Feedback to Immersion

MACHINE CULTURE TO NEUROMACHINES/
MODERNITY TO POSTMODERNITY

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"The capacity of our sensory apparatus has been exceeded."
— Elie Theofilakis

"We used to live in the imaginary world of the mirror, of the divided self and of the stage, of otherness and alienation. Today we live in the imaginary world of the screen, of the interface and the reduplication of contiguity and networks. All our machines are screens. We too have become screens, and the interactivity of men has become the interactivity of screens. Nothing that appears on the screen is meant to be deciphered in depth, but actually to be explored instantaneously, in an abreaction immediate to meaning—or an immediate convolution of the poles of representation."
—Jean Baudrillard

"It's not a problem of the configuration or the semiotics of the image, but a problem of the temporality of the image."
—Paul Virilio

"Humbling the image is no antidote to humiliating the word."
—Martin Jay

Cybernetics speculates about the coupling of machine and person. Since Norbert Wiener's seminal Cybernetics or Control and Communication in the Animal and Machine (1948), the trajectory of technology development has been one of an increasing possibility of achieving that interface. In the past decade, the possibility of defining a relationship not simply between but within technology has become plausible. Yet the commercialization of cybernetics comes neither as a technical panacea nor without deep ethical concerns. As machines mutate into biology, the philosophical and political values of technology are challenged to confront more than conceptualized situations but rather to theorize the materiality of programmed or enhanced being. At the same time, the development of "realities" that are characterized as immersive or virtual are beginning to surround experience. The penetration of technology within the body and the socialization of simulated realities is more than a signifier of technological progress—it marks a transformation of knowledge, of biology, and of the cultural order in which knowledge is linked with ideology, biology with identity in terms of a technological imperative not necessarily connected with necessity. The issues raised by this potential for the narrowing of the boundary between technology and experience are vast. In many ways the development of several parallel technologies has reached a crucial point.

The convergence of the principles of artificial intelligence, the rich potential of cognitive science, the functional ability to simulate perception, the revolutionary development of computing power, the stunning maturation of computed graphics, and the lapsing efficacy of passive media is implicated in a cultural shift of daunting proportions. Digital technology has outdistanced hard science and now encompasses virtually every industry. The hype about virtual reality, now retreating into the academies and backtracking from unreachable presumptions, makes it plain that the fashionability of the links between technology and imagination, technology and desire, technology and the body, and technology and the liberation from actuality are resident in the imagination in a newly mediated form. Instead of a simplistic connection between style and illusion, the VR draws on the euphoria of simulation. Immersive and interactive environments appear at present as novelty. Dimensional interfaces and "tactile" feedback together represent a powerful possibility. In robotics, medicine, design, and simulation, the idea of spatial integration is a tremendous benefit. For the arts, access to technologies that wholly engage the participant could be a final blow to worn traditions of images.

The dispersal of the ideas about the potential of virtual reality (VR) is striking. Indeed a new book touts the immaterial nature of the corporation itself. Publication of The Virtual Corporation suggests how quickly the ideas of VR and cyberthink have affected business: the virtual future. "The challenge of the new business era, with its virtual products, is to adapt the product to the consumer, not the consumer to the product," write William Davidow and Michael Malone in their assessment of the transformation of industry rooted in microelectronics. Juxtapose this with the promises of CEO cum guru Jaron Lanier: "what people want ultimately is experience, because power is not real. Power only exists within a social abstraction. So what I think we're really seeing is a shift toward a more sensual and aesthetic definition of what technology is for. VR places human experience at the center of what technology is for, rather than human power." (Through the Looking Glass, pp. 39, 41). If we have hoped that the computer would offer a democratizing of creativity and communication we must also be prepared to admit that these ideas are not the privilege of artists. Creativity and technology are merging.

The recognition of the dematerialization of things is no shock to the art world. For more than a decade cultural and art theory has been speculating about the social transformation of what is being called the "new world order." Its focus however is not primarily on technology. But it is clear that the framework for the shift from industrial to service to information economies has been fueled by the computer. Only slowly has cultural theory come to consider this. The art world has, in too many ways, been reluctant to acknowledge

technology as integral to the creative process. Suddenly the impact of electronic media and digital media have become a spectre to be encountered. The fear of compromise with often elaborate corporate interests and with the presumed frailty and intimidation of the machines themselves set the art world outside its status as future oriented. The decade of the eighties turned its attention instead on no less significant issues of sexual politics, multiculturalism, gender studies, and to a serious and far-reaching philosophical critique of the cultural mechanisms of representation. The importance of the ideas emerging from this period have not been fully realized. But the usefulness of social theory in postmodern culture is essential for the understanding not just of the function of representation in art and media, but for the understanding of the constitution of a culture inebriated by technology.

'Computer art' evolved simultaneously with often radical theories of representation. A discourse between the two, however, did not occur. Often caught in the rationale of technovelty, digital images (including animation, graphic design, etc.) seemed self-justifying and immune from the concerns of cultural criticism. Any reading of the hype surrounding digital culture and art knows that the responses range from dizzying exaggeration to ethical solipsism, paranoia to euphoria. Nevertheless, the merging discourses of creativity, technology, scientific visualization, experience, and art have reached critical mass. Theories of interactivity must be joined with theories of discourse. Without this, the affiliations between representation, intention and technology will remain mired in outmoded presumptions about the 'two cultures.' Images can no longer be disassociated from the tools used to create them.

The development of technology is rooted in notions of social progress. So-called 'primitive technologies' were deployed in social systems where the transformations of matter were essential. Many of these technologies thrive in the industrial and postindustrial period. Yet the millennial change looming in this decade will be rooted in technologies that transform information and cognition. With all of the assumptions of progress that have haunted Western culture, VR has emerged from the military-entertainment complex, a fact that cannot be overlooked. While the development of technology, particularly through the 19th century, was increasingly concerned with vision, the transformative technologies of industry maintained a functional purpose that formed the unfortunate groundwork for the concept of progress hinged on efficient methods of consumption within a culture of industrial production. Technology was not conceptualized within any coherent discourse of social change or the human impact of ontological and epistemological change it generated. An historical account of the visual technologies, beginning with photography and extending through film, television, video, and digital media, would be a massive project. Yet its is obvious that the assimilation of technologies of the visual have set a persuasive epistemological model into place. The notion of "visual truth" (see William J. Mitchell's The Reconfigured Eye) has been exposed as a fallacy at the same time that it has assumed an ever-greater instantaneous power. "Images," said Paul Virilio, "have become munitions."

Information technologies demand a reconfigured model of social change. Technology has reached a stage in which its effects can be processed in a system of feedback. The technologies that emerge from this are those we think of as immersive. This transformative aspect of technology, in which there is a shift from media that 'enframe' to technologies that immerse, is the most disruptive and most challenging dimension of the shift from the triumph of machines to the biologizing of technology. "Can these technologies," asks Donna Haraway, "be prosthetic devices for building connections?. Can these technologies be part of producing social agencies in first-world cultures that are less imperializing?" "My hope," is "that the power, the visual and sensory power of the technology, can be a way of dramatizing the relativity of our place in the world, and not the illusions of total power."

Molecular machinery, direct cortical connections, neuroelectric implants, phased array laser inputs, gene therapy, atomic imaging, forced feedback, molecular electronics, etc., are signifiers of a language of industrial technology and of the transformation of the body and of epistemology. But the transformation will take place first in the modeling of a cybernetic, interactive order. The fascinating aspect of this is that innovation is emerging from the merging of the entertainment and scientific visualization industries. For all the scientific potential of the use of the computer, the radical innovation is coming from image industries ready to enact interactive television, interactive books, interactive news, and interactive images (I recently heard Bill Clinton described as the "interactive President"). If images are to become increasingly interactive, then a theory of representation must be evolved to account for the transaction provoked by discursive participation. Intention will become reciprocal. While this endangers the authorial position of the producer, it simultaneously must account for an audience willing to investigate the space of electronic expression. In a culture in which accelerated images constitute experience, the immediate becomes compressed and volatile. How this will reshape subjectivity without recapitulating essentialist characterizations will demand powerful resistance to the exaggerations of a post-gender or post-identity culture. After all, it is not data that substantiates, or constitutes the self, it is language and interpretation. The role of vision in interactivity has been rightly emphasized as central. Images have never contained the potential to sustain so much information, or, perhaps, meaning. At the same time, images have never contained so much fascinating disinformation. Weaving between the two, subjectivity must distinguish not between fact and fiction but between communication and discourse. Interactivity, as both a theory of production and experience, is emerging as the essential discourse of form and content.

"Sociomedia" signifies that when we design computer media we are hardwiring a mechanism for the social construction of knowledge," writes Edward Barrett in Sociomedia: Multimedia, Hypermedia and the Social Construction of Knowledge. The anthology presents the papers of the 1991 MIT symposium, "The Social Construction of Knowledge." The institutionalization of hypermedia as a pedagogical form will focus interest on education as a "virtual realm," a "hypercontext," a "virtual presence." Yet the models elaborated in the essays, though structured around the idea of the usefulness of hypermedia, replicate ideas of rote communication. Creative discursive interactions rely not on the networked ability to comment on others, but to situate oneself within a dialectic, not just a cause and effect model. A model of interactivity will have to include an assessment of the fragmentation of knowledge, a reformulated concept of identity within discourse as well as the creation of media

to manage information dispersal, and a refigured model for access and distribution. Hypermedia cannot become a form of electronic democracy unless it is ubiquitous.

Images are increasingly perceived as "knowledge". Scientific visualization is achieving a revitalized status at the same time that the privatization of the image market drives visualization out of the research labs of NASA or the Air Force and into the entertainment industry. The convergence of cable, fiber optics, broadcast television, networked communication, the reinvention of the telephone system as an information circulatory system, the funding of the digital highway, the demilitarization of DARPA and Internet, and revitalized imaging models, to suggest a few, presents a scenario for the "textualization" of the smart machine (Shoshana Zuboff). But more than "smart," the machine will become assimilated in ways that need serious consideration.

Complicating this developing area are re-emerging relationships between text, image, and sound that cannot be articulated as linear or absolute. The relativistic potential for text/image/sound suggests a form of multivalent montage. Unhinged from the narratives of modernity, the combinations of these differing forms of expression are liberated from normative functions and are presented as potential. The consequence of this unsettled state of electronic visualization is the equivocal image. Legitimated by the perceptual models of photography and television and by the computed algorithms of perception, the electronic image vacillates between actuality and hypothesis. And while the issues of the photograph form a significant foundation for the understanding of images, the splintering of the ontological substance of the image is both welcomed and entangled in the intricate relationship between the legitimation of the subject of the image and the representation of the intention of the producer. So much of the status of the photograph was predicated on its necessary link with a concept of the "real" that it has been discredited. Instead of an ontological relationship, the image emerging in 'postphotography' is more reasonably positioned as epistemological and simultaneously 'distributed' or perhaps dispersed.

Technoculture's spectacle is that of distributed thinking, distributed identity, distributed text, and distributed processing. In the many metaphors that are emerging, the fragmentation of

form and the prioritizing of content is one of the most interesting. Hypermedia and interactivity present a range of solutions that reside within the machine and do not confront the issue of technology as a material force. Its physical insubstantiality though cannot be mistaken for a lack of meaning. What emerges in installation, environmental, and immersion technologies is the constitution of experiential space. From education to robotics, the transformation of knowledge is occurring. Seymour Papert, director of the Epistemology and Learning Group at the MIT Media Lab, sees "no technical obstacle to creating a "knowledge machine" that allows navigation through a virtual knowledge space." (Obsolete Skill Set: The 3 Rs). Non-linear principles of form, in fact, are the measure of a culture accustomed to fragmentation and montage. Information in this environment comes as an array rather than as a sequence. Knowledge as sampling, experience as intentional, communication as transactional, hyper, and access on demand—these are some of the terms of technoculture, a culture of "nomadic madness" (as Jacques Attali calls it).

"If the social machine manufactures representations, it also manufactures itself from representations. Decentered, in panic, thrown into confusion by all this new magic of the visible, the human eye finds itself affected with a series of limits and doubts. The mechanical eye, the photographic lens, while it intrigues and fascinates, functions also as a guarantor of the identity of the visible with the normality of vision." (Jean-Louis Comolli, "Machines of the Visible") This remark about what Comolli identifies as "the frenzy of the visible," referred to the second half of the 19th century. But while the essentials are comparable, the culture of Modernity in which the mechanization of vision evolved has been surpassed. The mechanical has been usurped by the technological. Images can no longer guarantee the legitimacy of the "normality" of seeing. The "frenzy of the visible" might be adapted to read "the frenzy of the virtual." But even considering the efficacy of representational issues, a structural difference exists between the panoptic authority of modernity and the transoptic discourses of postmodernity. The privileging of vision in modernism as revelatory has been outdistanced by the practices of deconstruction as participatory.

Without the lingering metaphors of escapism and rationalization, an art can emerge that is no

longer self-reflexive and autonomous, an art that is deeply transformative in its ability to alter the terms of interaction. Creativity and technology might emerge on equal footing, but what will drive this field forward is a commitment to content based ideas. Jim Pomeroy, an artist of enormous scope, wrote in one of his last essays before his death in 1992:

"Technological art is even less likely to fulfill the aesthetes' divine regard for "timeless" art, since a good deal of the art produced with advanced tools can become obsolete quite quickly. Intelligent and accessible applications take a back seat to ever fresher tributes to corporate mystification on the part of commercial illustrator/programmers. In contrast to the remote, exclusive aura of tasteful connisseurship, techno-art is usually directly engaging and context specific. While over performing the roles of Recognition, Simulation, Containment, Inversion, Projection, Estrangement, and Identification, techno-artists have long been busy building up their own store of technical knowledge necessary for survival."

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