

Projection and Dis/embodiment: Genealogies of the Virtual

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"Now I address a matter of great import
For our inquiries, and I show that there
Exist what we call images of things,
Which as it were peeled off from the surfaces
Of objects, fly this way and that through the air;
These same, encountering us in wakeful hours,
Terrify our minds, and also in sleep, as when
We see strange shapes and phantoms of the dead
Which often as in slumber sunk we lay
Have roused us in horror; lest perchance we think
That spirits escape from Acheron, or ghosts
Flit among the living, or that after death
Something of us remains when once the body
And mind alike together have been destroyed,
And each to its primal atoms has dissolved. . . .

I say therefore that likenesses or thin shapes
Are sent out from the surfaces of things
Which we must call as it were their films or bark
Because the image bears the look and shape
Of the body from which it came, as it floats in the air."

—T. Lucretius Carus, *De rerum natura*¹

It is as if Lucretius were describing a dream, one that coincides, upon waking, with the world; a speculative dream through which resonance one reimagines the world, so that we may act as if we are still dreaming, bringing the world into a dream. It is an apt description of the cinema, for a similar oneiric disposition is embedded in its history and its practices, so that one may well consider the cinema a waking dream, one that continues to haunt or possess us, even as we might possess and consume it. Jacques Derrida, in "La danse des fantômes," reminds us of the long history of spectrality inhabiting this medium: "When the very *first* perception of an image is linked to a structure of reproduction, then we are dealing with the realm of phantoms."²

Imagining *Things*

Inasmuch as it shares certain characteristics with the dream, cinema engages us in the image of the world,³ and we react almost as if what is represented resides before us. Our hearts may race, our breath becomes rapid and shallow, hair standing on end, uncontrollable spasms of laughter, all in response to the play of shadows and light. Optical devices, says Gaston Bachelard, provide us images to dream with, and cinema's flickering sensibilia constitute perhaps the most replete and consuming instance of an interface for dreaming. Still, we are less unwitting spectators than willing collaborators in this "artificial dream," and we have retained and refined the capacity to pinch ourselves awake. It is this, our ability to invest in the phantasy of projections—somatically, sensorially, conceptually—in conjunction with our commensurate ability to apprehend and partake in them at the same time as spectacle, that forms the contours of a complex prosthetic relation between sense, memory, and technical mediations. Technologies and bodies commingle in this configuration, and there exist substrates, underlying material conditions of reproduction and perception common to all projective phenomena, even to our apprehension of shadows cast on the wall of a cave, even to dreams. Certain of these substrates, in the form of (cinematic) tropes having to do with pretense and recognition, the passage of time, and the presence and absence of phenomena, persist throughout the history of recording media, residing in unconscious memory. They are the active, potential, and mutable preconditions of mediated experience, the *habitus* through which we form a primary interface with technological reproductions of the real.

"Our organs are no longer instruments; on the contrary, our instruments are detachable organs. Space is no longer what it was in the *Dioptric*, a network of relations between objects such as would be seen by a witness to my vision or by a geometer looking over it and reconstructing it from outside. It is, rather, a space reckoned starting from me as the zero point or degree zero of spatiality. I do not see it according to its exterior envelope; I live it from the inside; I am immersed in it. After all, the world is around me, not in front of me."

—Maurice Merleau-Ponty, "Eye and Mind"⁴

There are certain preconceptions involved in the linking of the body to a register of instrumentation. These are, to use a phenomenological model, the inevitable "pre-understandings" of the world via the *forms* in which experience is given. The body's senses do not encounter the world except in a culturally prepared subject (ourselves). Sensory phenomena are interpreted by analogy or metaphor in relation to our own somatic memory: a microscopic view of the body is described as a "landscape," individual hairs are like "the trunks of giant trees," atoms are modeled as "miniature solar systems," and molecules are constructed in tinker-toy fashion. Such descriptions situate things in relation to the subjective and collective lived experience of the body's contact with the world. Strange microscopic things may appear charged with meaningful associations deriving from sensations of bodily proximity and familiarity, modified by conventional ways of reading, as we, inscribing ourselves into a relationship with things that are almost familiar, take possession of the image. In much the same way, notions of inference and continuity, succession and consequence derive from the body's physical/cognitive disposition in the everyday environment. We do not encounter the world *except* as already embodied and culturally

embedded. Moreover, the body's perception of itself also constitutes a *psychic substrate*, and the unconscious somatic memory that organizes lived experience is, itself, modified by specific technologies. These form still other, *technical, substrates* of unconscious memory. Optical devices, for instance, alter the experienced scale of an observer's body, while at the same time changing the apparent *place* of that transformation, affecting our ideas of spatiality and temporality, causing us to perceive things as closer, or larger, or more similar, in relation to our own perceived bodies. Perception, linked to technological instruments, stubbornly apprehends different phenomena according to the most familiar tropes, habitual conventions of pictorial representation, and fundamental intuitions of the body.

The history of scientific experimentation provides us with a number of examples of the relations between instruments and the imagination. Galileo, for instance, considered the human eye as an optical instrument, although he considered it to be far from ideal. He recognized that the eye is not an immediate source of information about nature, but that one's conception of the physical world is dependent on the means—instruments—used to study it. At the same time, he also had to persuade his contemporaries that the information provided by his telescope was not a *distortion*, and that the depictions of phenomena produced by his apparatus were not artificial aberrations, but natural extensions of the body's senses into the world via instruments. Such supplements to vision as telescopes, microscopes, and photographic apparatuses are organized according to tacit conceptions wherein somatic inscriptions—of the body's sensorium into instruments, and of prosthetic perceptions into the body—become naturalized.

"Machines for seeing modify perception."

—Paul Virilio⁵

It is clear that there is an unavoidable perceptual bias in our relation to the instruments we devise. For example, our senses register stimuli in logarithmic, not linear, increments, so that the systems and tools we employ—the acoustic decibel scale, the seismic scale for measuring earthquake severity, the magnitude scale for stellar brightness—are also logarithmic, in part because they reflect our propensity to perceive the world in that way. Other scales and types of detectors may increase the range of human senses—into the infrared register, for example—but they also translate data back into familiar forms and intuitions. The difference between the optics of the eye and of the camera is both marked *and* subsumed as it is naturalized. "The camera," Walter Benjamin writes, "introduces us to unconscious optics as does psychoanalysis to unconscious impulses."⁶ The substrates of unconscious memory, technical or somatic, support an economy of translations between perceptions and instruments, such that "prosthetic" perceptions occupy the same cognitive space as bodily sensations.

There are memoirs and personal accounts in the development of the electron microscope in the mid-twentieth century that sound eerily close to phenomenological descriptions of embodiment. For these scientists the microscope became, within limits, an extension of the operator in his or her interactions with the minuscule. The microscope became a prosthetic sense-organ, and microscopists were among the earliest cyborgs. And, since almost all of the U.S. electron microscopists in the 1940s and 1950s used the same instruments,⁷ there was a remarkable uniformity in their tacit and intimate understandings of their craft. This in turn must

have contributed greatly to the subsequent cohesiveness, even in popular magazine depictions, of their accounts of research into the realms of the unseen. It is an interesting problematic: with optical microscopes resolution is limited by the wavelength of light. Electron microscopes employ a beam of electrons, operating well below the wavelengths of visible light, to form an image of very small objects. In these devices high-energy electrons associated with considerably shorter wavelengths allow far greater resolution. The transmission electron microscope uses a sharply focused electron beam passing through a metallized specimen onto a fluorescent screen, where a visual image—which can be photographed—is formed. The scanning electron microscope forms a perspectival image, although both magnification and resolution are considerably lower. In this type of instrument, a beam of electrons scans a specimen, and those electrons that are reflected (along with any secondary electrons emitted) are collected. This current is then used to modulate a second electron beam in a television monitor, which scans the screen at the same frequency, thereby building up a picture of the specimen.

Electron microscopists, like the general populace, experienced themselves “transported by this instrument to an alien landscape,”⁸ and the habitual conventions of reading “landscapes” came into play in the representation of these invisible topographies by invoking and communicating common bodily experiences and pictorial conventions. The interface of operator/machine/phenomena is modified—tuned—by both physical limitation and cultural presupposition. The intuitive perception of the resulting micrographs as everyday landscapes is further supported by the fact that in order to be reflective, specimens were coated with a thin layer of metal atoms by spraying them from a low angle. Microscopists use the length of the resulting “shadow” (formed where a feature has blocked metal deposition onto the surrounding support) to determine the “height” of that feature, thus casting the electron beam’s “illumination” at “noon,” rather than from the actual direction of metal deposition. In this way the micrograph is constructed in such a familiar manner that it does not intrude on one’s intuitive perception of the image as a “landscape.”⁹ In the process of refining the scientific apparatus, the observer’s lived experience takes up residence in—is *sutured* into—the machine, such that one “dwells” in the instrument, in a continuum of decreasing consciousness and increasing familiarity, consequently moving from alterity to embodiment.¹⁰

Cinema, one might say, is just such a lived technology. In the interface of architecture, technology, perception, and habit, we spectators are intimately inscribed into the mediated imaginary, taking up residence—for a moment—within a phantasmatic technology. Here we are an element of the dream, linked to a specular machinery where unconscious behavior, modifying and modified by the instrument, interactively constructs our experience. In the long history of projective environments—from Ibn al-Haytham to Leonardo da Vinci, Athanasius Kircher to E.G. Robertson, Thomas Edison and the Lumière brothers to today’s cineplexes, home entertainment systems, and virtual realities—the body persists as a common and inextricable component of the apparatus, and familiar everyday perceptions are linked to a history of cinematic artifacts and behaviors in diverse, complex ways, so much so that even our recognition of their artifice is a culturally mediated form.

“... if there is neither machine nor text without psychical origin, there is no domain of the psychic without text.”

—Jacques Derrida, “Freud and the Scene of Writing”¹¹

Nor, one might add to complete the symmetry, without *machine*.¹² Derrida's implication of the relationship between unconscious memory and historically specific machine-metaphors reproblematises issues of subjectivity and spectatorship relative to questions of ontology, technical reproduction, and virtuality. If unconscious memory is coextensive with, and inextricable from, the various "technical substrates" given to it with historically specific technologies, then a complex series of problems concerning specularity, interactivity, and mediation are rendered salient, and psychoanalysis and critical theories acquire another set of tasks. That certain of these technical substrates are more closely aligned with, and even derive from, projective environments such as cinema, television, computers, telecommunications systems, and the Internet is an issue to be seriously considered in any analysis of contemporary media. What might the role of such psychic/technical substrates be within a more singular, reflexive, and critical model of media, such as was articulated in certain projective/interactive installations of the early 1970s? While these works were enormously important and influential, they were also transient, localized, and somewhat marginal to the generalized interior technical unconscious of popular media. Yet at the same time they were permeated by it, and a good deal of their critical impetus was directed toward a tacit "auto-deconstruction" of the canonical discourses/categories of objects and subjects, references, representations, and institutions. These early seminal works dissolved traditional boundaries of territory and the body, transforming architectures into relays, passive reception into active engagement, data into interaction and connectivity, in a diffused topology that laid the initial traces of today's digital mediascape. It might be useful to examine some of the possible sites/origins of this transformation and to look at some of the cinematic substrates of unconscious memory that still continue to suffuse, constrain, and shape the contours of our perception and apprehension.¹³

"... only a movie"

"Those optical metaphors through which the gaze manifests itself most emphatically at a given moment of time will always be those which are most technologically, psychically, discursively, economically, politically and culturally overdetermined and specified. However . . . each of those metaphors will also articulate the field of visual relations according to the representational logic of a specific apparatus."

—Kaja Silverman, "What Is a Camera? or, History in the Field of Vision"¹⁴

What happens when we go to the movies? There is a tacit engagement with all of the elements of cinematic technology, its architectures, its history, its articulations of subjectivity, our own body's directed perception and history of apprehension. The physical space, ambient light, projection apparatus, and bodily disposition together already constitute an *interface*. We don't have to learn a new grammar every time we go to the movies. We interact with the one that is already there, pretty much the same one that pervades subsequent media. "The meaning of a camera," Silverman notes, is "both extrinsic and intrinsic," a consequence of its placement within a larger social and historical field and of a particular representational logic, a logic already inscribed—as an oedipal logic of narrativity, for example—in "spectatorship."¹⁵ In the movies, the difference between oneself and a projected "character" with which one identifies or interacts does not hinder the fantasy of involvement. Rather, it is

naturalized. While we may never entirely forget this difference, it continues to circulate as an element of what one might call a technological unconscious, so that, under certain circumstances, our relation to these shadows as shadows is recuperable, not by opposing what is present to its representation (or to its referent), or by opposing effect to simulation, but in the recognition of the temporal *aporia* by which these categories are *alreadyspectral*, as when we suddenly recover ourselves in that startling moment when the phantasmatic is no longer sustainable, or it simply ends.¹⁶ And even though it might come back to haunt our memory, and we may not be entirely free of it, still we pinch ourselves into the recollection that, for all this, *it is only a movie*. The space of the dream, of technical reproducibility, and of lived experience coincide as both coextensive and permeable, and we inhabit them all.¹⁷ What we are, when we walk into a movie or turn on a television, is already virtual.

Installation as Interface

In many installation works of the late 1960s and early 1970s, the architecture of projective environments enters into an ongoing critical discourse on the nature of the museum, the archive, the institution, and of the art work itself. Installations, which became a territorialization of the museum space, were simultaneously an inquiry into the ontological and cultural status of art production, interpretation, and works. This territorialization took many diverse forms: simulation, critique, appropriation, dematerialization/deconstruction, tactics of direct address, performative display, or interaction. Some works tacitly reproduced the museum's architecture as their own, or co-opted it, or some aspect of it; some effected an insular relation to the exhibition space; some contaminated it; some presumed it to reside solely within the purview of an audience; some blurred the distinctions between public and private. In each there are specific protocols and types of interactions that the works produce, critique, or require of a viewer, and many of these works depend on—or tamper with—established and unconscious traditions of (cinematic) spectatorship. Moreover, many of these works came about in close proximity to the interrogations of the art object that took place within the framework of Minimalism and Conceptualism, and in relation to discourses on technology and the avant-garde being addressed in the art world at that time. While there was often an uneasy or problematic relation between theoretical, political, aesthetic, and phenomenological approaches to the making of artifacts, there were also marked affinities. Reflection on the material conditions of the basic projective apparatus formed a fertile ground for the development of an important body of works where crucial questions—of a semiotics of media, theories of subjection and resistance, technical reproducibility, communications infrastructures, simulation, truth, mediation, and aesthetics—were shaped and exposed in novel ways. Media installations formed a permeable membrane, a demarcation between species of projective and interactive technologies, circumscribing technology and perception, and constituting a mediating instance between the architectures of the museum, gallery, movie theater, and public concourse, with their respective histories, desires, and dreams. They are, in short, an *interface*.¹⁸

What I would like to suggest is that many of the projective/interactive installations that developed during the period operated as a reflexive critique of certain institutions—the museum, galleries, cinema, television—and certain models of subjectivity in relation to contemporary philosophical and critical concerns (one might

even say “anxieties”). These works/spaces performed an important series of translations between the somewhat circumscribed and insular context of the art world and a global field of increasing mediation. Installations were reterritorialized spaces, simulating, co-opting, or contaminating the museum or theater, tampering with private spaces and public places, in order to confront or destabilize conventional positionings of art and its audience. They were reflexive interrogations of the status of all sorts of objects, subjects, materials, language, and cognition, and the discourses and institutions that authorized and guaranteed forms of perception and interpretation. One irreducible “hinge” on which these works turned was the *body*, and its disposition as both subject and object made of it, too, a form of *interface*.

“A surface lying between two portions of matter or space, and forming their common boundary.”

—*Oxford English Dictionary*, p. 1462

The *OED* dispatches this definition of *interface* with uncharacteristic brevity. Perhaps it is because the term, which came into English usage in the early 1880s, is one of unparalleled ambiguity, apt to be employed as a verb, adjective, or noun, in a remarkable array of circumstances, with an equally diverse range of often conflicting connotations. The most common notion of an *interface* is as the visual representation, on a computer’s screen, of its operating system and applications, with the secondary connotation that it is by way of the interface that human users interact with the computer. To this we might add that the term has come to bear certain abstract or conceptual connotations as well. And, since the interface is a surface—physical and/or conceptual—where two or more (biological and technological) entities meet, the term has also acquired a general sense in which it connotes a connection, hierarchy, or relationship of some sort, between or among diverse, heterogenous elements.¹⁹ In this general sense all of the elements of a projective environment—ourselves included—constitute an interface, a common boundary within which sense and reflex, simulation and cognition, history and psyche interact. In the same way that all of the elements—architectural, biological, technological—of cinema, with its histories and practices, constitute an always accessible interface for viewers/users, the critical turn in projective/interactive exhibitions in the 1970s tacitly used many of those same preconditions to make new, reflective and self-referential interfaces through which to extend our critical awareness of the growing mediascape.

The organizing tropes in certain early installation works, especially those substrates grounded in our own historical relation to media, affect how we interact with new species of media, whether commercial, documentary, aesthetic, or experimental. Some of these preconceptions appear as tropes having to do with pretense and recognition, presence and absence, address and deferral of the body. They are tropes that persist throughout the history of recording media, modifying, interacting, and circulating in the culture at large. An interest in the basic preconditions and presuppositions of our engagement with media surfaced in a complex network of addresses and transmissions through which these early projective/interactive works grounded themselves in relation to art, discourse, performance, and public culture. The critical appearance of a kind of reflexive “auto-deconstruction” of media marked these works as different from commercial media forms, as well as from theatrical explorations, Happenings, collage, or kinetic works. Each installation/

projective environment offers a different interface where spectators engage as active/passive operators within a complex, permeable architecture. But these environments are not closed and insular, neither purely analytic, nor aesthetic, nor merely idiosyncratic. They present a variable and plural field for reflexive critical speculations on the nature of technical reproducibility, and on the nature and history of our own deep and subtle relation to images.

By the late 1960s, the notion of (mass) media, as it was theorized in relation to popular cinema and television, was giving way to the recognition of a much more intricate and pervasive field of mediations. Technologies for communicating and storing data had undergone a fundamental shift since the turn of the century. With advances in photography, the introduction of telegraphy, telephony, phonography, cinematography, and television, questions of referentiality and perception were being radically recast. With the development of computers, scientific simulations, and digital coding, information that had hitherto existed as separate modes of communication, in separate fields or channels, could be translated and fused into a common—digital—data-stream. With these emergent technologies, physical effects could be recorded, stored, reproduced, and mixed.²⁰ Projective installations were hybrid technologies, early multimédias, systems of objects and operators, which had begun to explore the extensions of media in an art world context. But at the same time there was an anxiety about things and images in the world, and about the accounts of things and images. Pictures of technological genocide, fear of the Bomb, global surveillance throughout the Cold War, the constant mediated deployments of capital influenced or generated philosophical and ethical discourses about alienation and authenticity, existence and phenomena, structure and deconstruction. There were interesting complicities between phenomenological analyses and Minimalism; Structuralism was oddly mirrored in Conceptual art; Critical Theory operated in the fissures between cultural institutions and aesthetic practices. Reflection on modes of artistic practice entered into critical and theoretical debate in a variety of ways, as praxis, but also as discourse, and as heterogenous admixtures of both. The hitherto discrete boundaries of thinking, acting, techné, and artifact dissolved, as artist and author, spectator and subject—bodies and all—were cast into a dissimulating abyss of mediations.²¹

The development of early projective and interactive spaces coincides with the self-referential inquiries into the nature and status of art objects and critical interrogations of the institutions that authorized and guaranteed forms of perception and interpretation. Questions of materiality, subjectivity, politics, and language formed the terrain, and much of the raw material, for these activities. Installations operated as reterritorialized spaces, simulating, co-opting, or contaminating the museum or the theater, reinventing private spaces or public places, in order to tamper with, question, or problematize conventional interactions between cultural producers, institutions, and consumers. Many projective environments had a critical, deconstructive dimension, reflecting on themselves as media, turning upon their own favored subjects, material conditions, or historical precedents. In this sense, projective environments formed a critical *interface*—a surface of contact and modification—between artists, institutions, spectators, and media technologies. There were also many commercial media environments at the time, such as light shows, or the pyrotechnic stagecraft of the rock music industry, foregrounding and promoting bands and music with all sorts of media closely integrated into multiple distribution systems. Andy Warhol's quasicommercial *Exploding Plastic Inevitable* is

an interesting sort of projective/interactive event in this respect, demarcating a transformation of unconscious presuppositions into intentional appropriation. Works that operated within or upon the space of the museum or gallery dissolved traditional boundaries of technology and discourse, bodies and architectures, puncturing the exhibition site, insinuating themselves into cultural institutions as another kind of interface, another semipermeable membrane between our engagements with naturalized (popular) media, and aesthetic/cultural discourses. These works *deconstructed*—de-structured—the relation of lived bodily experience to the habitual accommodations and presuppositions of media, rendering our comfortable, unconscious consumption of mediated pleasures, and the technologies that produce such specular pleasures, a site for critical, theoretical, ethical, and physical interrogation and confrontation.

“Deconstruction interrupts, throws out of gear, the derivations between first philosophy and practical philosophy.”

—Reiner Schürmann, *Le principe d'anarchie*²²

This is a very useful description of deconstruction. What is meant here by first philosophy is an ontology, that which provides a foundational or legitimating discipline in relation to the corpus or system of specialized disciplines. A foundation, or *principle*, is something held to be self-evident, inviolable, absolute, and true, so that a series of practices, institutions, legislations, or concrete acts may be grounded in it and derive their legitimacy from it. Here is an example: under the basic principle that human beings are *unequal*, and therefore do not have equal rights, a whole series of laws, oppressions, practices, and institutions were founded and organized under the name apartheid. Deconstruction, by tampering with the political derivations of this principle, reveals that the principle of racial inequality is not at all absolute, true, or beyond question, but rather that its practices came about within precise and discrete historical processes, served specific interests, and therefore cannot rest on absolute and inviolable true principles, but must *fall* under critical and ethical scrutiny. Our relationship to media technologies rests on a similar sort of grounding; and the legitimation, and its exercise, interpretation, or consumption, rests on tacit, unconscious preconceptions. Early projective/interactive works, presented within a museum context, began an important process of “auto-deconstruction” of the legitimations of technology, within ourselves and in our relation to subsequent media. The ongoing debates in contemporary discussions of media theory, Net-subjectivities, virtuality, connectivity, and globalization had a concrete origin in the media environments, performances, and discourses shaped in the 1960s and 1970s.

Our involvement with media has a complex and concrete history, and the specific technological and psychic substrates through which we integrate our bodies and cognitions into a prosthetic machinery of desire constitute a ready interface. In early projective/interactive installations, the breakdown of the tacit interface of cinema—of its specific architecture of machinery and light, of our posture and disposition as we sit, facing forward in the dark, attentive to a screen of projected images—forced a recognition of our complicities as passive spectators actively engaged in the construction of a sensory space where our investments of fantasy, belief, and desire take place in spectacle. These dispositions of the spectator are inscribed into projective environments, so that even at its most (inter)active an *audience* is always

generalized and potential, and an always replaceable conditional element of the cinematic apparatus. The audience is already *virtual*, even—especially—when the forms of address and persuasion that operate within media address us as if we are *there*, always, already the subject of interaction.

Fiction and illusion, presence and absence, staged or real, the flatness or spatiality of projective environments, pretense, repression, desire, notions of permanence and the ethereal, somatic reflex, desire, originary event/technical reproducibility: these are tropes common to all visual/aural recording devices. The recognition and interpretation of these tropes became increasingly important for the reflexive deconstruction of the cinematic apparatus/architecture that was to take place within the public sphere of the museum, gallery, theater, and cinema in the late 1960s and 1970s. Referencing cinema and media, or at least some of its unconscious armatures, these projective/interactive environments brought certain conditions of media into strong relief and introduced a critique of some of the principles by which we still figure ourselves within contemporary digital media.

Again and again, the promissory structure of a Deleuzian “pure repetition,” occluded by its own constant iterations, punctuates the spaces of media, modeling the play between phenomenal and epiphenomenal that structures the work.²³ The idea of deictic extension—of the body into space, over time, into other spaces, over generations—and deferral of the body has been a constant variable in media. In the resulting *méconnaissance*, the body is seen arrested for a moment, everything is uncovered, *mise-en-scène* shifts into *mise-en-abîme* and we aren’t even ourselves anymore.²⁴ Somehow we have again become the performers, in real time, of a telecommunication oppositional to its myth of the past, to delay, and to the actuality of the present, an “optical switching of the *real* and the *figurative* that refers back to the observer physically present here and now, sole persistence of an illusion in which the body of the witness becomes the unique element of stability in a virtualized environment.”²⁵

Notes

1. This translation is from Lucretius, *On the Nature of the Universe: A New Verse Translation by Sir Ronald Melville* (Oxford: The Clarendon Press, 1997), pp. 102–03, lines 28–52.

2. Jacques Derrida with Mark Lewis and Andrew Payne, “La danse des fantômes: Entrevue avec Jacques Derrida”/“Ghost Dance: An Interview with Jacques Derrida,” in *Public 2: The Lunatic of One Idea* (1989), p. 61.

3. See Martin Heidegger, “The Age of the World Picture,” in *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York: Harper and Row, 1977).

4. Maurice Merleau-Ponty, “Eye and Mind,” in Merleau-Ponty, *The Primacy of Perception, and Other Essays on Phenomenological Psychology, the Philosophy of Art, History, and Politics*, ed. James M. Edie (Chicago: Northwestern University Press, 1964), p. 178. The *Dioptric* is a treatise written by René Descartes in 1637, presenting his scientific findings and speculations on optics, the senses, and related matters. It is preceded by the *Discourse on Method*. See René Descartes, *Discours de la méthode, plus la dioptrique, les météores et la géométrie*, ed. Jean-Robert Armogathe and Vincent Carraud (Paris: Librairie Arthème Fayard/Corpus des oeuvres de philosophie en langue française, 1986).

5. Paul Virilio, conversation with the author. See idem, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller (London: Verso Books, 1989).

6. Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in Benjamin, *Illuminations: Essays and Reflections*, ed. and introd. Hannah Arendt, trans. Harry Zohn (New York: Harcourt, Brace and World, 1968), p. 239.

7. See Nicolas Rasmussen, *Picture Control: The Electron Microscope and the Transformation of Biology in America, 1940–1960* (Stanford, California: Stanford University Press, 1997). For a brilliant and sustained exploration of the place of the body as both a mode and an object of perception, see Susan Stewart, *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* (Baltimore: The Johns Hopkins University Press, 1984).

8. Rasmussen, *Picture Control*, p. 232.

9. Ibid.

10. These early microscopists were apparently not unfamiliar with the European phenomenological tradition, and the notion of “dwelling” here may be given a distinctly

Heideggerian inflection. The continuum of decreasing consciousness to greater familiarity maps a certain form of amnesia coextensive with technical artifacts. One treats an interface, network, or circuit as if it is the thing one is directly manipulating; and patterns of connectivity, habit, and artifice fade into the background. From turning out a light to playing the latest video game, there is a metaleptic conflation of interface and event in our perceptual horizon.

11. Jacques Derrida, “Freud and the Scene of Writing,” in Derrida, *Writing and Difference*, trans. Alan Bass (Chicago: University of Chicago Press, 1978), p. 199.

12. See Sigmund Freud, “Note on the Mystic Writing-Pad” (1925), in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 19, trans. James Strachey (London: The Hogarth Press and Institute of Psycho-Analysis, 1959). One might paraphrase Derrida and ask: what must the psyche be, if it can be represented by a machine? Freud’s initial appreciation and ultimate dissatisfaction with the *Wunderblock* as a concrete metaphor for the unconscious is a well-known matter of record. Derrida notes Freud’s initial interest in an “optical machine” (camera) before employing the *Wunderblok* as a metaphor for the unconscious. Derrida’s ruminations about other forms of archival machinery as a potentially more appropriate metaphor is taken up in *Archive Fever* (Chicago: University of Chicago Press, 1996). See also Patricia Ticineto Clough, *Autoaffection: Unconscious Thought in the Age of Teletechnology* (Minneapolis: University of Minnesota Press, 2000), for a superb and thorough discussion of “technical substrates.” Clough similarly suggests that “it is hard not to think that television is a writing machine with a picture.”

13. In the original long version of this essay, there is an extensive analysis and discussion of the tropes, tactics, and technics of the projective/interactive environments in this exhibition. A series of multiple trajectories, relative to the notion of the projective environment as a variable and interactive sur/face—inter/face—are traced through the works of Robert Whitman, Bruce Nauman, Dennis Oppenheim, Anthony McCall, Dan Graham, Peter Campus, Andy Warhol, Michael Snow, Yoko Ono, William Anastasi, Vito Acconci, Joan Jonas, Robert Morris, Simone Forti, Beryl Korot, Mary Lucier, Paul Sharits, and Keith Sonnier. And the relation of contemporary artists from both media and art world contexts, such as Harun

Farocki, Jürgen Reble, Martin Arnold, Gary Hill, Bill Viola, Judith Barry, Chantal Akerman, Leslie Thornton, and Trinh T. Minh-ha, to these earlier works is examined in detail.

14. See Kaja Silverman, "What Is a Camera? or, History in the Field of Vision," *Discourse*, 15 (1993), pp. 11–12.

15. Ibid.

16. In 1895, when Auguste and Louis Lumière presented their new Cinématographe in the basement of the Grand Café at 14, boulevard des Capucines, there was a film of a train speeding directly toward the audience, which caused a great panic and wholesale flight from the theater. This widely cited event is one of cinema's most enduring foundational myths, a sort of primal scene, through which the symptomatology of fantasy became inextricably linked to a modern machinery of desire. In all likelihood, it never happened. Parisians of a certain class and stature, who would have made up the audience for the Cinématographe at the turn of the century, were familiar with all sorts of technical imaging devices—magic lantern shows, the panorama, zoetropes, praxinoscopes, thaumatropes, phenakistascopes—and such spectacles as "animated photographs" would not have been shocking at all.

Another early Lumière film, *Démolition d'un mur* (*Demolition of a Wall*), was repeatedly shown backward and forward, the constant fascination of a wall tumbling down, and then casting itself back in place, unimpeded by the acknowledgment that "it is only a movie." Here it was the display of the apparatus itself that constituted the spectacle, and the film's ostensible content, an ordinary, everyday event transformed by its passage through this clever machinery, was secondary. Tom Gunning (see note 17) points out that in this early "cinema of attraction," the apparatus itself was inscribed into the specular field, and was, in fact, inextricable from spectacle. This "exhibitionist" cinema set itself apart from the "voyeuristic" (or narrative) cinema that was concurrently developing. The demarcations are not precise: both narrative and expository tropes often inhabited the same early films.

17. See Tom Gunning, "The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde," in Thomas Elsaesser with Adam Barker, eds., *Early Cinema: Space, Frame, Narrative* (London: British Film Institute, 1990), pp. 56–62. According to Gunning, the "cinema of attractions" constructs relations with its spectators such that it is willing to rupture the self-enclosed fictional world

required by narrative cinema, spoiling its illusion of reality. The "cinema of attractions" instead displays its visibility, securing a different order of attention in its audiences, employing a series of different strategies, from literally showing the "hidden" workings of the camera by revealing or foregrounding its presence, or locating its presence indirectly, via the responses of subjects or actors who take note of its presence, to using forms of direct address, or apostrophic asides to the audience, as one finds in early comedy. See also David Lindsay, *Madness in the Making: The Triumphant Rise and Untimely Fall of America's Show Inventors* (Tokyo: Kodansha, 1997). This is a fascinating account of the history of spectacular demonstrations of scientific enterprise, underscoring the complicities between science, technology, commercialism, and show business.

18. See John A. Barry, *Technobabble* (Cambridge, Massachusetts: The MIT Press, 1993).

19. Ibid. See also H. Wallace Sinaiko, ed., *Selected Papers on Human Factors in the Design and Use of Control Systems* (New York: Dover Publications, 1961).

20. See Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford, California: Stanford University Press, 1999). Kittler's position combines the poststructuralism of Michel Foucault, Jacques Derrida, and Paul Virilio with Lacanian psychoanalysis and the media theory of Marshall McLuhan and Roy Innis. See also Kittler's *Discourse Networks 1800–1900*, trans. Michael Metteer with Chris Cullens (Stanford, California: Stanford University Press, 1990); *Draculas Vermächtnis: Technischen Schriften* (Leipzig: Reclam Verlag, 1993); *Literature, Media, Information Systems*, ed. John Johnson (Amsterdam: Gordon & Breach, 1997). See also Bernhard Siegert, *Relays: Literature as an Epoch of the Postal System*, trans. Kevin Repp (Stanford, California: Stanford University Press, 1999).

21. One might translate (with some latitude) the term *mise-en-abîme* literally, as a "casting into the abyss," and counterpose that to the more familiar term *mise-en-scène*, translated as "casting into place," to designate the way in which it is used in cinema and stagecraft. A *mise-en-abîme* is an abyssal structure, a hole, blank space, or aporia in representation. A spectator, cast into the abyss of the image, constructs a reflection of the world via the (medium of) the image. This circumscribed domestication of the image within itself is an effect of the interface of

unconscious technological and somatic substrates interacting in a physical/projective environment, such as cinema, or even television. Reflection on this difficult, embedded, often invisible process was an important critical turn accomplished by early media installations. See Lucien Dällenbach, *Le récit spéculaire: Essai sur la mise en abîme* (Paris: Éditions de Seuil, 1977); see also Susan Stewart, *Crimes of Writing: Problems in the Containment of Representation* (Oxford: Oxford University Press, 1991).

22. Reiner Schürmann, *Le principe d'anarchie: Heidegger et la question de l'agir* (Paris: Éditions de Seuil, 1982), p. 11. See also idem, *Heidegger on Being and Acting: From Principles to Anarchy*, trans. Christine-Marie Gros in collaboration with the author (Bloomington: Indiana University Press, 1987), p. 1.

23. See Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (New York:

Columbia University Press, 1994); see also idem, *The Logic of Sense*, trans. Mark Lester with Charles Stivale (New York: Columbia University Press, 1990).

24. A *deictic* term refers to the spatio-temporal context of production of an utterance (and by extension a text or artifact). In literary contexts, words such as "here," "now," "I," "you," "there," and "then," are deictics. I am using the term to designate the active, pluralized spatio-temporal articulations of the interactive, mediated body/consciousness. The term *méconnaissance* comes from the psychoanalytic register, and means literally misrecognition. The play of recognition and misrecognition in media, and in the reflection on media, is pervasive and profound.

25. Paul Virilio, *A Landscape of Events*, trans. Julie Rose (Cambridge, Massachusetts: The MIT Press, 2000), p. 46.