms. This appraisal was made on the basis that many underlying ideological formations of art historical discourse, especially since the 1960s, were incompatible with the confluence of the arts, mass media, and the expanded social reality of the global, configuring such works as 'political' (or activist) rather than aesthetic.[1] The ideological opposition formulated between the 'aesthetic' and the 'political,' runs the risk of theorizing out the possibility that the production of a raced, sexed, or otherwise identity-based cultural expression can be considered 'high art.' Further, the appropriation of the tools of late capitalism by those same subaltern constituencies has challenged the art world to rethink its historical, avant-garde rejection of technology and mass culture.

In this chapter, I investigate a 'materiality' of electronics and the digital, highlighting the ways in which an embodied experience of data culture begins to manifest itself within the social reality of global interpenetrations. The ramifications

[1] Several contemporary scholars have attempted to pinpoint the reason for this reticence. Two compelling perspectives relate the rejection of art and technology to anti-military and anti-industrial sentiments swirling around the Vietnam War. See Silvie Lacerte, "Experiments in Art and Technology: A Gap to Fill in Art History's Recent Chronicles," and Anne Collins Goodyear, "Technophobia, Vietnam, and the rise and Fall of 'Art and Technology' in the United States, 1965-1971" both presentations at REFRESH! Conference, Thursday, September 29, 2005, Banff New Media Institute, Banff, Canada. Archived at www.banffcentre.ca/bnmi/programs/archives/2005/refresh/lisiten.asp. Accessed May 28, 2006.

of this discussion affect not only the art historical worthiness of particular areas of study, but also the way that art historians come to view, interact with, and understand contemporary works of art as conversant with the avant-garde's legacy. A key component of this discussion is the link between electronic media and the destabilization of fixed identity. As a part of the foregoing critique, I have suggested that canonical resistance to electronic and digital art is connected to the use of such technologies by 'peripheral' entities, in a socially engaged or even activist form of artistic participation.[2] Further, I have asserted that this participation in cultural production has been coded by influential scholars as undeserving of aesthetic consideration and scholarly attention, through a theoretical collapse of alterity with victimhood under capitalism and politics.[3] This is a result of the re-inscribing of such artists' identities as constitutive of their artistic contributions.

While I certainly do not suggest that disenfranchisement is an objective of such theorizations, it is an unfortunate byproduct that has consequences for subaltern artists who participate in theoretical and artistic discourse. Owing to this constructed lack of authorial agency, such artists are validated as social activists at best, but are not endowed with the ability to wield aura—an authorial entitlement that would allow their work to transcend culturally specific expressions of trauma.[4] This stance

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[2] British art historian Jonathan Harris has suggested the added challenges that socially-defined minorities face in fine art education, especially when choosing to adopt media forms that are ideologically configured as relating to the masses rather than 'high' art. See his discussion in Jonathan Harris, "Art Education and Cyber-Ideology: Beyond Individualism and Technological Determinism" in *Art Journal*, Special Issue: *Digital Reflections: The Dialogue of Art and Technology*, Volume 56, Number 3 (Fall 1997): 39-45.

[3] See Chapter Two.

[4] See my extended theoretical unpacking of this stance in Derek Conrad Murray and Soraya Murray, "Uneasy Bedfellows: Canonical Art Theory and the Politics of Identity," *Art Journal,* Volume 65, Number 1 (Spring 2006): 22-39.

is ironic given the rich historical avant-garde legacy of social engagement and iconoclasm to which much contemporary media work bears affinity.

Art historians such as Johanna Drucker and curator-theorists such as Okwui Enwezor downplay the art-historical construct of the artistic avant-garde, perhaps as a strategy for encouraging greater inclusiveness. Drucker is correct in stating that the avant-garde is exhausted. Enwezor is also accurate in suggesting that the avant-garde elevated one group, but at great cost to another. Indeed, the avant-garde remains in many ways a mischaracterization of a small contingent of artist-geniuses as capable of wielding aura (originality) through their expression, ideologically constructed in opposition to the masses, to technological forms, and to underrepresented artists who could not affect the same authorizing agency. Hence, the historically and temporally delimited understanding of the avant-garde constructs a genealogy that is stringently rooted in a nineteenth- and early twentieth-century European tradition of aesthetic production. However, I recognize the contributions of contemporary artists who incorporate media forms into their expression as engaged with that avant-garde tradition, despite the military and commercial origins of their chosen tools, and the diverse cultural specificities brought to their creativity.

The postmodern collapse of form and content since the 1970s, however, affected the role of identity in artistic production. Under the rubric of the neo-avant-garde, the form/content binary becomes a way of aesthetically referencing a specific art historical narrative. Although Walter Benjamin may not originally have delineated it as such, aura has become identified with a Eurocentric art history to which only limited contemporary successors of that legacy may have access. Modernist form and content debates kept that binary separation alive. With the contemporary boundary erosion occurring between them, these concepts of artistic valuation demand renegotiation. For the sake of this discussion, I propose the term

"affect" to replace the culturally specific term "aura," as a means of expanding the authorizing agency of the artist to include the subaltern, and those technological forms that were formerly thought to erode the potency of the original work of art. This designation is intended to create a conceptual possibility, but not one of a contemporary avant-garde. Rather, this conceptualization creates the prospects of so-called 'political' trauma narrators and artist-ethnographers to occupy positions as artist-agents and wielders of affect within canonical art historical narratives.

Artist and theorist Simon Penny speaks openly of the lack of art historical support for mechanical and electronic technologies, and asserts that the cultural use of such technologies "demands a rigorous, *transdisciplinary* approach to this history."[5] Given the limited discussion of art and technology within the art historical canon, this chapter will look beyond the borders of this discipline to writings in outlying scholarly arenas, including hybrid approaches. Invoking forms of scholarship like new media theory, philosophy, and cultural criticism, Chapter Three integrates those conceptualizations that take into account the material, *embodied* experience of what it means to engage aesthetically with data.

The objective of this chapter, therefore, is to take the relationship that has been established between alterity and electronic mass media in contemporary art, and consider its valence to discussions of digital aesthetics. By considering a digital aesthetics that takes into account embodiment, Chapter Three shapes a mode of engagement with art and technology that combines the resources of art historical scholarship with the criticality of new media and technology studies. And by forging

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[5] Simon Penny, "Bridging Two Cultures: Towards and Interdisciplinary History of the Artist-Inventor and the Machine Artwork" presentation at REFRESH! Conference, Thursday, September 29, 2005, Banff New Media Institute, Banff, Canada. Archived at www.banffcentre.ca/bnmi/programs/archives/2005/refresh/lisiten.asp. Accessed April 8, 2006. Emphasis added.

a collaborative model of engagement between art and technology, this chapter is designed to demonstrate how art-historical analysis is enriched by the integration of an embodied understanding of technology. Most importantly, this chapter conceptualizes a mode of analysis that ties the study of art and technology back to the body.

Through analysis of information culture, as well as theoretical observations on network culture and globalization, this chapter weaves together the writings of Manuel Castells, Steven Shaviro, Armand Mattelart, Edward Shanken, Paul D. Miller and Roy Ascott. My investigation considers various compelling theorizations of digital aesthetics, with special concentration on those theories that re-instantiate embodied (rather than dematerialized) theories of technology, and thinkers who understand that an experience of electronic media is always mitigated by the body. I will especially look to arenas that have made significant intellectual strides toward understanding the impact of technology on differentiated bodies: bodies of varying race, sexuality, class, and gender.

Bringing together the electronic with forms of alterity, I reassert the body, and by extension subjectivity. In gathering ideas on the importance of technology, the contributions of those arguing for an embodied conceptualization of technology become extremely valuable. From important thinkers such as Donna Haraway and Sherry Turkle, to artists such as Lee Bul, Paul Pfeiffer, Robert Lazzarini and many others, a seminal intersection of interests in technology and the perceiving body can be observed. These exist in stark contract to artists like Stelarc and thinkers like Marvin Minsky, Alan Turing, and Hans Moravec, all of whom seek to transcend the limitations of fragile human corporeity.

II. Informational Culture[6]

A major refrain within this query into new media art is the social reality of globalization as a decisive factor in shaping aesthetic experiences of the digital. The social changes that accompany computer and telecommunications-based networks, with their "real-time" possibilities, reconfigure one's relationship to technology to be sure. However, the elusive materiality of the digital also constantly reshapes how we interface with the aesthetic. In short, it affects the entire topography of relations between that which is sensible (i.e. able to be sensed), and the framework through which it is perceived.

Sociologist Manuel Castells argues that in the course of networking the globe, an epistemological shift from the industrial to the "informational" has occurred. According to the Belgian scholar, "informational" refers to "a specific form of social organization in which information generation, processing, and transmission become the fundamental sources of productivity and power," a paradigm contingent upon the technological developments in global telecommunications and rapid international transit.[7] In an increasingly tele-connected world, electronically-mediated exchanges, the presence of mega-cities as nodes of exchange, and a solid network of what he has termed the "managerial elite," contribute to the delineation of a fluid space of capital. In this "space of flows," one

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[6] I use the terms "informational culture" and "data culture" interchangeably, and by these terms refer to Manuel Castells's definition of "informational." He refers to a culture that has moved from an information society to an informational one; meaning: a shift from a culture that produces information, to one in which information itself is made into a kind of product (i.e. where information commerce becomes dominant.) See Manuel Castells, *The Rise of the Network Society* (Malden, Mass: Blackwell Publishers, 2000), 17-21.

[7] Manuel Castells, *The Rise of the Network* Society (Malden, Mass.: Blackwell Publishers, 2000), 21.

holds relevance and centrality in terms of one's connectedness to the network society, as opposed to geographical location.[8]

Informational capitalism gives rise to a globally networked society; consequentially, traditional borders of the nation-state erode. Hence, markers of identity such as nation, racial division, and class stratification totter under the duress of this massive shift. In Castells' view, one's identity and social value revolve around an established set of particularities, while the current historical moment is marked by the fragmentation of those very same institutions. The resulting dispersion of conventional anchors of self-definition elicits an anxious, destabilized sense of the self; in short, it engenders a profound identity crisis. He writes:

> global networks of instrumental exchanges selectively switch on and off individuals, groups, regions, and even countries, according to their relevance in fulfilling the goals processed in the network, in a relentless flow of strategic decisions. There follows a fundamental split between abstract, universal instrumentalism, and historically rooted, particularistic identities. *Our societies are increasingly structured around a bipolar opposition between the Net and the self*.[9]

As an extension of his discussion of the network and the self he underscores tectonic shifts in identity once fixed by race, gender, and nation, as now decisively reshaped by technology:

> we must treat technology seriously…we need to locate the process of revolutionary technological change in the social context in which it takes place and by which it is being shaped; and we should keep in mind that the search for identity is as powerful as techno-economic change in charting the new history.[10]

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[8] Castells, *Rise*, 442-445.
[9] Castells, *Rise*, 2. Author's emphasis.
[10] Castells, *Rise*, 4.

Manuel Castells' scholarship illuminates what he identifies as a transition to an informational society. This new society's characteristics demand a radical reconfiguration of formerly stable notions of self. Globalization's strain on unitary identity results from the spatial displacement of bodies (through Diaspora, migration, exile, nomadism, hybridity) and a real-time connectivity that radically influences subjectivity, in terms of one's location in the data network. Though he does not directly engage artistic production, his lucid insights regarding the media in question—as well as their socio-economic impacts—make his theorizations germane. There is a link between globality, network systems as a postmodern critical framework, and electronic media. But this linkage is somewhat unexpected—namely, the radical reconfiguration of conventional notions of identity. And this means all identities, not just those typically associated with alterity.

The global flux that is occurring has resonance in cultural production. Steven Shaviro has further explored the impact of data culture, considering a broad array of concerns that issue from the emergent network society. Copyright protection in the era of the digital is one such theme that unexpectedly intersects with the impact of electronic media and telecommunication systems on creative production. It is particularly during his discussion of copyrights that Shaviro unearths a working explanation of how—in the network society—everything is commodified through the universalizing filtration of digital code:

> Digital code is a universal medium of exchange, like money: it makes any given object commensurate with any other. The ideal of modernist aesthetics is thus ironically realized: in the digital realm, form and content are one. It is no longer possible to make the old distinction between ideas (which cannot be copyrighted) and specific

> expressions of those ideas (which can). Everything is code, or specific expression.[11]

According to his model, code as a medium collapses the modernist form/content binary opposition that, in the context of our larger discussion, interrupts art historical discourses. What results is something new; that emergent expression requires new copyright laws, to be sure. But this is only the beginning: there are new aesthetics to consider, and new philosophies of the digital that take into account a new object of study that seems to have exceptionally minimal physicality. Art making in the highly reproducible form of digitality interrupts entrenched notions of originality, since an electronic copy of a file potentially contains precisely the same data as its parent. Since the copy and the original bear no real distinction from each other, the copy retains as much (or as little) value as the original. This lack of distinction grates against modernist constructions of authorship, authenticity, and aura that assign value to the original work of art. Benjamin's theorization around the authoritative essence that the original is believed to contain, suggested that this element is lost in the process of technological reproducibility.[12] With digitality, the aura becomes transmissible, through the duplication of code.

Shaviro discusses the privatization of information, using examples such as the online music download site Napster, the Digital Millennium Copyright Act of 1998, and the broad use of sampling by the music industry. His pinpointing of post-digital copyright issues is a key node within a larger constellation that describes the "meaning" of electronic media to artistic production:

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[11] Steven Shaviro, *Connected, or What It Means to Live in the Network Society* (Minneapolis and London: University of Minnesota Press, 2003), 47.
[12] Benjamin, "Work of Art".

> The electronic media are to us what "nature" was to earlier times. That is to say, the electronic media are the inescapable background against which we live our lives and from which we derive our references and meanings…That is why appropriation, or sampling, is everywhere today: from rap songs, to films and videos, to prose fiction and installation art. Sampling is the best way, and perhaps the *only* way, for art to come to terms with a world of brand names, corporate logos, and simulacra.[13]

The suggestion is that the dematerialization of aesthetic references leads creative producers to grasp at its detritus, as a means of leaving material evidence in the face of heretofore unimagined simulation. Sampling—the appropriation of forms, sounds and ideas—has distinctively marked the creative production of the postmodern period. Tangentially, this also points to a parallel, and perhaps more fundamental debate around the 'nature' of the computer. The multiple identifications of the computer as both a form of capital (one may use it as a technician to produce services) and its instrument value (one may operate it as a producer of culture) evoke its ubiquitous function in contemporary society. By extension, Fredric Jameson's collapse of the aesthetic and commodity, which results in what he calls the "waning of affect"[14] echoes Walter Benjamin's ruminations on the fading aura of the art object in the age of mechanical reproduction. Jameson locates this shift not in originality/authorship, but rather in a waning of the primacy of temporality and intensities of feeling that denote the high modernist style, and a move toward pure surface.

One should consider the varied implications of "surface": the flattening of multiple levels onto an infinitely thin single plane of light, the quality of superficiality, etc. Shattering historical meta-narratives, the

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[13] Shaviro, *Connected*, 64.
[14] Fredric Jameson, *Postmodernism, or The Cultural Logic of Late-Capitalism* (Durham: Duke University Press, 1991), 10.

postmodernist/poststructural philosophical approach creates a "crisis in historicity" in which, for lack of a sense of clear historical and temporal grounding, one can no longer organize experience into a kind of narrative.[15] Experience is no longer assimilable into a coherent history. Hence the obsessive empiricist collection of the modernist era leaves behind a-temporal fragments—the remnants with which we continually sample, mix and reinvent meaning.

A prominent cultural form that has swallowed the aesthetics/commodity binary whole is the driving force of hip-hop, which has engendered an array of creative innovations in fashion, music, video, advertising, electronic games, film, etc. Its wholehearted embrace of capitalism has come under fire; nevertheless, it thrives and grows. In fact, it is so successful that attempts have been made to appropriate it into the sterile habitat of the traditional museum context, to mixed result.[16] According to Steven Shaviro, whose aforementioned discussion of sampling bears relevance enough to weave into this discussion once more, "[a]ppropriation in hip-hop is neither subversive nor conformist; it neither challenges the commodity form nor complacently celebrates it. Rather, hip-hop sampling is an affirmative practice, an exuberant act of reclamation and reconstruction."[17]

This comment describes a force of global culture as centered around uplift, whereas I would characterize its revolutionary nature as residing not in a traditional grassroots approach, but in its brash embrace of capitalism. However, Shaviro's point is well taken in terms of the significance of sampling for its symbolic as well as its literal function. Sampling—for many rooted in collage, its pictorial

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[15] Jameson, *Postmodernism*, 25.
[16] For an extended discussion of the relationship between hip-hop and the art world, please see Derek Conrad Murray, "Hip-Hop vs. High Art: Notes on Race as Spectacle" in *Art Journal*, Volume 63 Number 2 (Summer 2004): 4-19.
[17] Shaviro, *Connected*, 69.

counterpart—is a significant form consonant with the new aesthetic logic of network thinking. Sampling in hip-hop does, as Shaviro argues, connect the past with the present and future through rupture, repetition and re-appropriation. It therefore constitutes a postmodern form that is in step with the fluid, ever-evolving and global milieu from which it springs.

III. Emerging Transculturalism

The surfacing of new identities from diasporic public spheres has moved into an array of terminologies that have come to describe these new subjectivities. These are far too many to enumerate, and vary from sphere to sphere. But the emergent transculturalism springs from attempts to negotiate identity from *inside* the transition from an industrial society to an informational one. Some have responded to the "becoming" of identity under the duress of the new network complexity by embracing particularized commonalities such as race, ethnicity, religion or politics. Others have moved away from such traditional marks of identity, instead adopting a mode in which the hybridization of genres and peoples is encouraged for the vitality of emergent cultural forms. This quality of necessary and constant innovation (whose underside is planned obsolescence) melds, as Jameson suggested, aesthetic production with commodity production—until they are indistinguishable from one other.

However, this transnational data culture of flow as a defining characteristic of the information age, and the concept of global networks as uniquely contemporary has been disputed. In particular**,** Armand Mattelart addresses the "fluidity of immaterial exchanges and immaterial flows across borders," describing a history from as early as 1794 that incorporates the concept of universal systems of

communication, standardization, and exchange.[18] Mattelart suggests that the universalist ideals of Liberalism and the Enlightenment engendered the need for global communication. This process—which included standardizing language, measurement, weight, transportation systems, etc.—was touted as the means to achieve global fraternity, democracy and equality. According to the Belgian communications theorist, rather than the spread of a utopian vision of a democratic republic, what in fact occurred was the extension of a particularly rapacious form of economics. This accounts for the primary understanding of globalization as rooted in trade and industry, as opposed to the cultural.

Beginning with the invention of the telegraph in 1837, and moving through the development of the railways, the global synchronization of time, and transatlantic communication, the text describes how each of these systems was touted as utopian, but were in fact instituted as a means of serving the interests of military, mercantile, governmental, and nationalistic power. Included in the discussions are the universal expositions, cinema, the Internet, and mass culture at large. Under the banner of democracy and the "global village," Mattelart asserts that there exists no less than a tradition of broken promises around global utopianism, a tradition linked to unwavering faith in technological progress and that stretches back to the late eighteenth century. Hence, given historical hindsight, it is unwise to place trust in ideologies of technological progress as the means to global unification, since such networks have heretofore served political and economic interests.

Toward the end of his contemplation, Mattelart identifies a tension between the concept of a global monoculture (or, what I have earlier described as global Westernization) and global fragmentation (the engendering of multiple

[18] Armand Mattelart, *Networking the World, 1794-2000*, trans. Liz Carey-Librecht and James A. Cohen (Minneapolis and London: University of Minnesota Press, 2000), vii. Originally published in French in 1996.

cosmopolitanisms). Calling specifically upon Arjun Appadurai, he introduces the dimension of subaltern agency to the question of globalization. Following Appadurai's argument, Mattelart recapitulates the notion of cultural flow as a matter of emergent modernities and flowering, multiple cosmopolitanisms.[19] While the dominating western stereotype of the Third World under globalization is one of poverty and victimhood in the world economy, ideas such as Appadurai's suggest that many of these cultures are developing their own cosmopolitan centers:

> The new hypotheses on intercultural relations indicate that, throughout most of the world, a process of reviving and celebrating particular cultures has begun and that it is a precondition for the invention of an economic and social model no longer totally subjected to the demands of foreign markets.[20]

That this is identified as a site of optimism comes unexpectedly, given the cynical tenor of Mattelart's text on the whole. Still, the writing stresses the need to address rather than reject technology, as a means of commanding agency in a globalized, information society. "For, although it is certainly too much to expect technology to save the world," he writes, "it is no less true that it constitutes a crucial element in the redefinition of the social contract and of local, and national, as well as international, institutions."[21] Overall, the text is unrelentingly critical of the mistaken notion of globalism as concomitant with the democratic or the utopian. Still, Mattelart in his reference to Appadurai displays a glimmer of hope that technology will revitalize the global presence of underrepresented culture. The contemporary art world trend toward global arts and multiple modernities as an

[19] Mattelart, *Networking*, 106.
[20] Mattelart, *Networking*, 107.
[21] Mattelart, *Networking*, 118.

untapped reservoir of artistic innovation, combined with the increasing presence of mass media forms, suggests that this rings true.

Coming from the cultural perspective, Paul D. Miller investigates the global interpenetration of data, capital, and bodies across national borders that were once considered stable. Contemplating the saturation of mass media forms into all fabrics of existence, the author/artist/DJ asserts that technology is altering the palpable textures of our lives, and changing the way we conceptualize our world. Miller's manifesto, *Rhythm Science*, locates the vital role of the DJ in interpreting the new techno-landscapes of globally-connected existences, through which information in the form of images, text, and sound is processed and redistributed.[22] Coining the title phrase "rhythm science" to capture the spirit of that idea for which "collage" once sufficed, Miller argues that the new role of art in an era of data networks and manifold realities is to articulate the diversity of experiences that constitute postmodern existence.

In his highly eclectic reflection on the conditions of contemporary cultural production, Miller speaks to the "delirium of saturation" or over-stimulation that defines the proliferation of electronic media.[23] And he does so through his ability (as "DJ Spooky") to absorb and channel a tremendous amount of raw material in the form of audio samples. His writing style is similarly a multilayered conglomeration of philosophical sound bites, languages, pop wisdoms, and symbolic orders. Appropriating Deleuze and Guattari's nomadism, Freud's uncanny, the Wu-Tang Clan's rhymes, Toni Morrison's writings, Walt Whitman's poetry, Thomas Edison's inventions, and a host of analogies to DJ culture, Miller's project seeks to

[22] Paul D. Miller, *Rhythm Science* (Cambridge, Mass.: Mediawork/MIT Press, 2004).
[23] Miller, *Rhythm*, 29.

reinvigorate found object practices through the re-integration of technology and idealism.

Miller sees contemporary art production as exhausted, but extols the innovative potential of the aural, visual, and textual sampling made possible through digitality. From a visual arts perspective, it might be tempting to contextualize his writing alongside the exuberant, pro-tech manifestoes such as those of the Futurists. In fact, the author's practice bears little resemblance to these, but stems from another legacy. Born of hip-hop culture, DJ-ing as an original art form presages tectonic shifts in culture toward sampling and recombination. As cultural critic Greg Tate put it best, "[t]he way hip-hop collapsed art, commerce, and interactive technology into one mutant animal from its inception seems to have almost predicted the forms culture would have to take to prosper in the digital age."[24] Though his exposure to Western philosophical and artistic movements is evident, Miller carries no torches for the academy; he only uses it as raw material. His appropriation is less Dadaist, and more akin to the raw expressive agency that the technology of turntables, mixing boards, and scratching provide. Miller describes how this free agency allows his body to traverse national borders while he DJs internationally. Meanwhile, his recorded music interpenetrates the information network through compact discs and the Internet. In doing so, the self-described flâneur articulates his travels along the pulse of the data network, endlessly mixing and re-contextualizing as a strategy for conveying the dizzying global flow of cultures (See Figure 3.1).

While Miller's book is a declaration of intent for his own practice as a thinker and DJ, his ideas also pinpoint a phenomenon occurring in visual production at large. On one level, his identification of "rhythm science"—the notion of images, sound, and data untethered from their original meanings in a postmodern moment—gives

[24] Greg Tate, *Everything But the Burden* (New York: Broadway Books, 2003), 7.

stark insight to works that appropriate images and then reconfigure or subvert them through electronic scansion. This is especially relevant to new media, a form of art-making that remains contested in art historical discourses. Postcolonial scholars, cyberfeminists, visual culture theorists, and scholarly art journals such as *October* express misgivings around what digitality means for artistic production today.[25] Miller's unencumbered relationship to technology, even despite multinational capitalism and the military-industrial complex, breaks with such cautionary stances. In doing so, his writing wanders into territories so ideologically over-determined and fraught with negativity that they remain greatly undervalued as legitimate areas of study.

Most compelling is Miller's linkage between identity and the duress that globalization and information technology exerts upon it. Within American discourses, the engendering of terms that articulate identities crosscut by foreign elements leads directly to W. E. B. DuBois's "double-consciousness." That now-famous expression captured the dual nature of black experience in America.[26] Updating DuBois's term for the new millennium, Miller writes that, "the twenty-first century self is so fully immersed in and defined by the data that surrounds it, [that] we are entering an era of multiplex consciousness."[27] The dizzying excess of raw data that accompanied the modernist obsession with collection, categorization, and control has given way to a new kind of critical becoming. Or as Miller implies, what emerges is a consciousness that operates and appropriates from many levels simultaneously. This means functioning in concert with the flow, instead of trying to domesticate it. As such, the challenge for art historians is to develop rhizomatic

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[25] See, for example, Malcolm Turvey, George Baker, et. al, "Round Table: The Projected Image in Contemporary Art" in *October,* No. 104 (Spring 2003): 71-96.
[26] W. E. B. DuBois, *The Souls of Black Folk* (New York: Bantam Books, 1989).
[27] Miller, *Rhythm Science*, 61.

modes of engagement, by which a dynamic complexity of ideas is filtered through destabilized intellectual identities. Finally, it requires an understanding that the onset of digitality engenders not only new technological possibilities for expression, but also new modes of *consciousness* that permeate culture by interrupting fixed notions of the self and out-stripping the limits of our modern conceptions of art.

What might this 'multiplex consciousness' engender through its jarring interruption of modernism's meta-narratives? Miller stops short of answering such a question. Nevertheless, his linking of information overload with the strain it places on compulsory notions of identity is worthy of attention. While the polymorphous nature of consciousness as it fragments under the duress of the digital recurs as a strong theme throughout this investigation, more compelling yet is the relationship between that conversation and experiences of globalization and Diaspora. Extremely compelling connections have been made between alterity and immersion in new media forms, suggesting metaphorical and even aesthetic relations that bear mentioning here. Writer and programmer Cameron Bailey, for example, relates the split-subjectivity of postcoloniality to virtuality as a metaphor for the dual consciousness brought about by their societal status:

> …one develops hyperawareness of the relationship between physicality and identity. Like women, like lesbians and gays, people of color living in western metropoles live a crucial part of their existence as body-people, as subjects named and identified through their flesh. One only need hear "Monkey!" or "Water buffalo! Screamed at you on the street every once in a while to be reminded of that.[28]

[28] Cameron Bailey, "Virtual Skin: Articulating Race in Cyberspace," in Marry Anne Moser, ed., *Immersed in Technology: Art and Virtual Environments* (Cambridge, Mass.: MIT Press, 1996), 33.

He effectively argues that the split-subjectivity of virtuality is not unfamiliar to those with socially-defined alterity, who are forced to continually negotiate between their real and virtual identities in the world.

From this parallel we can extend his discussion into a more general argument about the split subjectivity that appears in the wake of digital aesthetics, not just as that which we must actively reach out and experience, but that which to some extent reconstitutes us through its reordering of perception. Bailey's testimony is germane to this discussion of the relationship between media arts and alterity for the very reason that it metaphorically links media immersion and social experience. Connections such as these might lead one to better understand why media would resonate so powerfully with artists who are also socially-defined minorities, and how these media might become powerful tools through which to express particular subjectivities.

Filled with abstracted images, problematic and sometimes contradictory text, *Rhythm Science* is at once completely superficial and deeply evocative of the postmodern fragmentation of unitary narrative. At first glance it may seem facile, especially in Miller's dropping of academically fashionable names, and his skimming over the surfaces of canonical theories without apparent in-depth engagement. But this staccato method conveys the embattled conditions of data and images, which often float unmoored from their original meanings, free for appropriation even in the unlikeliest of intellectual circumstances. The most literal manifestation of this is the World Wide Web, upon which information (and much misinformation) proliferates; but this reality extends to the popular imaginary as well as the academy itself. Flawed though it might be under the stringent analysis of those demanding a more strictly academic approach, *Rhythm Science* constitutes a

provocative attempt to bridge the divide between found object practice and its translation into forms interpenetrated by electronic media technologies.

In his exuberance for modern technology, Miller's writing does not engage the concerns of those on the other side of the 'digital divide'—those who are not its beneficiaries. Their abject socio-economic realities also underlie the privilege of that cosmopolitan minority which is able to move freely between nations. The contemplation of art through scholarship, theorization, and practice is also a sphere of privilege in which the harshness of reality can easily become abstracted and aestheticized. However, the global flow of capital, information, and bodies has a tremendous impact on the lives of people and therefore upon their cultural production. And while practicalities of the art world's economic interests and art history's institutional drives often re-inscribe notions of discrete culture or identity, it is imperative that these forums engage the fluidity of identity that characterizes (post)modern life. Miller's text problematizes the terms and influences by which this production comes under analysis. Specifically, the spirit of his manifesto rejects configuring the subjects of cultural globalization as *inherent* victims, which would belittle their potential to affect it.

The aforementioned text also resonates unexpectedly with Mattelart's. Only, while Miller assimilates to the "fluidity of immaterial exchanges," Mattelart mostly regards it with foreboding. Both, however, view it as a potentially useful construct. Even Mattelart connects the global network of real-time communication and the so-called "Third World" with the subversion of monopolizing nationalistic interests being forced upon the globe by the West. This suggests that there is a connection between subaltern embodiment and sites of resistance to economic and cultural globalization. Perhaps there is something there, some seeds of optimism, to be found

in the synergistic commingling of electronic media with modes of conceptualization that spring from subaltern embodiment.

IV. Data Culture and (Dis)embodiment

A discussion of embodiment vis-à-vis electronics and digitality frequently revolves around the physical limitations that technology purportedly allows the body to conquer. Information technology such as the Internet is generally presumed to be devoid of materiality. That is to say, as pure information in the form of electronic signals, the data network has been conceived of as operating beyond the body or identity, as immaterial or disembodied code.

The separation of mind and body forms at the very fundament of Western philosophical concerns. This duality is fueled by horror of the inevitable decay and death of the body, versus the great potential of the mind to transcend that decay. Hierarchically stacked, the mind takes precedence over the body in the deeply imbedded ideological structures of Western societies. As an extension of the mind/body split that haunts Western thought, the pursuit of pure consciousness through technology drives developments in science and culture. These can be seen in such scientific pursuits as artificial intelligence, artificial life, and robotics, or in such commercial and artistic projections about what artificial consciousness and a fluid human-computer interface might mean. Though they will not be discussed in detail here, several notable films regarding artificial life, cyborgs, and artificial intelligence have been released. The most prominent of these include *Blade Runner* (1982), *Ghost in the Shell* (1995), *Artificial Intelligence: AI* (2001) and *Ghost in the Shell II: Innocence* (2004).

In art and technology, prominent works like Ken Feingold's robotic talking-heads, such as his *Sinking Feeling* (2001) exude a sense of self-awareness through their computer-generated but eerily introspective conversation (See Figure 3.2). Artist Lynn Hershman Leeson's feature-length film *Teknolust* (2002) speaks to a myriad of artificial-life questions, not the least of which is the entity's right to autonomy (See Figure 3.3). And *Networked Portrait* (2003), a collaborative effort of Martin Bruner, John Gerrard, Andreas Jalsovec, Christopher Lindinger, Pascal Maresch, and Erwin Reitböck, presents digital modeled portraits, each of which respond to the viewer's touch, and to the changing facial expressions of its pendant (See Figure 3.4).

Works such as these massage fundamental anxieties around the place and worth of the body in a technologized world. Jean-François Lyotard famously linked the potential obsolescence of the human form with feelings of fear and loss associated with technology.[29] Through a discussion of the inevitability of human mortality—not merely individually, but as a *species*—he dissected base survival instincts that drive the impulse toward virtuality and artificial intelligence.

For Lyotard, the motive for technical and scientific innovation is rooted in fear of the cessation of the life of the mind. The French theorist acknowledges the necessity of the body as a kind of membrane or skein through which sensory information must pass, in order to be organized symbolically and responded to. Using technological terms, he names the body "hardware"; it is a shell intended to house the "software" of human symbolic systems or language. The current hardware (body) is insufficient to permanently support the software (cognition). Hence

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[29] Jean-François Lyotard, "Can Thought Go On Without a Body?" in *The Inhuman: Reflections on Time*, trans. Geoffrey Bennington and Rachel Bowlby (Stanford: Stanford University Press, 1991), 8-23.

Lyotard's guiding inquiry: "how to make thought without a body possible."[30] How can our thoughts continue to live beyond us? How can we surpass our ultimate bodily limitation, which is constituted by the finality of death?

The condition of embodiment is predetermined in the case of all known living and reasoning creatures. Currently, thought cannot go on without a body for the very reason that the corpus—our mass and materiality—is necessary to engender reflection that moves beyond logic and into perception and analogy. This is the first and most profound quality or mark of the human condition: that we are aesthetically subsumed within our environments. (To be clear, I use the term "aesthetic" in relation to the senses and the sensible, not specifically in terms of a judgment of beauty.) We are always "embodied"—or operating from within a body—and cannot stand outside of that subject position. Subjectivity forms an underlying condition of human perception and thought. This embodied understanding of aesthetics will become extremely important in re-conceptualizing the perceptual material analysis of digital aesthetics.

Since this perception is intrinsic, the borders of our human sensible perception define the limits of our understanding. Lyotard discusses perception in terms of a border that is always ungraspable, always indistinguishable, but ever present.[31] While the human mind perceives and then reasons reflectively toward an understanding or mental picture of an object in space, the logical structure of a computer requires a whole understanding of the object or idea at hand. To be artificially "intelligent" a computer must have a sense of analogy, or in other words a reflective quality. And, as Lyotard so poetically elaborates, machines must be capable of "giving body"[32] to their thoughts. The computer must be able to *embody*,

[30] Lyotard, "Can Thought," 13.
[31] Lyotard, "Can Thought," 17.
[32] Lyotard, "Can Thought," 17.

or operate from within the ocean of sensory input, rather than just reporting on or describing objectively from the outside.

The author provocatively suggests that thought is borne out of a physical experience of suffering. He proposes that in order for computers to truly begin thinking, they must "suffer from the burden of their memory."[33] The irony inherent in this suggestion is that the idea of a "thinking" machine is itself borne out of human suffering and the desire to transcend it. Yet it would subsequently call for the suffering of its cerebral offspring—the machine mind—as a prerequisite for its coming into being. Second, Lyotard distinguishes the function of gender as the remaining element of embodied humanness.[34] Gender is described as an acknowledgement of difference, of attraction. While ultimately questioning the ontological status of gender, he does recognize sexual difference as a construction of need or lack and, by extension, desire. Desire becomes the "force" that propels the thinking machine, acting as a kind of fuel that drives the progression and the complexity of reflective thought. Therefore, for Lyotard thought issues from embodiment, suffering, and desire. And although other profound variables of embodiment like racial alterity do not come under discussion, it is reasonable to consider these elements in the formation of consciousness.

Furthering the visionary scientific discourse around disembodiment, Hans Moravec wrote his *Mind Children* in a speculative mode, envisioning a future in which consciousness is downloadable.[35] Locating the essence of human identity in terms of information patterns rather than in material presences, Moravec contends that there will come a time in which patterns (thought) will not be limited to particular bodies. He imagines the melding of minds together and the linking of all

[33] Lyotard, "Can Thought," 20.
[34] Lyotard, "Can Thought," 20-1.
[35] Hans Moravec, *Mind Children*, Cambridge: Harvard University, 1988).

sentient beings into one universal web of consciousness, and considers the possibility of copying one's mind and transferring into another body. Contrary to Lyotard, Moravec suggests that those who are resistant to the idea of a downloadable mind as interchangeable with the original donor are misled in believing that their material body defines their identity. Rather than adhering to the "body-identity position,"[36] he subscribes to what he names the "pattern-identity position."[37]

In this paradigm, identity is defined as related to the processes of the mind rather than the base corporeality of the human body. Arguing that our bodies are regenerated on a cellular level many times during our lifetime, he sees informational patterns as what remains, while the substance of bodies are broken down and continually expelled. In this pattern-based model, Moravec splits the mind from the body, prioritizing the cerebral and providing a means by which the mind is liberated from decaying flesh. Such imaginings present a kind of post-biological age in which the body no longer holds any relation to identity. For him, it is a site of liberation and a necessary evolutionary step that ensures the survival of humanity.

While Moravec's *Mind Children* remains a seminal document in relation to the potential of cybernetic technology and digitality, it is problematic in its utopianism. For, in the years since the completion of his book, technology has proven to be as fragile as human memory. As yet, digital storage is estimated to be five to ten years.[38] Magnetic tape degrades quickly, compact discs scratch and crack; large bodies of information can be lost instantaneously. Because it is electronic rather than printed, digital storage needs expensive equipment in order to even be manifested, much less deciphered. In short, the digital presents its own brand of

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[36] Moravec, *Mind Children*, 116.
[37] Moravec, *Mind Children*, 117.
[38] John Belton, "Digital Cinema: A False Revolution," in *October*, No. 100 (Spring 2002): 114.

fragile materiality, even while it purports to free humans from their corporeal limitations. Moreover, he undervalues the instrumental nature of the body in affecting the formation of identity.

N. Katherine Hayles critiques Moravec for this glaring favoritism toward the life of the mind over corporeality:

> The underlying premise informing Moravec's scenario is the belief that an immaterial essence, which alone comprises the individual's true nature, can be extracted from its material instantiation and life free from the body. As this wording makes clear, the contemporary privileging of information is reinforced by religious yearnings and beliefs that have been around for a long time and that are resonant with meaning for many people.[39]

Hayles is concerned with how each infiltrates and mutates the other. A literary theorist, she draws together literature, digitality, embodiment and codes of signification, seeing these elements as mutually reactive in the information age. Hayles draws a parallel between books and bodies in terms of their relatively immutable materiality:

> Because they have bodies, books and people have something to lose if they are regarded solely as informational patterns, namely the resistant materiality that has traditionally marked the experience of reading no less than it has marked the experience of living as embodied creatures.[40]While she is primarily concerned with the intersection of literature and electronic culture, her scholarship is relevant in terms of body/machine relations.

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[39] N. Katherine Hayles, "The Condition of Virtuality", in *Digital Dialectic*, Peter Lunenfeld, ed. (Cambridge: MIT Press, 1999), 73.
[40] N. Katherine Hayles, "Virtual Bodies and Flickering Signifiers" in *October* 66, (Fall 1993), 73.

She explores what she calls the "contemporary pressure toward dematerialization,"[41] and the multiple ways in which it affects both books and bodies. Further, she describes the experience of virtuality as a breakdown of the boundary between the body and a system. Through this intermingling, the body experiences physiological responses to stimuli originating from a machine. Redefining virtuality as the presence of information patterns within the material realm, she offers a pared-down definition that encompasses as broad spectrum of digital-material interaction.

According to Hayles proprioception, "the sense that tells us where the boundaries of our bodies are," creates a mental outline of where the exterior world begins and the edges of our sensory perception end.[42] This allows us to do things like negotiate doorframes without injury. We do not collide with the frame because we have a general sense of where our arms and legs are, and in which directions they tend to move. Proprioception can also extend past the literal body and into what one might call "extensions" of ourselves. For example, with experience, a New York cab driver can learn the approximate outer edges of his vehicle so accurately as to negotiate tight passageways with ease. In a sense, the cab has become an extension of the driver's body. In another example, computer hackers have often referred to the relationship of their bodies to computers as "telepathic" or purely intuitive. One hacker from MIT noted the fluidity with which he was able to communicate through his computer:

> Some people don't program straight from their mind. They still have to consciously think about all the intermediate steps between a thought and its expression on a compute in a computer language. I

[41] Hayles, "Virtual," 73.
[42] N. Katherine Hayles, "The Condition of Virtuality," in Peter Lunenfeld, ed., *Digital Dialectic* (Cambridge: MIT Press, 1999), 88.

> have basically assimilated the process to the point that the computer is like an extension of my mind. Maybe of my body. I see it but I don't consciously think about using it. I think about the design, not the implementation. Once I know in my mind what I want to do, I can express it on a computer without much further conscious effort.[43]

Hayles' scholarship intersects with sociologist Sherry Turkle's earlier research into how machines change the body, of which the hacker's testimonial above is one case study. Turkle analyzes human/computer interactions from a psychological perspective, arguing that while the present model of psychological well-being presupposes a clearly delineated, unified self, this stipulation may not be as applicable to identity as formerly thought. Her writing hypothesizes that virtuality may provide an opportunity for individuals to accept their own fluidity, multiplicity and flexibility. She discusses the variegated personae that an individual may present, depending upon his/her environment and social circumstances.

The sociologist proposes that this multiplicity is indeed organic, healthy and normal. Particularly, she investigates the formation of online personae as a means of exploring "alter egos" in a safe and isolated environment. Virtuality in this instance offers a testing ground on which individuals may test out new or varied identities, which may in turn ultimately affect their embodied selves.

This approach conceives of virtuality not as an end but as a means by which to better understand human identity. She does not insist on the primacy of machine over man, or vice versa. Rather, her research is concerned with what ideological formations and psychological insights can be illuminated in regard to the self, the body, mind, and machine. By studying the identities that people fabricate in

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[43] Sherry Turkle, *The Second Self: Computers and the Human Spirit* (New York: Simon & Schuster, 1994), 212.

cyberspace, Turkle can observe the ways in which virtuality affects both mind and body.

The above testimony does not describe a cybernetic prosthesis. Nevertheless, the hacker expresses a feeling of unity with the machine, as though it were actually grafted onto him. The hacker perceives that the information present in the machine is flowing through him, and his proprioceptive sense has expanded to engulf the machine itself, and perhaps to stretch out further into the domain of the Internet. In this, Hayles would contend that the circumstances of this individual's virtuality have rendered him cyborg; that he and the machine are both hybridized.

In addition, Hayles builds upon Hans Moravec's description of identity as pattern rather than substance. Redefining electronic information in terms of the complementary relationship of pattern and randomness rather than presence versus absence, she contends that humans are already permeated with technology:

> We are already cyborgs in the sense that we experience, through the integration of our bodily perceptions and motions within computer architectures and topologies, a changed sense of subjectivity.[44]

However, Hayles' relationship with Hans Moravec's work is clearly an uneasy one. While she appears to find his model of pattern-based identity useful, she derides his overarching project:

> For Moravec…the problem of mortality has been rationalized so that it is possible to make steady progress toward achieving a steady solution rather than flailing around in mystical nonsense. This construction of the situation obscures the fact that [Moravec's] text is

[44] N. Katherine Hayles, "The Condition of Virtuality," in *Digital Dialectic*, ed. Peter Lunenfeld, (Cambridge: MIT Press, 1999), 91.

> driven by a fear of death so intense that it mystifies the power of the very technologies that are supposed to solve the problem.[45]

Hayles' scathing assessment contends that Moravec's imaginings are merely a reactionary response to the inevitability of death. At the same time, she asserts that Moravec's theory of an immaterial essence ascribes a value to human nature that might not be inherent. This sounds strikingly similar to debates lodged by Walter Benjamin regarding the "aura" of an object, and the inability for that aura to pass, unaffected, between an authentic object and its technological reproduction. So, what quality is there about the field of digitality in general that appears to engender resistance from so many? Perhaps a discussion of this can be distilled to the perceived value of something material that is considered to be original, versus the immaterial or information-based "aura-less" simulation. This paradigm created a hierarchical value within dualities such as the real/irreal, the aforementioned mind/body split and now information/matter.

V. Digital Aesthetics Part I: Art History

Digital aesthetics is a relatively new area of investigation; and in keeping with art and technology on the whole, the "digital" and the "aesthetic" have proceeded along separate intellectual lines of development. Since my aim is to integrate these divergent areas, I will address scholarship on digital aesthetics and related concepts from both inside and outside the field of art history. This section addresses the possibility of digital aesthetics from within the existing canon of art history. The section that follows addresses the idea of digital aesthetics from compelling views that exist outside of art history.

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[45] Hayles, "Condition," 73.

In 2004, American critic and professor of art history Donald Kuspit elaborated upon his theory that the continuum between Impressionism and American high modernism demarked the shift between "analogue art" and "postmodern digital art."[46] By this he meant that abstract code superceded the concrete image as the dominant mode of creativity. This shift from "image creativity" to "code creativity" operates within a gathering of sensations (haptic and optic) that gives the viewer an overall impression of the whole. This "matrix of sensations," operates for Kuspit as digital art; it is a grid in which every electronic vibration contributes to a palpable sensation.

According to this logic, impressionists were able to capture the vibratory effect of a matrix of sensations that constituted aesthetic experience in the world, although they were in the end unable to completely break free from the idea of an objective reality. "Manet's modern mania for seeing things as a patchwork of gestures," Kuspit writes, "…has become the postmodern mania for seeing things as a grid of pixels." Dubbing Seurat the first digital artist, on account of both his pointillist style and systematic approach to color as structured code, the art historian further suggests that *A Sunday Afternoon on the Island of La Grande Jatte* (1884-6), with its speckled surface and wavering depth of field, demonstrates the first example of virtual reality (See Figures 3.5 and 3.6). It is with Non-objective art, of which he names Kandinsky and Malevich as examples, that the objective of illustration is entirely outstripped in favor of the immediacy of sensations themselves. Ultimately, the art historian sees digital art as a site of optimism: it is a new tool that both allows for broadened possibilities of creative expression, and a respite from older "exhausted" media.

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[46] Donald Kuspit "The Matrix of Sensations" Downloaded from www.artnet.com, August 5, 2005. http://www.artnet.com/magazineus/features/kuspit8-5-05.asp. Accessed December 12, 2005.

Kuspit's assertion seeks to concretize what he sees as the key characteristic of digital art—namely, code—as a part of European historical avant-garde painting. This may seem unusual considering that electronics and binary code postdate impressionist painting by almost one hundred years. Still, he is not the only one to try to contextualize the immersive experience of virtual reality within a pre-digital history of cultural production. Art historian Oliver Grau, for example, has also attempted to achieve an historical continuity to the pursuit of virtuality with his analysis of the "immersive" experiences of 360° views as created in panoramas, frescoes, circular cinemas, and virtual reality CAVEs.[47] He categorizes these along a historical progression toward the ever more illusionistic and immersive, though the technologies employed are vastly dissimilar.[48] In Kuspit's much shorter, essay-length investigation, no attention is allocated to the scientific and technological developments taking place *during* Impressionism's evolution toward the ever more fragmented vibrating dematerialized mode. These include developments in mass print media, photography, and among other factors, advances in optics and the scientific understanding of microscopic elements such as germs and molecules. In addition, developments in color theory that were popularized in the mid- to late-nineteenth century played a role in the pointillist and impressionistic strokes that

[47] CAVE is an acronym that stands for Cave Automatic Virtual Environment. It consists of a projection space made up of at least three walls, but ideally six. Projected images and light stereoglasses allow participants within the space to see projected objects in three dimensions. A navigation device such as a controller or glove allows for the 3-D environment to be navigated.

[48] Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge, Mass.: MIT Press, 2003). For more on virtual reality, also see Mary Anne Moser with Douglas MacLeod, eds., *Immersed in Technology: Art and Virtual Environments* (Cambridge, Mass.: MIT Press, 1996).

visited the canvasses of artists such as Seurat and Monet.[49] However, these well-documented connections are not mentioned.

One might metaphorically relate the pointillist style to the grid of pixels that makes up the screen or projection, but only in the plastic sense of a computer monitor or projected image as "flat." In fact, images as represented on a computer screen, though usually seen as two-dimensional due to the limitations of affordable technology, are often navigable models that exist in three dimensions so far as the rendering of that image is concerned. Paintings that follow some geometric mode of perspective present the illusion of space, but they are essentially flat. Computer renderings in a virtual space are, on the other hand, dynamic virtual models or architectures. They represent three-dimensional representations that can be navigated, turned, and viewed from any perspective. *La Grande Jatte* bears little resemblance to a virtual reality CAVE rendering, no matter how one might desire to project one's self into the painting. The dabs of pigment are not light, though they seek to emulate the prismatic play of light against the surfaces the work depicts. The painted surface insists upon its presence, its distinct materiality. Digitally-rendered virtual spaces, at least in their current permutations, are conglomerations of ghostlike forms whose surfaces fall away with the slightest probing. I do not suggest that they are without materiality, but that other representational matrices inform their aesthetics (See Figure 3.7).

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[49] See John G. Hutton, *Neo-Impressionism and the Search for Solid Ground: Art, Science and Anarchism in Fin-de-Siécle France* (Baton Rouge: Louisiana State University, 1994), Anthea Callen, *The Spectacular Body: Science, Method and Meaning in the Work of Degas* (New Haven and London: Yale University Press, 1995), Edward B. Henning, *Creativity in Art and Science, 1860-1960* (Cleveland: Indiana University Press with the Cleveland Museum of Art, 1987), Floyd Ratliff, *Paul Signac and Color in Neo-Impressionism* (New York: Rockefeller University Press, 1992. Wilfrid Sellars, *Science, Perception and Reality* (London: Routledge and Kegan Paul, 1968) among others.

The aforementioned conflation reflects minimal attention to the vastly different technologies that make such visualizations come into being. As such, painting all of these art forms with the same brush limits one's ability to understand them within their own histories and social contexts. Retroactively applying the concept of digitality onto works that precede the notion by a century is misleading, since it suggests that modernist painting is directly responsible for digital expression. Their epoch knew nothing of the digital, though certainly the desire to project a viewer into an imaginary space was not new. Modernist theories—and some would even argue postmodern theories—are insufficient to address the new paradigms of digital art.[50]

This stance is, however, an elaboration of his critiques of technology as a contributing factor to the "end of art" as posited by the critic's book, which was published in the same year. In it, Kuspit mentions new media within the context of recent Whitney Biennials, suggesting that "postart" artists used "computer technology to destroy the art of the past."[51] This is similar to Peter Bürger's condemnation of the neo-avant-garde as devaluing the original avant-garde's anti-establishment achievements through the appropriation and institutionalization of their methods and aesthetics. Bürger wrote: "Since now the protest of the historical avant-garde against art as an accepted institution is accepted as *art*, the gesture of the neo-avant-garde becomes inauthentic."[52] Seeking instead in the essay to absorb the "code creativity" of the digital, Kuspit's writing naturalizes new media aesthetics

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[50] In 1995, artist Patricia Search argues this in her essay on the shift from static to dynamic aesthetics in relation to developments in math and science. See Patricia Search, "The Semiotics of the Digital Image" in *Leonardo*, Volume 28, Number 4 (1995): 311-317.

[51] Donald Kuspit, *The End of Art* (Cambridge: Cambridge University Press, 2004): 106.

[52] Peter Bürger, *Theory of the Avant-Garde* (Minneapolis: University of Minnesota Press, 1984), 53. Originally published in 1974 in German.

into modernist history. This strategy flattens the formal aspects of the digital to plastic qualities, and neglects its powerful technological and social dimensions that underlie them. In fact, it points to a perceived encroachment of new media into the realm of aesthetics, an uncomfortable migration for the critic because such technologies signify the mass culture and modernization of society that would collapse art and commodity. Certainly for Kuspit, the idea of a digital aesthetics would be in keeping with that collapse into "postart," a nihilistic period of art making in which the split from aesthetic quality, theory, the psychological, and social criticism heralds the end of art.[53]

I draw upon this writing as one example the importance of balancing the technological considerations of new media art with their aesthetics. The reticence to acknowledge the technological medium as a constitutive part of the final artwork limits the degree to which a strictly aesthetic art-historical response to the digital can be useful. On this subject, art historian Edward Shanken has written extensively of how art and technology has been thought of as too technical to be considered aesthetic, and too aesthetic to be technically addressed.[54] Shanken characterizes the scholarly omission of attention to technology, demonstrated for example by Kuspit's approach, as a "failure of Art History to acknowledge the importance of Art and Technology," arguing that the subject warrants focused art historical attention and recognition.[55] Edward Shanken's view, a tectonic shift in the understanding of the world was manifested in artistic production:

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[53] Kuspit, *The End of Art*.
[54] Edward Shanken, "Art in the Information Age: Cybernetics, Software, Telematics, and the Conceptual Contributions of Art and Technology to Art History and Theory" (Ph.D. diss., Duke University, 2001), 11.
[55] Shanken, "Art in the Information Age," 11.

> in contrast to what Ascott and other artists perceived as a binary subject-object relationship central to Renaissance and Enlightenment epistemology (and several centuries of art and art historical writing), it [art and technology] has shifted emphasis to a multiplex subject-subject aesthetic model, explicitly engaging audiences as active agents in dialogical artistic contexts.[56]

What Kuspit sees as cultural entropy and the fall of art under the shadow of science and technology,[57] Shanken sees as a significant paradigm shift of aesthetics. In his exploration of art and technology, he elucidates the relationship between art, research, and advanced developments in electronics and science. Analyzing specific art and technology exhibitions that occurred between 1960 and 1971, he eventually turns his attention to the impact of "telematics"—meaning, the coming together of telecommunications and computing technologies. His description of the "multiplex subject-subject" prefigures by a several years Paul D. Miller's "multiplex consciousness" in which the artist/writer/DJ conceptualizes a new mode of being that is interpenetrated by data culture. Shanken's focus on the shift to a more destabilized subjectivity as a key defining characteristic of art and technology provides a much more open viewpoint than Kuspit's reduction of digital art to the key element of code. To be sure, Kuspit is not alone, since many such as Delle Maxwell and Mihai Nadin have preceded him in the suggestion that code is what defines digital art. Nadin has even gone so far as to discourage the use of prepared programs, suggesting that artists should be given "empty computers," his logic being that a program is itself a work of art. Thus it limits artists' creative possibilities when they are forced to work within its parameters.[58]

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[56] Edward Shanken, "Art in the Information Age," 18.
[57] Kuspit, *The End of Art*, 163.
[58] Mihai Nadin, "Emergent Aesthetics: Aesthetic Issues in Computer Arts" in *Leonardo, Supplemental Issue*, Volume 2, Computer Art in Context: SIGGRAPH '89 Art Show Catalog. (1989), 43-48.

In contrast to Kuspit, Frank Popper is a rarity among art historians who, since the 1960s, has embraced electronic art on its own terms rather than attempting to subsume it under the logic of pre-existing orders. Specifically, the English scholar rejects attitudes toward electronic art that focus wholly on its technological aspects, or see it as merely a harbinger of fascism or dehumanization:

> I have always thought that technical knowledge or experience was indispensable for a deeper comprehension of art works. The danger of becoming much too involved—and even swallowed up—by technical considerations seems to me a sign of immaturity in an artist. I have always tried to decipher what the aesthetic intention in a work of art was and how it related to the artist-conceiver's technological preoccupations. In fact, it is this techno-aesthetic criterion which at present interests me most.[59]

Popper focuses his comments on the artist rather than the art historian, and he makes no specific aesthetic regulations about what form electronic or digital art may take. However one may derive from his comments that his approach is decidedly more open and less technologically deterministic than Kuspit's, Maxwell's, or Nadin's. This allows for a greater variety of works that can be considered under the rubric of digital aesthetics, and understands these aesthetics to operate within a social context, rather than completely independently of them.

Art historian Jonathan Harris briefly but fruitfully explores this idea of moving away from a technologically deterministic attitude toward the presence of mechanical and digital tools in art. Though educated in Britain, he specializes in American art and society in the twentieth century. Harris's essay appeared within the context of a special issue entitled "Digital Reflections: The Dialogue of Art and

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[59] Joseph Nechvatal, "Origins of Virtualism: An Interview with Frank Popper" in *Art Journal*, Volume 63, Number 1 (Spring 2004):62-77. See p. 67.

Technology" which was published by *Art Journal* in 1997.[60] In this writing on the relationship between technology and fine art education, he primarily discussed the British university system, although his writing provides a useful language for considering the American canon as well.

In his essay, Harris proposes that the dialogue between art and technology has been interrupted by a set of ideologies that drive the scope and direction of art education in Britain and the United States. He grounds his methodology in the writings of Raymond Williams, a Marxist cultural critic and media theorist working in England, who was a contemporary of Greenberg. Williams wrote of television as a thoroughly socially-immersed technological phenomenon. By applying this idea to computers and electronic mass media technologies, Harris suggests that art and technology—and their accompanying aesthetics—should be considered within the context of the social systems in which they arise. Since technology issues from a particular social milieu, its expression should not be thought of as radically departing from that origin. Nor should it be thought of as developing independently of those social contexts. This means that the technological phenomenon of television, for example is inextricable from the scene of its development. By the same token, a single technology developed in varied settings will yield diverse permutations.

According to this logic, it is nonsensical to think of any technology as capable of spontaneously generating democracy where there was none, as in the case of utopian notions of the World Wide Web as "global village." Likewise, Harris (through Williams) expresses skepticism around a pervasive "technological determinist"[61] stance that says technological art has preprogrammed ideological

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[60] Jonathan Harris, "Art Education and Cyber-Ideology: Beyond Individualism and Technological Determinism" in *Art Journal*, Special Issue: *Digital Reflections: The Dialogue of Art and Technology*, Volume 56, Number 3 (Fall 1997): 39-45.
[61] Harris, "Art Education," 40.

limitations. Harris reads these ideas against the cultures of art departments within universities, unearthing both ideological and generational conflicts that are rooted in lingering Greenbergian anti-technology and anti-intellectual approaches to art making.[62]

For Harris, this underlying negative technological-determinist stance limits the degree to which art educators take technological artistic expression seriously, as well as the sophistication of the language with which such forms are discussed and received. While his essay presents no concrete definition of digital aesthetics, Harris importantly draws out the limitations of Greenbergian formalism in regard to art and technology. Further, one may infer from his writing that the definition of a discrete aesthetics of the digital may not be practical in a model where the technological exists only within an entangled network of interrelations. The tension, then, resides between a view of electronic and digital art/aesthetics that privileges the technology itself, and a view that such manifestations operate within a matrix of society as a whole. Perhaps Harris's assessment makes sense in the context of technological media as fully imbricated in the whole of industrialized society. However, if we accept his configuration via Raymond Williams, then technology as an extension of a social matrix creates digital media as virtually *everything*.[63]

VI. Digital Aesthetics Part II: Outside Art History

Outside the disciplinary borders of art history, digital aesthetic theory has ranged from the most abstract conceptualizations of what artistic expression

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[62] Harris, "Art Education," 42-44.

[63] W.J. T. Mitchell makes this point in regard to Raymond Williams's idea of mediums as "social practice." See Mitchell, *What Do Pictures Want? The Lives and Loves of Images* (Chicago and London: University of Chicago Press, 2005), 213.

computers might achieve beyond human intervention, to a generalized taxonomy of new media aesthetics. In 1969, Robert Mallary, a computer scientist and sculptor, identified six distinct phases of the computer's evolving participation in artistic expression.[64] These ranged from those with a high degree of human intervention, to self-generated digital expression manifested as "pure disembodied energy."[65] Communications media theorist Gene Youngblood revisited these ideas in 1970 in his exploration of "expanded cinema," what he called a "process of becoming, man's ongoing historical drive to manifest his consciousness outside of his mind, in front of his eyes."[66] Influenced by the writings of visionary theorists Buckminster Fuller and Marshall McLuhan, Youngblood sought to naturalize what forms such as television, radio, newspapers, cinema, and books as a part of the environment, while encouraging their conscientious use.[67] These "intermedia" were, for Youngblood, extensions of each pre-existing form, and ultimately extensions of human consciousness. Greatly indebted to Eastern philosophies and psychedelic mind expansion, the text brilliantly forecasted several characteristics of network complexity, albeit with a somewhat techno-utopian bent. Seeking to outstrip the division between the mind and body, Youngblood wrote that "the ultimate computer will be the sublime aesthetic device: a parapsychological instrument for the direct projection of thoughts and emotions."[68]

Jack Burnham, a contemporary of Youngblood, had also recently formulated a theory of Cybernetic art, a "systems aesthetics" that incorporated interaction, a

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[64] Robert Mallary, "Computer Sculpture: Six Levels of Cybernetics" in *Artforum* (May 1969): 34-35.
[65] Mallary, "Computer Sculpture," 34-35, as cited in Gene Youngblood, *Expanded Cinema* (New York: Dutton, 1970), 191.
[66] Gene Youngblood, *Expanded Cinema* (New York: Dutton, 1970), 41.
[67] Youngblood, *Expanded*, 54.
[68] Youngblood, *Expanded*, 189.

self-regulating system, and feedback into its final form. Tracing the relationship between scientific pursuits and developments in modern sculpture, Burnham concludes his investigation with the "cybernetic organism as art form," for him a significant evolution in three-dimensional art.[69]

> the cultural obsession with the art object is slowly disappearing and being replaced by what might be called "systems consciousness." Actually, this shifts from the direct shaping of matter to a concern for organizing quantities of energy and information. Seen another way, it is a refocusing of aesthetic awareness—based on future scientific-technological evolution—on matter-energy-information exchanges and away from the invention of solid artifacts. These new systems prompt us not to look at the "skin" of objects, but at those meaningful relationships within and beyond their visible boundaries.[70]

Theories such as these anticipated the difficulty that traditional aesthetic interpretational models would suffer when encountering the new systems of matter-energy-information exchanges. Indeed, much electronic and digital art is only observable through the output of text or image on a screen, a printout, or some other mediating element that manifests the computer's calculations. The interaction of code must be made palpable, 'embodied' so an audience may engage it aesthetically. In example, contemporary artist Jason Salavon's *The Top 25 Grossing Films of All Time, 2x2* (2001) consists of a computer program that creates color-averaged frames from the dominating color schemes in each of 25 worldwide blockbuster motion pictures (See Figure 3.8). The final product, a digitally-projected mosaic of flickering colors with its accompanying cacophony of soundtracks, comprises a part of the artwork—but is only material evidence of the code itself, which comprises a

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[69] Jack Burnham, *Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of This Century* (New York: George Braziller, 1968), 313.
[70] Burnham, *Beyond*, 369-70.

key element of the artist's expression. John F. Simon, Jr.'s *Every Icon* (1997) evokes similar questions through its presentation of every possible variation of black and white squares within a 32 x 32 grid (See Figure 3.9). Jeffrey Shaw's *The Legible City* (1988-91) permits the participant to navigate a simulated city made of text, by pedaling on a stationary bicycle. (See Figures 3.10 and 3.11) However, the installation of the work varies from one exhibition space to another. Does this mean that the 'art' lies outside of its material presentation, its programming or conceptual underpinnings, perhaps? How can we begin to address works like these through Burnham's concept of "systems consciousness," taking into account not only the plastic qualities of the final art object, but also the way in which its aesthetics reach out like tendrils to entangle with our embodied perception?

Now that works that were only dreamt of in Burnham and Youngblood's imaginings are beginning to exist, how are contemporary scholars reconciling digital aesthetics with pre-existing standards of aesthetic analysis? Now that art is interpenetrated with information culture—just as the rest of industrialized and informationalized life—what aesthetic engagement is possible? What mode of analysis is appropriate to the technological dimensions that cannot and should not be ignored? How can electronic and digital art move beyond the stigma of being too technical to be aesthetic, and too aesthetically concerned to be technical?

Contemporary new media curator Steve Dietz suggests that new media shares qualities with previous forms of art that existed within its milieu, but that its presence also marks a significant shift. That shift, he insists, should be taken into account when considering all "art after new media" not just art that can be formally classifiable as electronic or digital.[71] Although he does not elaborate on what such

[71] Steve Dietz, "Art After New Media" posted August 19, 2004. www.yproductions.com/WebWalkAbout/archives/000578.html. Downloaded May 1, 2006.

an influence might mean for art historical study, his viewpoint clearly marries the influence of technology in society at large to an analysis of aesthetic objects. While Dietz does not want to affect an attitude of "techno-formalism" in which the medium-specificity of new technology supercedes all other aspects of aesthetic expression, he calls upon the art world to provide more than a token engagement with art and technology.

Other scholars are more direct in articulating what role art history and aesthetics should play relative to interpretations of electronic and digital art. In example, Timothy Murray's exploration of digital aesthetics centers mainly upon interactivity and the potential of achieving virtuality. The English professor and electronic media theorist discusses interactivity in terms of a tectonic shift in creative activity, namely from the objectives of resemblance to that of simulation.[72] In this model, the quest for more convincing simulation and immersion outstrips established historical markers of aesthetic quality and taste within the arts (like, for example, the pursuit of naturalistic representation). "The promise of digital aesthetics," declares Murray, "is its enhanced zone of 'interactivity' through which the users' entry into the circuit of artistic presentation simulates or projects their own virtualizations, fantasies, and memories in consort with the artwork."[73] However, as he continues, the works of many new media artists are still indebted to pre-digital aesthetic values, thereby limiting the degree to which they can achieve effective virtualization.

The appropriation of a pre-existent visual language makes sense, considering that both the artist and his/her audience are immersed in that discourse. This pre-digital language may not be sufficient to articulate what Murray describes as

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[72] Timothy Murray, "Digital Incompossibility: Cruising The Aesthetic Haze Of The New Media" downloaded from ctheory.net. www.ctheory.net/articles.aspx?id=121, published January 13, 2000. Accessed April 14, 2006.
[73] Murray, "Digital."

"cybernetic paradigms of artistic place, subjective space, and political practice." Still, in the process of capturing the new languages of expression there exists a dialogue between the new and the old, between earlier forms of representation and artistic reconfigurations brought about by the digital.

In fact, these earlier forms often become the raw material for new digital articulations; fragments, past codes of representation, and aesthetic cues are translated into data then recombined into simulations. Those assessing the meaning and even the quality of new media art therefore need to understand the synergistic convergence of pre-digital practices and a new interactive aesthetics:

> In evaluating electronic art's understanding of its links to the past, critics need appreciate the historical and ideological complexity of the "new" apparati of digitized electronic arts in relation to the future promise of the digital reconfiguration of historical methods, artistic icons, and cultural memories…I wish to suggest that any analysis of digital interactivity must dwell critically on and in the metaphors and architectonics of resemblance, identity, point of view, and societal place whose complex, historical roots continue to haunt and inform even the most utopian projects of virtual interactivity.[74]

It is vague from the text whether any judgment is being meted out regarding new media artists' appropriation of pre-existing aesthetics. Regardless, it is clear that the old ways still retain currency in this nascent period of digital aesthetics' development. Therefore, the pre-digital modes of analogy, identity, subjectivity, and social reality still cling; these elements have not yet succumbed to the profound disorder and fragmentation of postmodern interactivity.[75] The utopian pursuit of

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[74] Murray, "Digital."

[75] Bill Nichols has also written an essay regarding the impact of cybernetic systems and simulation on the body and environment. In it he suggests a tension between the promise of technology and a persisting ideological indebtedness to existing social realities. See his "The Work of Culture in the Age of Cybernetic Systems" in

disembodiment, the possibility of removing the clinging meat of our bodies, our subjectivities, our materiality—all this recedes into the distance despite the frenetic pace of technological innovation.

Murray's conception of electronic media art as connected to past artistic and aesthetic traditions provides a compelling model, especially for its continued faith in the relevance that current tools of analysis (i.e. art history) can have for new media art. This paradigm conceives of electronic media as part of a progression in which electronic art finds its expression through the language and cultural artifacts of pre-electronic art forms.

His focus on interactivity is likely informed by the influential contemplations of British theorist Roy Ascott, whose writings revolved around cybernetic interaction and expanded consciousness. This is evident in Murray's identification of an artistic impulse toward simulation and virtuality as a unique quality of new media forms; both are key concepts in Ascott's forty years of written contemplation on art and technology. However, Murray sharply diverges from Ascott concerning degrees to which the traits of telecommunications and computer technology already inform post-electronic art.[76]

By 1980, Ascott had already articulated his desire to subvert formalist modernist aesthetics, in favor of a "field theory of art and consciousness" that embraced the rhizomatic nature of computational networks:

> To understand this [postmodernist art] paradigm, it is first necessary to know what formalist modernism was not. It was not connective, inclusive, transactional, associative, referential, interactive, changeable, discontinuous, multilayered, impure, ambiguous; it

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Electronic Culture: Technology and Visual Representation, edited by Timothy Druckrey (New York: Aperture Foundation, Inc., 1996), 121-144.

[76] By the term "post-electronic art" I mean literally art that proceeds in the wake of the development and dissemination of electronics.

> ignored autobiographical data and gestures of personality. Postmodernist art, by encompassing these qualities, presents a connective paradigm, which in turn demands a connective criticism…It moves across and through different areas of knowledge, and in this networking, it can be associated with cybernetics.[77]

A critical component of postmodernism to affect Ascott's theorization was the role of identity and subjectivity. Rather than reifying the objective, rationalism of modernism, Ascott built upon two related concepts: "double consciousness" and "non-linear identity." The first concept related a generalized state of having access to two parallel modes of consciousness simultaneously; Ascott linked this to virtuality and shamanistic practices of expanded consciousness, two doorways to alternative realities.[78] Curiously, there is no mention of W.E.B. DuBois's origination of the phrase as an expression of the dueling social realities of African-Americans as racially determined (black) and nationally determined (American). Although, given the similarities in meaning, Ascott is most certainly taking artistic license with DuBois's construct. In his glossary of technoetic aesthetics, the theorist later refers to "non-linear identity" as related to the global network brought about by telecommunications and computing. Instead of the modernist indebtedness to rationality signified by, for example, Rene Descartes and his proverbial declaration "I think therefore I am," Ascott writes: "I connect, therefore I am multiple."[79] This notion of identity made manifold through interactive networks suggests the fragmentation of unitary identity that accompanied postmodernism, with its attendant philosophical deconstructions. However, it also invokes the parallel-reality experience of cyberspace, as well as the destabilization of social identity under the informational "space of flows" as concurrently investigated by Castells.

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[77] Ascott, "Towards," 178.
[78] Ascott, "Weaving," 357.
[79] Ascott, "Technoetic Aesthetics," 379.

Ascott is famous in new media circles for his theoretical development of the relationship between "telematics"—the coming together of telecommunications networks and computational technology—and artistic production. The term for him signifies the impact of communications technologies and computers, but also the possibility of remote communication between humans, animals, and computers. Telematics, then, takes a page from Norbert Wiener's theories of cybernetics, in which he theorizes modes of control and communication between the animal and the machine.[80] Interactivity and the idea of a collective, rhizomatic network also figure strongly into Ascott's concept, as well as a utopian belief in telematics as a key contributor to the elevation of global human consciousness.[81] Ascott's vision of telematics is partially indebted to Buddhism: in 1996 he elucidates its "Fivefold path" that includes connectivity, immersion, interaction, transformation, and emergence.[82] For Ascott, technology and expanded consciousness—made possible by the influences of Eastern thought, shamanism, mysticism, and holistics—engender new modes of expression that called for new philosophies. The resulting new aesthetics were dubbed "technoetics" in order to mark a distinct shift from previous aesthetic concerns, especially those rooted in modernist paradigms. Technoetics marked the promise of expanded explorations of consciousness through

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[80] Norbert Wiener, *Cybernetics or, Control and Communication in the Animal and the Machine* (Cambridge, Mass.: MIT Press, 1948).

[81] For an excellent and detailed explanation of this concept, see Edward Shanken's "From Cybernetics to Telematics: The Art, Pedagogy, and Theory of Roy Ascott" in *Telematic Embrace: Visionary Theories of Art, Technology and Consciousness*, edited by Edward A. Shanken (Berkeley: University of California Press, 2003), 1-95.

[82] Roy Ascott, "Technoetic Aesthetics: 100 Terms and Definitions for the Post-Biological Era" as reprinted in Ascott, *Telematic Embrace*, 375-382. Originally written in 1996, and first published in Japanese in *Roy Ascott, Art and Telematics: Toward the Construction of New Aesthetics*, trans. W. Fujihara (Tokyo: NTT Publishing Co., 1998).

mind and technology. In addition, he believed this shift marked a period of new forms of expression, artistic and otherwise.[83]

In the artistic realm, technoetics—as the new aesthetics—pushed computer arts beyond "a form of craft in which polished technique or skillful programming, leading to dazzling special effects, have come to replace the creation of meaning and values."[84] These "computer arts and crafts"[85] were of the previous modernist order of art making, in which the form and content could be conceived of through binary relations, rather than as elements inextricable from each other in the creation of meaning.[86] In fact, postmodern thought influenced Ascott's formulation of a technoetic approach to art making, one concerned with interaction (what he called "behavior"), as opposed to unidirectional communication issuing from art object to viewer.

How does Ascott's aesthetics of the technoetic instruct post-electronic aesthetic analysis? "The classical concern with the surface image of the world," writes Ascott, "gives way to the technoetic aesthetics of creative consciousness and artificial life."[87] In other words the conventional aesthetic concerns of the unitary art work's plasticity give way to the abstraction—not to mention the mind expansion—of telematic conditions. His theorization is tremendously open-ended; it could even be construed as strategically evasive or purposely indeterminate. It is significant, however, that his terms "telematic art" and especially "technoetic aesthetics" account not only for the confluent technologies of computers,

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[83] Roy Ascott, "Towards a Field Theory for Postmodernist Art" as reprinted in *Telematic Embrace: Visionary Theories of Art, Technology and Consciousness*, edited by Edward A. Shanken (Berkeley: University of California Press, 2003), 178-183.
[84] Ascott, "Weaving," 357.
[85] Ascott, "Technoetic Aesthetics," 376.
[86] Shanken makes this argument in "From Cybernetics to Telematics," 85.
[87] Ascott, "Technoetic," 381.

communications, and networking, but also consider how behavior and thinking is reorganized on their account. Therefore, his conceptualization validates the possibility that the paradigm-shift in thinking ("telematic thinking" one might call it) may result in art that embodies its tendencies, without actually being electronic. A perfect example of this can be found in Ascott's early artistic exploration of cybernetic principles. For example his *Change Painting* (1959), a construction of wood, Plexiglas and oil paint, presents varying experiences of the piece based upon how participants rearrange the overlapping painted segments (See Figure 3.12).

Works such as these investigated the possibilities of interactivity, and reflected the contemplation of connectivity, immersion, transformation, and emergence. It should be noted, however, that these terms are tremendously broad in scope; they never quite constitute themselves as functional for the determination of aesthetic judgment in a work of new media art. Nor do they necessarily capture qualities that apply *only* to new media. The nearest Ascott comes to specifically identifying a new aesthetics is to conceive of postmodern telematics as making the pendant modernist concerns of form and content "inseparable and mutual co-determining parts of the overall meaning produced."[88] It is only through this definition in opposition to past avant-garde traditions that these theories address history, quite in contrast to Murray's articulations. And it is with a tremendous optimism that Ascott addresses computational technologies and telecommunications networks as opening new horizons for creative expression.

These writings have garnered criticism for their obvious utopianism, and for their technologically deterministic suggestions that computers and telecommunications can awaken such a radical shift in global consciousness. Edward Shanken, who in 2003 collected Ascott's writings in to one volume for the

[88] Shanken, "From Cybernetics," 85.

first time,[89] gently rebutted these criticisms by validating Ascott's visionary aspirations:

> Unencumbered by the demands of rational epistemology, perhaps the discipline of art—as the cultural convention changes with the embodiment and maintenance of the loftiest of human ideals and the rigorous questioning of them—can offer alternative to military and commercial applications of new technologies.[90]

Certainly there is a place for this more idealistic cognitive framing of the potential relations between art and technology, with its goals of planetary consciousness-raising and holistic worldviews. Ascott's theorizations, since the 1960s, have done much to push the conceptual possibilities of electronics and the digital in terms of behavior and consciousness. The ripple effect of his influence regarding the formation of new modes of consciousness, brought about by telematics, resonates in a younger generation of cultural critics and theorists. Paul Miller is one such example: his "multiplex consciousness" resonates strongly with Ascott's construct of identity made multiple in data space. However, within a discussion of the relations between digital aesthetics and embodiment, Ascott's theories ultimately retain strong bonds to the *cerebral* connection between human and machine (addressing behavior, consciousness) and relatively weak links to the *visceral*.

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[89] Shanken's is the first collection in English. However, many of Ascott's writings were collected in 1998 in Japanese. See *Roy Ascott, Art and Telematics: Toward the Construction of New Aesthetics*, trans. W. Fujihara (Tokyo: NTT Publishing Co., 1998).

[90] Edward Shanken, in Roy Ascott, *Telematic Embrace: Visionary Theories of Art, Technology and Consciousness*, edited by Edward A. Shanken (Berkeley: University of California Press, 2003), 88.

VII. Interventions into Media and the Body

The goals of planetary conviviality through virtual mind expansion suggest a global network of the disembodied kind, and remains somewhat in avoidance of the messy entanglements of differentiated bodies within the network. In order to address an aesthetic philosophy of the digital, specifically one that accounts for its physical sensations and effects, I call upon Mark B. Hansen who privileges the *body* in aesthetic interactions with electronic and digital art. Hansen effectively integrates and in fact centralizes the body as a necessary conduit for experiencing the digital. In his *New Philosophy For New Media*, he constructs an "embodied aesthetics" that specifically seeks to theorize the bodily interaction with electronics and the digital. Asserting that the contemporary experience of the digital is actually grounded in embodiment, he conceptualizes the body as an active agent in the formulation of a digital aesthetic experience.[91]

His theorization is indebted to the writings of Henri Bergson, specifically *Matter and Memory*, in which the sensing body is conceived as indeterminate rather than fixed, and constitutive of experience rather than merely acted upon. This affective body, according to Bergson, is constantly engaged in an active exchange with the world. The body is not independent of the world, but rather "in the aggregate of the of the material world, an image which acts like other images, receiving and giving back movement, with, perhaps, this difference only, that my body appears to choose, within certain limits, the manner in which it shall restore what it receives."[92] Bergson was concerned with the body as a filter for material experience. He wrote that the body has affect, and that this affect colors or mediates

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[91] Mark B. Hansen, *New Philosophy for New Media* (Cambridge, Mass.: MIT Press, 2004.

[92] Henri Bergson, *Matter and Memory*, translated by N.M. Paul and W.S. Palmer (New York: Zone Books, 1988), 19. Originally published in 1908 in French.

an understanding of what he called "image". I would like to clarify the term "image" as not specifically ocularcentric, but which can be understood to include a broad spectrum of aesthetic (i.e. sensorial) experiences. In his theories, the body becomes an agent in the production of experience; it constantly orders, mediates and frames matter.

Hansen openly expresses his will to appropriate Bergson's ideas of the affecting body as a theoretical framework for his overall project: namely, the linking of "aesthetics of new media with a strong theory of embodiment."[93] Walter Benjamin and Gilles Deleuze figure prominently into his theorization as well; however, Bergson's ideas form the core of his methodology. Hansen, an English professor and new media theorist, discusses Jonathan Crary, W.J.T. Mitchell, and Paul Virilio, whose writings all share the sentiment that technology alienates the body by stripping its ability to engage with a material element. Because they see the digital as without materiality, the body under the duress of new media results in disorientation. Hansen also sharply opposes Friedrich Kittler's ideas, specifically his writings in *Gramophone, Film, Typewriter* in which the author asserts that, with their translation into the digital, all media are converging.[94]

Kittler forecasts the obsolescence of human beings, because perception is no longer necessary in the data sphere. Disembodiment can rule as "the digital revolution marks the endgame in the long-standing war of technology and art; with digitization, the perceptual-aesthetic dimension of media becomes mere 'eyewash,' a hangover of a bygone humanist epoch…"[95] Data flows in its raw form, unencumbered by the need to be translated into human perception. This strongly

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[93] Hansen, *New Philosophy*, 3.
[94] See Friedrich Kittler, *Gramophone, Film, Typewriter*, translated by B. Winthrop-Young and M. Wutz (Stanford: Stanford University Press, 1999).
[95] Hansen, *New Philosophy*, 71.

contradicts Hansen's theoretical model in which the digital image heralds an embodied mode of information processed by the body, and hence an embodied aesthetics.[96] Therefore, it is logical that he should instead call upon Bergson and Deleuze to build out a theory that takes into account the haptic, visceral ways in which the body mediates aesthetic experience. It is our bodies, finally, that shape data into experience, and that give the raw deluge of information cohesion.

This is not to say that the body assuaged in this model; conversely, with the confluence of media into the digital, it is under greater burden to mediate and filter. Still, it formulates aesthetic experiences of the digital as consistent with the interactive mode, with an embodied agent-participant rather than a passive recipient. According to Tim Lenoir's adept recapitulation of Hansen's argument, digital data eventually needs a context or frame in order to resolve itself into information. Human embodiment provides the interpretation of that data, giving it body.[97] Ultimately, embodied perception is at the core of all image technology, and the perceptive body takes this formless data and creates it into experience.[98]

> If the embodied basis of the image is something we can grasp only now, that is because the so-called digital image explodes the stability of the technical image in any of its concrete theorizations. Following its digitization, the image can no longer be understood as a fixed and objective viewpoint on "reality"…since it is now defined precisely through its almost complete flexibility and addressability, its numerical basis, and its constitutive "virtuality."[99]

What, then, can be said about aesthetic conditions "unique" to digital media? Hansen asks if there is actually anything "new" about new media art; some of his

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[96] Hansen, *New Philosophy*, 12.
[97] Tim Lenoir, "Foreword," in Hansen, *New Philosophy*, xxiii.
[98] Hansen, *New Philosophy*, 10-11.
[99] Hansen, *New Philosophy*, 8.

answers are nested in the above quotation. He identifies "complete flexibility," the unprecedented mutability of the digitized image/experience. Added to this is the aforementioned shift from the specificity of discrete mediums, to a foregrounding of the agent-viewer as a prime mediator of otherwise amorphous data. At root, the digital aesthetic marks, for Hansen, a shift from "a predominantly perceptual aesthetic to an affective one."[100]

The importance of this theory, given the current discussion, lies in the reassertion of the body—and by extension, subjectivity—as central to the digital. If the agent-observer of (digital) aesthetic experience is implicitly tied to the production of that experience because they are in effect "shaping" data, then identity plays a key role in this interaction. If the work of new media art is a kind of body that is interpenetrated by informational patterns, then digital aesthetics must be able to account for its presence in the field of artistic expression, rather than overlooking new media as out-of-bounds. W. J. T. Mitchell has confessed to the shortcomings of his disciplinary home when faced with digital media, especially when addressing the purportedly disembodied nature of its aesthetics:

> In the field of art history, with its obsessive concern for the materiality and "specificity" of media, the supposedly "dematerialized" realm of virtual and digital media, as well as the whole sphere of mass media, are commonly seen either as beyond the pale or as a threatening invader, gathering at the gates of the aesthetic and artistic citadel.[101]

It seems that not only is new media untouchable on account of its relations to the masses, but also its flickering materiality. In order to push the discussion further, then, we need turn to areas of research that reconcile electronics and the digital with

[100] Hansen, *New Philosophy*, 92.
[101] Mitchell, *What Do Pictures Want?*, 205.

embodiment and materiality. Yvonne Volkart, a self-described cyberfeminist theorist, links new media technologies with the political, by paralleling the onset of particular media technologies with socially-engaged art. Once a member of the cyberfeminist collective OBN (Old Boys Network),[102] her writings reflect the collective's dedication to feminism and the transformative possibilities of technology. "Within the communities of political activists engaged art producers," she recalls, "the utopian hope of an alternative use of new media and new technologies has always been crucial."[103] While cyberfeminism has faced problems and challenges, it represents transdisciplinary approach into what the role of technology can be in a postmodern paradigm of fragmented and dissipated subjectivities. Additionally, cyberfeminism has supported a notion of embodied technologies, breaking with the forms of techno-utopianism that proffered philosophies of the body as mere meat, as obsolete hardware to be sloughed off.

An embodied understanding of technology's impact is valuable to a discussion of art history's relationship to technology, especially in that it attempts to negotiate the hierarchal binary between human and machine that has dogged academic scholarship in the arts. Within art history, Amelia Jones inquired in 2001 whether the presence of technology has shifted the conditions of interaction:

> What have been the specific intersections among visuality, embodiment, and the technological in the history of Western art? What place do artists' or art viewers' bodies have in the violently revised nexuses of power relations that arise with shifts in technological processes of imaging, traveling, healing, procreating, making and knowing?[104]

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[102] See the collective's web site at wwww.obn.org.
[103] Yvonne Volkart, "Technologies of Identity" (2002), downloaded from www.obn.org, accessed March 25, 2006.
[104] Amelia Jones, "The Body and Technology" in *Art Journal* (Spring 2001): 20.

In detail, Jones draws out the relations between othered bodies and what she describes as the onset of the "televisual." By the coinage of this term the feminist art historian attempts to capture a quality of particular media forms, in this case video and after, but also to convey something more about the capacity for new media to palpably articulate the body in a way that the photographic order cannot:

> I want to indicate that the small screen of the televisual image can operate as a kind of corporealizing hole, an opening back into the three-dimensionality of lived flesh though to have been (in Platonic theories of representation) left behind by the very act of reproductive image making.[105]

The essay draws parallels between the contemplation of otherness and the use of televisual technologies as a strategy for addressing visceral differences between the artistic subject as other, and the viewer. Jones argues that this "televisual spectatorship" grows increasingly important as an area of theoretical contemplation, as the televisual mediates a growing percentage of human interactions.

The televisual more efficiently conveys the materiality of the body, with all its fleshiness and abjection, stimulating dissolution of the boundaries between viewer and bodies viewed—whereas photography, she claims, has an aesthetically compartmentalizing and distancing effect. In other words, the new media paradigm collapses the wall between self and others as well as art and viewing subject, so that there is more interplay and less clear distinction. This confluence, however, can be accompanied by psychic discomfort around the lack of clear boundaries, and the tearing town of Cartesianism as a viable worldview:

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[105] Amelia Jones, "Televisual Flesh: Activating Otherness in New Media Art" in *Parachute* 113 (January 2004): 73.

> In a historical sense televisuality might be understood as signaling a collapse, not only of Cartesianism, but also the visual politics of domination that both motivated and codified the structure of absolute difference posited by the Cartesian self-other relations.[106]

In this model it becomes impossible to completely separate from the televisual presence; observers become enmeshed with the embodiment emanating from that which is presented to them.

What Jones suggests is no less than a paradigm shift in relation to otherness; the televisual becomes an alternative construction that engenders opportunities in terms of the embodied other. It becomes possible to conceive of the embodied other *not* as alien or abject, but through its growing indistinction between "other" and "self," between "them" and "us." This connection cuts to the very core of the prominent use of media by socially-defined minorities, and the rejection of media arts by critics as was witnessed in the press response to *Documenta 11*. It speaks to, as Jones has articulated, the pressing of the other against the very thin membrane that separates discrete forms of embodiment from each other. But also, by extension, if we think of the art object/experience as a kind of body under the duress of the televisual, then it speaks of the object's aura not as a remote and unidirectional form of communicating affect, but a matter of interactions.

VIII. Cybernated Aesthetics

How does this erosion of boundaries as described by Jones manifest itself in contemporary artistic production? I begin with what one might strictly refer to as the sculptural work of Lee Bul, a partial installation view of her exhibition at Artsonje

[106] Jones, "Televisual Flesh," 85-6.

Center in Seoul, Korea, 1998 (See Figure 3.13). Suspended are two, white, partially constructed representations of cyborg bodies. The four cyborgs in the installation, though unbounded by traditional biological gender, appear as female due to their hourglass shapes. And between them stands a monster. *Monster: Black* (1998), is the many-tentacled amorphism, the great glittering pile of excrement. Visually incongruous, the clean, sleek, resolutely contained surfaces of the female cyborgs resonate tensely against the unwieldy tidal wave of abjection that has gathered up its full force and threatens to crash down, subsuming all in its environment.

Much more unlikely, but perhaps in their own subtle way more relevant for this discussion, are Lee Bul's *Monster Drawings* of 1998 in which proliferating forms mimic the octopus, the insect, the chrysalis, nerve endings, plant growth, and organs in a confusion of internal and external parts (See Figures 3.14-3.16). The diagrammatic outlines of the India ink drawings add to the ambivalence of the forms, since the contours and the descriptive lines do not necessarily resolve themselves into clear forms. The three-dimensional versions of these 2-D renderings, though compelling, do not hover between cohesion and dispersal in the same way. They float within the space of the viewer as discrete objects, as though clinically suspended in liquid. Lee's fleshy monsters, on the other hand, endanger the very sanctity of the unitary subject by suggesting in a visceral way that their physicality might bleed into ours. That is to say, these piles built up in the space, suggesting ordure and entrails, threaten the idea of the autonomous subject. This is achieved through a muddling of the boundaries that would keep such messy entanglements at bay.

It is broadly acknowledged that Lee's production since 1998 bears much in common with Donna Haraway's "political fictions," namely cyborgs, monsters, and hybrids, as strategies for stepping out of restrictive binaries that order much of

Western intellectual thought.[107] In her "A Manifesto for Cyborgs," Haraway calls upon women of color to embrace the cyborg as a symbol for the breakdown between humans and machines. On the one hand, the cyborg, being post-gender, operates beyond the sex binary and the social realities that accompany it. This positions the cyborg as a possible metaphor for standing outside of the phallocentric, rational thought associated with the modernist period.

Lee's work, as both a staging ground for ideas and as aesthetic expression, forms a bridge for the consideration of representations of postmodern dissipated structures and liminal entities. The cyborg and its many manifestations in cultural expression demonstrate models of identity that do not adhere to static nation-state, gender, race, or class. Monsters and hybrids, too, speak to unauthorized aberrations and unlikely cross-pollinations that straddle clear categories, especially within rigid systems of definition.

Among other resolutions of the human/machine dualism, the trope of the cyborg has been mobilized successfully within the context of technology as a political metaphor for outstripping the binary limits of the gender dualism. As a part of a discussion into the broadened possibilities for technology as shaping contemporary thought, the cyborg as theoretical and artistic construct becomes a useful fiction. For it is through metaphorical constructions like the cyborg that the complex struggle with modern technology finds potent articulation.

I have argued that there is a link between the presence of modern technology and the presencing of the subaltern in Western scholarship as comprising two separate but not unrelated challenges to the traditional art historical narrative. At the same time, I have outlined the apprehensions toward technology that issue from a

[107] Donna Haraway, "A Manifesto for Cyborgs: Science, Technology and Socialist Feminism in the 1980s," in *Socialist Review*, Number 80 (1985): 65-107.

post-World War II Marxist, self-described avant-garde Left, as well as other leftist discourses whose roots lie in postcolonial and global critique. However, there are socially-defined minorities who, rather than choosing to eschew modern technologies, have instead sought to naturalize its materiality and its metaphorical status, as an intervention into dominant discourse. Cyberfeminism demarks one such intervention, of which Donna Haraway's "A Manifesto for Cyborgs" is considered an influential text. As such, it presents a compelling model for rethinking the formerly stable boundaries between machine and body; in this case I assert it also informs aesthetic experiences of new media forms.

In my investigation of the art historical reception to modern technologies, I have shown that although art and technology are intimately tied, the official narratives of art history have not yet addressed aesthetic concerns that would take the onset of the digital fully into account. Therefore, in order to begin developing an aesthetics that accounts for the impact of electronics and the digital, or what I term "cybernated aesthetics," it is necessary to look outside of traditional art history to consider other models for relationships to technology.

By "cybernated aesthetics" I invoke Nam June Paik's term from 1966, "cybernated art," from his manifesto of the same name.[108] In it, Paik advocates the fusion of art and technology as a strategy for drawing attention to the impact of life that is increasingly saturated by modern technology, or "cybernated life." His term is useful because while it addresses art influenced by information exchange, it is not limited to literal electronic and digital forms. This allows for an understanding that pushes beyond formal attributes, into a more nuanced understanding of the ways that

[108] Nam June Paik, "Cybernated Art" in *Multimedia: From Wagner to Virtual Reality*, ed. Randall Packer and Ken Jordan (New York and London: W.W. Norton & Company, 2001), 40-41. Originally published in *Manifestoes*, in Great Bear Pamphlets (New York: Something Else Press, 1966).

electronics and the digital shape social reality. As literary theorist Steven Shaviro eloquently expressed it forty years after Paik:

> computational technologies have penetrated and transformed the real itself. (It's important to maintain that these technologies are themselves thoroughly real, constitutive and constituent of the real, in short part of the very fabric of the Real; against the fashionable claims that they have murdered the real, denatured it, reduced it to spectacle or simulacrum).[109]

The term "cybernated aesthetics" extends Paik's idea to include the fusion of art historical scholarship with the study of aesthetics that integrates the impact of machines, electronics, and the digital.[110] In both Paik's usage and my own, this term is contingent upon a finite cultural moment in which the joining of these is the most pronounced because of their friction. Each of their boundaries grates against the other, and it is in that interaction that "something begins its presencing."[111] I also intend it as a loaded term that implies a problematic, monstrous hybrid or a valuable augmentation, depending upon the viewer's relationship to technology. Never was the grammar of machinery neutral, and with each successive medium, its language builds upon former media, expressing the concerns of its age and recalibrating

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[109] Steven Shaviro, "Ghost in the Shell 2: Innocence" review of film, http://www.shaviro.com/Blog/. Posted October 3, 2004. Accessed October 8, 2004.

[110] I have limited my discussion to the impact of electronics and the digital on art history, but there has also been significant new research on the application of aesthetic philosophy and practice to the field of computing. See Paul A. Fishwick, ed., *Aesthetic Computing* (Cambridge, Mass: MIT Press, 2006).

[111] I borrow this phrase from Homi Bhabha, who used it in reference to hybrid cultures and transnationalisms that appear at the interstices or liminal spaces between pre-existing demographic groupings. Though he used it in relation to emerging cultures, not art and technology, I see the term as also appropriate to the flowering of artistic forms that integrate the technological, engendering new and sometimes fleeting articulations. See Homi Bhabha, *The Location of Culture* (New York and London: Routledge, 1994), 7.

perceptions according to its ideological underpinnings. That is to say, development of new media forms are not completely erratic, but situated within the set of possibilities set forth by its ideologies.

'Digital aesthetics' suggests a literal link between a *digital* medium and its manifested characteristics, like pixelation and code, for example. It suggests the possibility that those characteristics can be used to categorize digital art, outline an aesthetic taxonomy, or draw boundaries around a sphere of research. But any qualities that one might attribute to the digital are easily contestable as existing in previous form, or perhaps having a linkage to pre-existing forms. The project of delineating clear boundaries between media forms becomes virtually impossible given the fluidity between them. More importantly, such taxonomies ultimately misinterpret the larger significance of the digital, such as the overall impact of digitality on symbolic representation.

As one might characterize the informational era as ushering in a space of flows, or a feedback system between various elements, I suggest that cybernated aesthetics are demarked by the presence of multiple flows between the aesthetic object/experience and the viewer as agent. Rather than the former model of aesthetic experience, in which there is an object/experience endowed with unidirectional "aura" that passive viewers must render themselves unto, art becomes a mutual exchange, a negotiation. This model takes into account interactivity, and immerses the active participant into the interchange between bodies and machines. Therefore I see the term "cybernated aesthetics" as much more suggestive of multiple flows between art object/experience and artist/agent, while also evoking technology's interpenetration into human experience.

However, cybernated aesthetics do not stringently assign particular material qualities that are typically invoked in discussions of new media art. Many have

described new media in terms of its apparently distinct traits. Lev Manovich chose five conceptual qualities that he felt were uniquely attributable to new media: numerical representation, modularity, automation, variability, and transcoding.[112] During a 2005 conference on new media and art history, Christiane Paul catalogued a list of terms often used in reference to new media's materiality: computability, process-oriented, time-based, dynamic, nonlinear, networked, real-time, interactive, hypertextual, modular, variable, generative, and customizable were among those qualities listed—although these were but a small sampling of a rather sprawling list of descriptors.[113] In the course of this chapter, we have considered how "telematics" has come to describe a certain aspect of new media production, as well as many other terms including Burnham's "systems consciousness," Ascott's "technoetic aesthetics," and Paik's "cybernated art." These terms have all stretched the limits of art history as an object-based discipline by reaching beyond *material* aesthetic qualities of art that integrates new media, and instead considering *conceptual* aesthetic categories.

Subjectivity and technology are linked in new media art, since the viewer becomes a participant/agent in the formulation of the aesthetic experience. Therefore, special attention must be paid to those cognitive frameworks that do not disavow identity, nor seek to neutralize it under the banner of utopian egalitarian notions. Is it possible to engage with technology and still acknowledge the shifting, multifarious subjectivities of postmodernity? How can this be applied to an art historical model that acknowledges the filtration of cybernated aesthetics into

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[112] Lev Manovich, *The Language of New Media* (Cambridge, Mass.: MIT Press, 2001), 27-48.

[113] Christiane Paul, "The Myth of Immateriality – Presenting and Preserving New Media," presentation at REFRESH! Conference, Friday, September 30, 2005, Banff New Media Institute, Banff, Canada.

material cultural production? That is to say, I refer not merely to electronic and digital media forms per se, rather to the general influence of advanced technologies on aesthetic production at large. While models existing outside of art history may not be suitable for wholesale appropriation, they may still provide useful, productive languages.

But what of Lee Bul's cyborgs and monsters? The South Korean artist's work has evolved since the 1980s into an extended meditation upon the monster and the cyborg as tropes for "our fear and fascination with the uncategorizable, the uncanny."[114] Early on, Bul's performances were enacted in costumes that allowed her body to assume extra appendages, orifices, tendrils, viscera. She presented her own female body as monstrous, abject, informe, indeterminate, excessive (See Figure 3.17). Since then, her works have evolved into sculpture, installation, and interactive pieces that exacerbate the tension between proliferating aberration and the promise of futuristic technology. Both are embodied in the cyborg and the monster, two prominent constructs appropriated by the Seoul-based artist to investigate technology and female subjectivity.

The fantasy of the cyborg was first taken up by Bul in 1997, but continued as a dominant theme for the next several years. Concurrent with this production were her monsters, exhibited in the form of drawings and sculptures. Her *Cyborg Drawings* and *Monster Drawings* (See Figures 3.18-3.21) prefigured what would eventually become large sculptural representations, impressive in their disturbing resistance to assimilation into coherent form. In reference to works such as *Amaryllis* of 1999, as well as *Supernova* and *Crysallis*, all of 2000, the confusion

[114] National Gallery of Victoria, "world rush_4 artists: Lee Bul," exhibition statement, downloaded from http://www.ngv.vic.gov.au/worldrush/bul.html, accessed May 9, 2005.

between inside and outside, between its space and our space signals erosion of the clear divisions between the object and the viewer/agent:

> This is a posthuman body, transcending the dichotomies between nature and artifice, male and female. It is at once glorious and sinister, familiar and alien, grotesque and strangely seductive, and it beckons us toward a sci-fi future in which species identity renders gender identity irrelevant.[115]

Thus, it suggests an alternative to the ways in which the perceptible material properties of Bul's works are received. The cybernated body is the body made monstrous and posthuman. It represents the technologically mediated, the unlikely couplings and subsequent engendered fusions. The claim that gender, or any marker of difference for that matter, will ever be rendered completely irrelevant is unlikely; still, the polymorphousness of Haraway's cyborg and Bul's monsters reflect at least an ideological perceptual turn away from conventional subjectivities:

> The monsters and cyborgs show us that another way is possible. And a monster *"demonsterates"*, indicates, testifies within its very body, its intrinsic singularity, that there are roads other than the usual roads; that there are possible, viable forms other than the forms that occupy a legitimate place in the normative field of representation; and that other worlds are possible and realizable. Lee Bul calls this the "point of convulsion", in that representation collapses under the effect of a concentration of singular forces. These forces inhabit the void, and endow it with an aesthetic power which enables the unfigurable itself to become palpable and sense-perceptible.[116]

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[115] Adrienne Gagnon, "Lee Bul" in *010101: Art in Technological Times* [exhibition catalog] (San Francisco: San Francisco Museum of Modern Art, 2001), 96.
[116] Jean-Louis Poitevin, "Convulsions: An Essay on the World of Lee Bul" in *Lee Bul: Monsters* [exhibition catalog] (Edips: Dijon-Quetigny, 2003), 64-5.

This palpable "unfigurable," or turn from discrete singularities into spaces of flows and information patterns, distinctively marks cybernated aesthetics. The monstrosity of Bul's oeuvre, is a kind of translation of cybernated life into art. Volkart has written of how Bul's work "incorporates the traces and effects which new media technologies have on (female) identity and subjectivity."[117] The art lies no longer in the discrete object but in the *interface* between the work and the agent-viewer. As those traces and effects of electronics and the digital seep into the art/viewer relationship, the language with which art historians convey aesthetic relations must also adapt.

This is not to suggest that such cybernetic aesthetics are easily absorbed into physical bodies or bodies of knowledge; there may be discomfort or even pain. Artist Catherine Richards has written of how the process of conversion, as evidenced in the cybernetic mutations of artists like Stelarc and Orlan, can be marked by corporal invasiveness and mortal risk.[118] This is not to mention the psychic toll that accompanies the task of reconceptualizing the whole notion of unitary subjectivity.

Lee Bul's work occupies one position on a broad spectrum of artists whose works capture the reorganization of perceptual relations that has accompanied the onset of the postmodernity, with its attendant technological advancements. Among many others, Paul Pfeiffer has used digital manipulation of media entertainment clips to unearth the uncanny aspects of a collective media unconscious. His *Live Evil*, for example, (See Figure 3.22) reconstitutes performance footage of pop megastar

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[117] Yvonne Volkart, "This Monstrosity, This Proliferation, Once Upon a Time Called Woman, Butterfly, Asian Girl," in *Make Magazine* (August 2000). Downloaded from www.obn.org on March 25, 2006.

[118] Catherine Richards, "Fungal Intimacy: The Cyborg in Feminism and Media Art" in Lynn Hershman Leeson, ed., *Clicking In: Hot Links to a Digital Culture* (Seattle: Bay, 1996), 262.

Michael Jackson into a malevolent entity that scuttles across the screen like an insect.

Robert Lazzarini's computer-aided sculpture turns everyday items into uncanny objects that refuse to resolve themselves into comprehensible form. They push at the boundaries of perceptual stability, and disrupt the unitary sense of space and self (See Figure 3.23). Lilla LoCurto and William Outcault's radical remappings of the surfaces of human bodies, completed with the aid of a full body scanner and cartography software,[119] suggest a plane of experience that passes far beyond unitary subjectivity. Their bodies are infinitely splayed, dispersed, eviscerated for the sake of complete visibility (See Figure 3.24).

Bul's monstrous and cyborgian imaginings disregard the comfort zone between art object and viewer, engendering messy aesthetic experiences in which boundaries between nature, body, and technology are broached in a most disquieting way. This conflict between human and nature, encapsulated in the struggle for immortality through technology, is elaborated upon with Bul's *Live Forever* (2001). In this multimedia installation, three white pods that resemble futuristic auto designs are arranged in the exhibition space, each one with an accompanying video projection. The three fiberglass constructions are identical on the outside, evoking streamlined prototype vehicles, or air-controlled capsules such as one might see in science-fiction films. Futuristic and clean, these objects are beyond the abjection of Bul's monsters or her amputee female cyborgs. Nevertheless they remain ambivalent objects, compositing controlled, phallic external profiles with richly upholstered interiors that suggest prenatal chambers. (See Figures 3.25-3.27).

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[119] Helaine Posner, "Lilla LoCurto and William Outcault: Self –Portraits for a New Millennium" in *Art Journal*, Volume 65, Number 1 (Spring 2006): 40-53.

Opening the hatches of each pod, one observes that the interiors vary: *Live Forever I* is lined with a deep, orange leather; *Live Forever II* with a metallic light blue; and *Live Forever III* with black. Each is also equipped with its own audio-video system including a personal LCD screen, headphones and a microphone, suitable for choosing and singing along to any of a selection of popular karaoke songs. Once the pod is closed, an acoustic foam interior dampens sound so that no ambient gallery noise is heard inside, and a negligible trace of the karaoke singing within can be heard from the exterior. Two Plexiglas portholes allow external viewers to see the participant; the artist's three original videos, which form a backdrop for the karaoke lyrics, are also projected onto the gallery walls. In this telematic womb, one rests in stasis, suspended in a circular aesthetic exchange with technology. As Lee Bul explains:

> The spaceship, often in the form of a pod or capsule, is a recurrent motif in futuristic fantasies, which are all, in some basic sense, about the desire for immortality—to suspend, to escape the flow of time. In these fantasies, the pod functions as a technological exoskeleton, a divine shell, that we hope will allow us to go beyond the constraints of mortal flesh…In the capsules, you enter a realm where time and location are in limbo.[120]

Though aesthetically divergent from her earlier work, *Live Forever* resonates with the same intensity as the artist's former explorations of technology and the body. In their visual control and denial of uncontrollability, the karaoke pods powerfully address embodiment through their almost hysterical, technological containment of the flesh. Simultaneously, this project continues Bul's engagement

[120] Lee Bul and Clara Kim, "Interview with Lee Bul" in *Lee Bul: Live Forever, Act One* (San Francisco and Philadelphia: San Francisco Art Institute and The Fabric Workshop and Museum, 2001).

with women's bodies, particularly female sexuality as a modernist trope for the seductive and annihilative power of modern technology.[121]

IX. Conclusion

Lee Bul's work has been included in exhibitions of art and technology, although she is not generally referred to specifically as a new media artist, or currently incorporated into new media survey texts. Certainly, the above discussion forms only one interpretation of a multilayered and compelling body of work that confounds rigid categorization. Bul's oeuvre, nonetheless, exemplifies a tendency toward cybernated aesthetics as an identifiable presence in both the form and content of her works. That is to say, Bul's cyborgs, monsters, and pods, while calling upon an array of technologies that include (but are not limited to) media arts, are nevertheless fully engaged with cybernated life. Because her work is so thoroughly imbued with the concerns of advanced technology and its impact on embodiment, interpretations that excise such a discussion would be incomplete.

Bul's richly presented imaginings capture technological hopes and anxieties, while acknowledging their underpinnings in issues of subjectivity. As one of many artists whose aesthetic production is informed by technologies of informational society, she presents art with strong ties to an historical avant-garde who grappled with technological modernity. In conversation with foregoing critiques of

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[121] Many scholars have excellently researched the ideological melding of female sexuality and modern technology. In particular, I would like to draw the reader's attention to Andreas Huyssen, "The Vamp and the Machine: Technology and Sexuality in Fritz Lang's Metropolis" in *New German Critique*, No. 24/25, Special Double Issue on New German Cinema (Autumn 1981- Winter 1982): 221-237. See also Klaus Theweleit, *Male Fantasies, Volume 1: Women, Floods, Bodies, History* (Minneapolis: University of Minnesota Press, 1987).

technology, and modernist conflations of female sexuality and mechanical progress, Bul is an inheritor of that avant-garde tradition. At the same time, her creations break with avant-garde values by visually melding aesthetics and commodity, while referring continuously to embodiment and subjectivity as constitutive elements of her production. Her work is therefore exemplary in its subtle investigations of technological development, while outstripping a reading of new media aesthetics (or digital aesthetics) as bounded by specific 'qualities' like numerical representation, modularity, automation, variability, and transcoding.[122] Although these qualities are not as stringent as naming formal characteristics (i.e. digital code and hardware) I wish to capture a kind of *digital thinking* that supercedes descriptive taxonomies.

In response to the unique conditions of cultural production in an informational era, art history would benefit by accounting for the object's *perceptible aesthetic interaction* with the observer, in addition to the *perceptible material properties* of the art object/experience. In this move from aesthetics of object-based materiality to interaction, or "cybernated aesthetics," the formal aspects of the objects/experiences themselves do not entirely command the viewer's material relationship to aesthetics. Consistent with the current historical juncture, more significant is how the "material" dimension of objects interpenetrated by computational technology and informational patterns reorganizes perception according to their logic. Through this conceptual model, we as art historians can begin to understand aesthetic objects and experiences as entangled with our own bodies and subjectivities. Further, we can more adequately acknowledge the role of technology in shaping the social realities in which artists such as Lee Bul function.

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[122] Manovich, *The Language of New Media* (Cambridge, Mass.: MIT Press, 2001), 27-48.